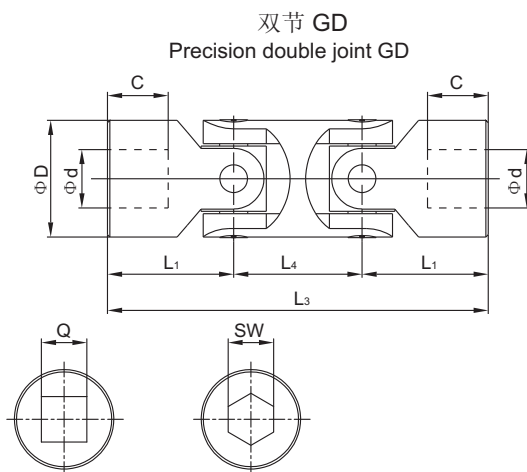
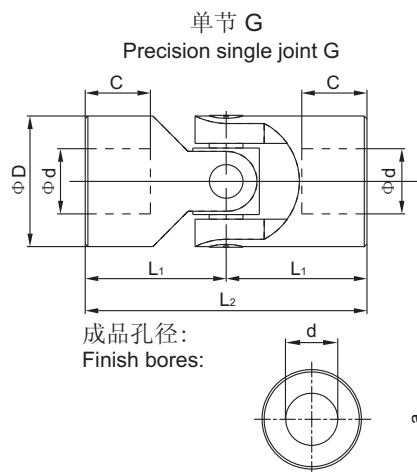


精密万向节 Precision Universal Joints

◇ G型和GD型 Type G and GD



- 适用于各种通用机械的场合，最高转速可达4000min⁻¹
Suitable for every application in the range of general engineering up to a maximum speed of 4000 min⁻¹
- G型为单节，GD型为双节
Type G precision single joint Type GD precision double joint
- 每节最大转动角度为45°
Maximum articulation angle 45° for each joint
- 成品孔公差为H7，另可根据要求，开键槽，六角孔和方孔
Available with finish bore H7 - on request with keyway, hexagon bore or square bore
- G、GD型（滑动轴承）免维护n_{max}=1000min⁻¹
Type G GD (plain bearing) Bearings designed n_{max}= 1000 min⁻¹
- GZ、GDZ型（滚针轴承）免维护n_{max}=4000min⁻¹
Type GZ、GDZ (needle bearing) Bearings designed n_{max}= 4000 min⁻¹



G、GD型带滑动轴承n_{max}=1000min⁻¹
Type G、GD plain bearing n_{max}=1000min⁻¹

GZ、GDZ型带滚针轴承n_{max}=4000min⁻¹
Type GZ、GDZ needle bearing n_{max}=4000min⁻¹

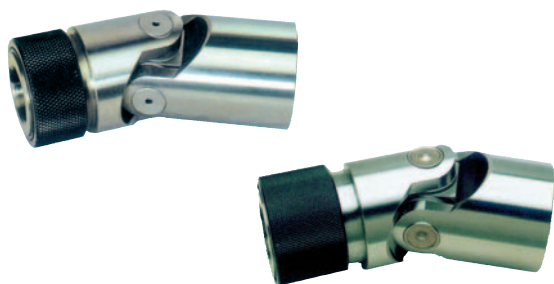
型号及规格 Types and size				d [H7]	D	L2	L1	C	L4	L3	a [JS9]	b	Q [H8]	SW [H8]	重量 Weight	
规格 Size G	DIN标准 DIN description G	规格 Size GD	DIN标准 DIN description GD												G [Kg]	GD [Kg]
01 G	E6 x 16-G	01 GD	D6 x 16-G	6	16	34	17	8	22	56	2	7.0	6	6	0.05	0.08
02 G	E10 x 22-G	02 GD	D10 x 22-G	10	22	48	24	12	26	74	3	11.4	10	10	0.10	0.15
03 G	E12 x 25-G	03 GD	D12 x 25-G	12	25	56	28	13	30	86	4	13.8	12	12	0.16	0.25
04 G	E14 x 28-G	04 GD	D14 x 28-G	14	28	60	30	13	36	96	5	16.3	14	14	0.20	0.40
05 G	E16 x 32-G	05 GD	D16 x 32-G	16	32	68	34	16	36	104	5	18.3	16	16	0.30	0.45
06 G	E18 x 36-G	06 GD	D18 x 36-G	18	36	74	37	17	40	114	6	20.8	18	18	0.45	0.70
07 G	E20 x 42-G	07 GD	D20 x 42-G	20	42	82	41	18	46	128	6	22.8	20	20	0.60	1.00
08 G	E22 x 45-G	08 GD	D22 x 45-G	22	45	95	47.5	22	50	145	6	24.8	22	22	0.95	1.55
09 G	E25 x 50-G	09 GD	D25 x 50-G	25	50	108	54	26	55	163	8	28.3	25	25	1.20	2.00
10 G	E30 x 58-G	10 GD	D30 x 58-G	30	58	122	61	29	68	190	8	33.3	30	30	1.85	2.90
11 G	E35 x 70-G	11 GD	D35 x 70-G	35	70	140	70	35	72	212	10	38.3	-	-	3.15	4.75
12 G	E40 x 80-G	12 GD	D40 x 80-G	40	80	160	80	40	85	245	12	43.3	-	-	4.60	7.20
13 G	E50 x 95-G	13 GD	D50 x 95-G	50	95	190	95	50	100	290	14	53.8	-	-	7.60	12.0

◇ 订货描述示例:

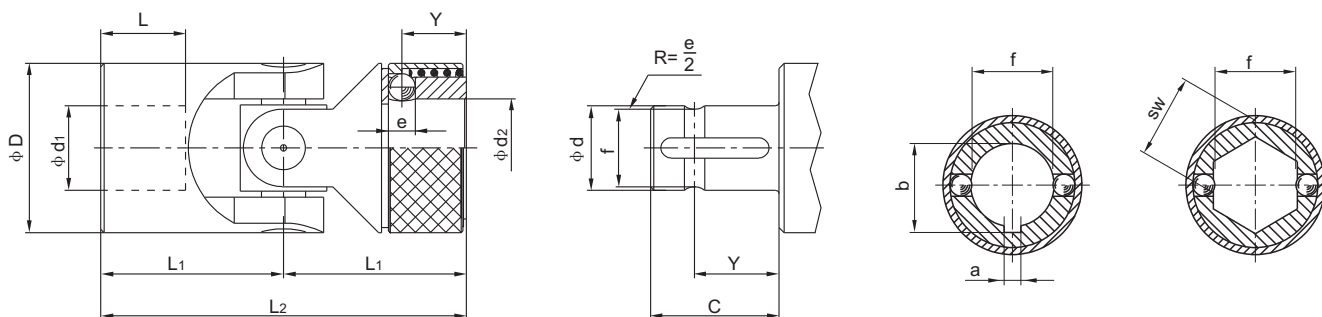
Order form:

03 G	φ 12/ φ 12	φ 12键槽 φ 12keyway
规格与型号 Size/type of joint	成品孔径 Finish bore (H7)	成品孔径(H7)键槽按DIN6885-1(JS9)标准 Finish bore (H7) Keyway to DIN 6885 sheet 1 (Js9)

◇ 快速锁紧
With quick locking
GR型和HR型
Type GR and HR



- 单节万向节带快速锁紧（可脱开）
Precision single joint with quick locking (separable)
- GR型带滑动轴承 $n_{\max} = 1000 \text{ min}^{-1}$
Type GR with plain bearing $n_{\max} = 1000 \text{ min}^{-1}$
- HR型带滚针轴承 $n_{\max} = 4000 \text{ min}^{-1}$
Type HR with needle bearing $n_{\max} = 4000 \text{ min}^{-1}$
- 每节最大转动角度为 45°
Maximum articulation angle 45°
- 所供的快速锁紧装置（ d_2 ）仅有公差为H7的成品孔带DIN6885/1-JS9标准的键槽或六角孔可选
Quick locking (d_2) only available with H7 bore and keyway to DIN 6885 sheet 1 - JS9 or hexagon bore



GR型带滑动轴承 $n_{\max} = 1000 \text{ min}^{-1}$
Type GR with plain bearing $n_{\max} = 1000 \text{ min}^{-1}$

HR型带滚针轴承 $n_{\max} = 4000 \text{ min}^{-1}$
Type HR with needle bearing $n_{\max} = 4000 \text{ min}^{-1}$

规格	Size	d_1, d_2	D	L_2	L_1	C	Y	e	f	a	b	SW
GR	HR	[H7]								[JS9]		[H8]
01 GR	-	8	16	52	26	14	9,5	3,5	7,0	2	9,0	8
02 GR	02 HR	10	22	62	31	17	11,5	4,0	8,7	3	11,0	10
03 GR	03 HR	12	25	74	37	21	13,5	4,0	11,0	4	13,3	12
04 GR	04 HR	16	32	86	43	24	14,0	6,35	14,8	5	17,3	16
05 GR	05 HR	18	36	96	48	28	19,0	8,0	16,0	6	19,8	18
06 GR	06 HR	20	42	108	54	31	19,0	8,0	18,0	6	22,3	20
07 GR	07 HR	22	45	120	60	34	20,5	10,0	20,0	6	24,8	22
08 GR	08 HR	25	50	132	66	38	20,5	10,0	23,0	8	28,3	25
09 GR	09 HR	30	58	166	83	49	25,0	10,0	28,0	8	33,3	30

◇ 订货描述示例:

Order form:

03 GR	$\phi 12$	$\phi 12$ 键槽 $\phi 12$ keyway
规格与型号 Size/type of joint	成品孔径 Finish bore (H7)	成品孔径(H7)键槽按DIN6885-1(JS9)标准 Finish bore (H7) Keyway to DIN 6885 sheet 1 (Js9)

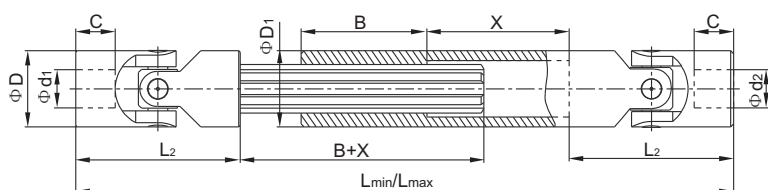
精密万向节 Precision Expanding Joints

◇ GA型和HA型 可伸缩

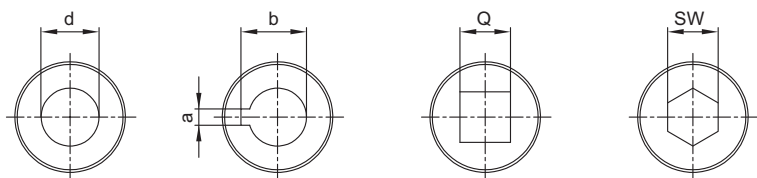
Type GA and HA; extendable



- 每节最大转动角度为45°
Precision double joint - extendable, maximum Articulation angle 45 for each joint
- 连接更大的轴间距
Bridging of bigger shaft distances
- GA型(滑动轴承) $n_{max}=1000min^{-1}$
Type GA (plain bearing) $n_{max}=1000min^{-1}$
- HA型(滚针轴承) $n_{max}=4000min^{-1}$
Type HA (needle bearing) $n_{max}=4000min^{-1}$
- 成品孔公差为H7, 另可根据要求, 开键槽、六角孔和方孔
Available with finish bore H7 - on request with keyway, hexagon bore or square bore



成品孔径:
Finish bores:



规格 Size	尺寸 Lmin/Lmax=标准长度 Dimensions Lmin/Lmax. Standard lengths							
	140	160	180	230	250	280	300	
01	170	200	240	330				
02	160	180	200	220	250	280	300	
	190	225	270	300	355	420	450	
03	170	180	200	220	250	280	300	350
	200	220	260	300	350	420	450	550
04	190	210	240	250	275	300	380	400
	210	250	350	350	390	430	590	630
05	230	250	270	290	300	400	500	
	280	320	370	400	415	620	820	
06	250	270	290	320	380	420	500	
	300	340	380	440	560	640	800	
07	250	270	290	330	350	470		
	280	320	350	430	470	710		
08	295	310	350	380	420	460	500	
	345	375	450	500	590	660	745	
09	330	350	370	400	450	500	540	
	380	420	455	510	620	720	795	

GA型带滑动轴承 $n_{max}=1000min^{-1}$
Type GA plain bearing $n_{max}=1000min^{-1}$

HA型带滚针轴承 $n_{max}=4000min^{-1}$
Type HA needle bearing $n_{max}=4000min^{-1}$

规格 Size		d1d2 [H7]	D	L2	C	Lmin./Lmax./X	B	a [JS9]	b	Q [H8]	SW [H8]	D1
GA	HA											
01 GA	01 HA	10	22	48	12	根据用户要求决定 Lmin /asper Lmax /customers reuest Lmin./Lmax.	30	3	11.4	10	10	22
02 GA	02 HA	12	25	56	13		40	4	13.8	12	12	26
03 GA	03 HA	14	28	60	13		40	5	16.3	14	14	29
04 GA	04 HA	16	32	68	16		40	5	18.3	16	16	32
05 GA	05 HA	18	36	74	17		40	6	20.8	18	18	37
06 GA	06 HA	20	42	82	18		45	6	22.8	20	20	42
07 GA	07 HA	22	45	95	22		50	6	24.8	22	22	47
08 GA	08 HA	24	50	108	26		50	8	28.3	25	25	52
09 GA	09 HA	30	58	122	29		60	8	33.3	30	30	58
10 GA	10 HA	35	70	140	35		70	10	38.3	-	-	70
11 GA	11 HA	40	80	160	40		80	12	43.3	-	-	80
12 GA	12 HA	50	95	190	50		90	14	53.8	-	-	95

◇ 安装长度L和X (行程) 的计算 Calculation of mounting lengths L and X (Stroke)

$$\text{行程} X \leq \frac{L_{max} - 2 \cdot L_2 - B}{2}$$

$$L_{min} \geq \frac{L_{max} + 2 \cdot L_2 + B}{2}$$

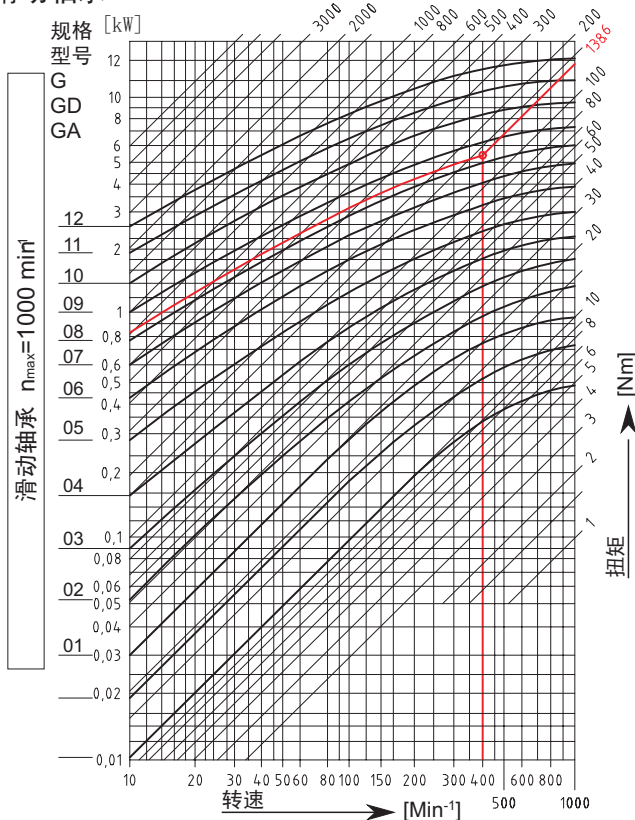
最小尺寸 minimum dimension Lmin
 $L_{min} = L_2 + B + X + L_2$

◇ 订货描述示例:

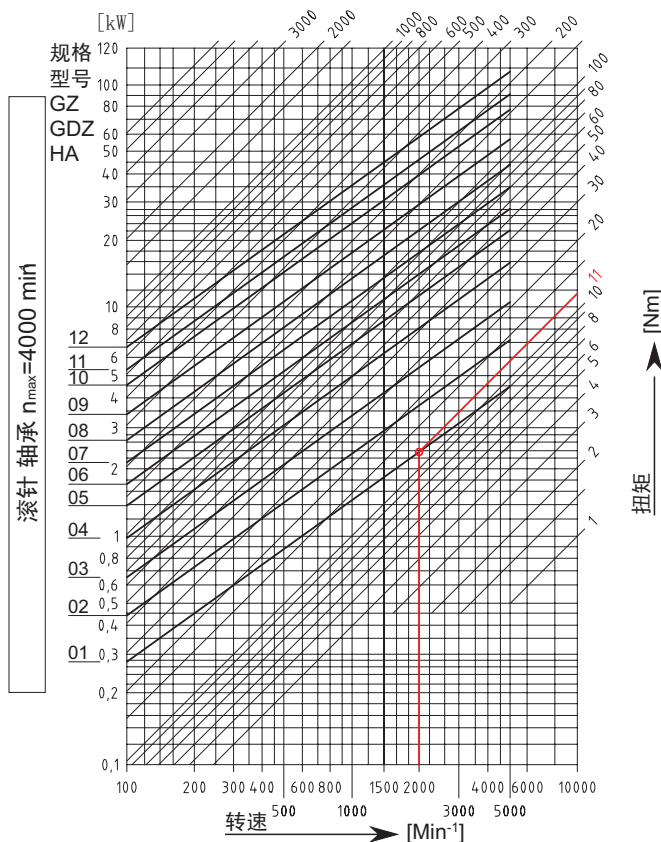
Order form:

06GA	φ 20/ φ 20	550/650	φ 20/ φ 20键槽 φ 20/ φ 20key way
规格与型号 Size/type of joint	成品孔径 Finish bore (H7)	安装长度Lmin/Lmax Mounting length Lmin/Lmax	成品孔径(H7)键槽按DIN6885-1(JS9)标准 Finish bore (H7) Keyway to DIN 6885 sheet 1 (Js9)

◇ 滑动轴承



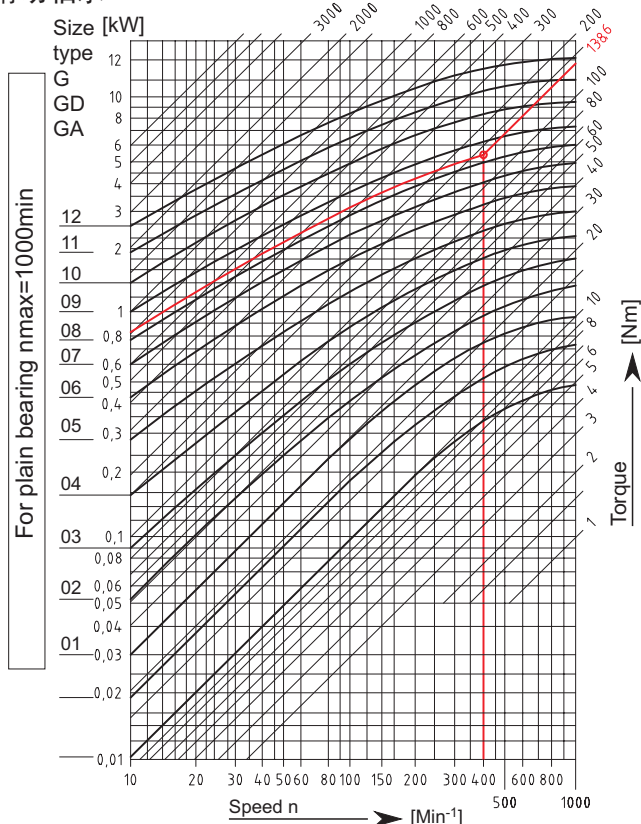
45°	4.0	G, GD, GA, GR型万向节的选择(最大转速1000rpm)									
40°	3.3	滑动轴承万向节的选择是由传动扭矩，转动角度 α 的校正系数及转速决定的。 可伸缩万向节还需考虑总长度和转速									
35°	2.6										
30°	2.2										
25°	1.8										
20°	1.5	扭矩 × 校正系数 = 选型用扭矩									
15°	1.25	选型示例:									
10°	1.00	<table border="1"> <thead> <tr> <th>传动扭矩 Mt[Nm]</th><th>转动角度和 校正系数(α)</th><th>根据图表选 矩型的扭矩</th></tr> </thead> <tbody> <tr> <td>63 Nm</td><td>30°</td><td></td></tr> <tr> <td>63 Nm</td><td>2,2</td><td>63 Nm x 2,2 = 138,6 Nm</td></tr> </tbody> </table>	传动扭矩 Mt[Nm]	转动角度和 校正系数(α)	根据图表选 矩型的扭矩	63 Nm	30°		63 Nm	2,2	63 Nm x 2,2 = 138,6 Nm
传动扭矩 Mt[Nm]	转动角度和 校正系数(α)	根据图表选 矩型的扭矩									
63 Nm	30°										
63 Nm	2,2	63 Nm x 2,2 = 138,6 Nm									
5°	0.8	转速 = 400 min ⁻¹									
转动角度	校正系数	根据传动扭矩 63Nm × 校正系数 (30° = 2,2) = 138,6Nm，转速400min ⁻¹ ，从表中选择相应规格：规格6									
		扭矩 (Nm) = 9550 × $\frac{\text{功率 (KW)}}{\text{转速 (rpm)}}$									



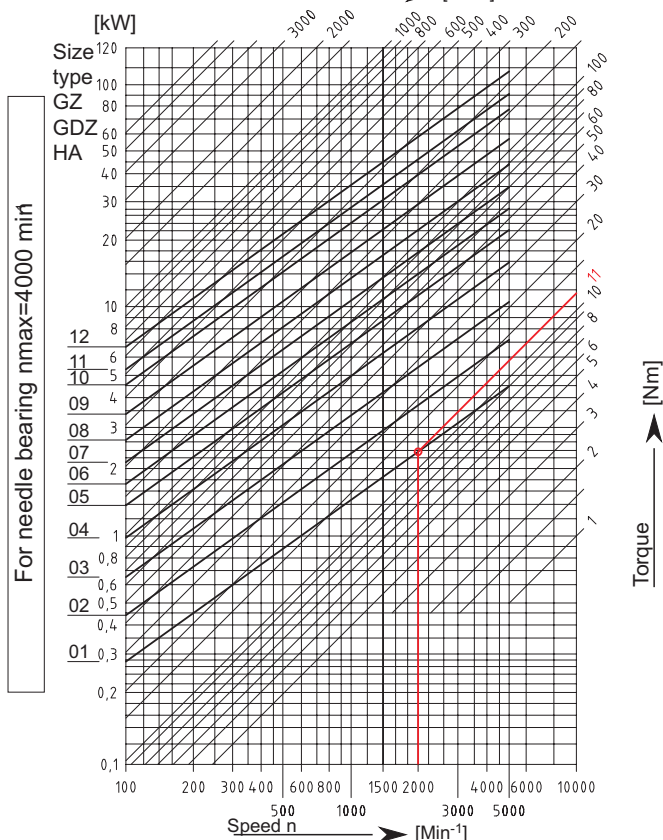
45°	4.0	GZ, GDZ, HA, HR型万向联轴节的选择(最大转速4000rpm)									
40°	3.3	滚针轴承万向节的选择是由传动扭矩，转动角度 α 的校正系数及转速决定的。 可伸缩万向节还需考虑总长度和转速									
35°	2.5										
30°	2.0										
25°	1.4										
20°	1.25	扭矩 × 校正系数 = 选型用扭矩									
15°	1.1	选型示例:									
10°	1.00	<table border="1"> <thead> <tr> <th>传动扭矩 Mt[Nm]</th><th>转动角度和 校正系数(α)</th><th>根据图表选 矩型的扭矩</th></tr> </thead> <tbody> <tr> <td>8.8 Nm</td><td>20°</td><td></td></tr> <tr> <td>8.8 Nm</td><td>1.25</td><td>8.8 Nm x 1.25 = 11 Nm</td></tr> </tbody> </table>	传动扭矩 Mt[Nm]	转动角度和 校正系数(α)	根据图表选 矩型的扭矩	8.8 Nm	20°		8.8 Nm	1.25	8.8 Nm x 1.25 = 11 Nm
传动扭矩 Mt[Nm]	转动角度和 校正系数(α)	根据图表选 矩型的扭矩									
8.8 Nm	20°										
8.8 Nm	1.25	8.8 Nm x 1.25 = 11 Nm									
5°	0.8	转速 = 2000 min ⁻¹									
转动角度	校正系数	根据传动扭矩8.8Nm × 校正系数 (20° = 1.25) = 11Nm，转速2000min ⁻¹ ，从表中选择相应规格：规格03									
		扭矩 (Nm) = 9550 × $\frac{\text{功率 (KW)}}{\text{转速 (rpm)}}$									

精密万向节 Precision Joints

◇ 滑动轴承



45°	4.0	<div>Selection of precision joints Type G,GD,GA,GR(max.1000 min⁻¹)</div>									
40°	3.3										
35°	2.6										
30°	2.2										
25°	1.8										
20°	1.5	<div>Torque x correction value = selected torque</div>									
15°	1.25	Example of selection:									
10°	1.00	<table><tr><th>Driving Torque [Nm]</th><th>Correction value for articulation Angle</th><th>Selected torque selection of size Acc.to table</th></tr><tr><td>63 Nm</td><td>30°</td><td></td></tr><tr><td>63 Nm</td><td>2,2</td><td>63 Nm x 2,2 = 138,6 Nm</td></tr></table>	Driving Torque [Nm]	Correction value for articulation Angle	Selected torque selection of size Acc.to table	63 Nm	30°		63 Nm	2,2	63 Nm x 2,2 = 138,6 Nm
Driving Torque [Nm]	Correction value for articulation Angle	Selected torque selection of size Acc.to table									
63 Nm	30°										
63 Nm	2,2	63 Nm x 2,2 = 138,6 Nm									
5°	0.8	Operating speed = 400 min ⁻¹									
Articulation angle	Correction value	<p>The selection of the size according to the table is based on the driving torque (63 Nm) x correction value (30° = 2,2) = 138,6 Nm and the operating speed of 400 min⁻¹ Selected:Joint size 6</p> <div>$\text{Torque [Nm]} = 9550 \times \frac{\text{Power [kW]}}{\text{Speed [min]}^{-1}}$</div>									



45°	4.0	Selection of precision joints TypeGZ,GDZ,HA,HR (max.4000 m i n ⁻¹)													
40°	3.3	The selection of the precision joints with needle bearing is based on the driving torque, taking into account a correction value which depends on the articulation angle and the operating speed. For the extendable joints in addition the overall length and the speed have to be considered to determine the size.													
35°	2.5														
30°	2.0														
25°	1.4														
		Torque x correction value = selected torque													
20°	1.25	Example of selection:													
15°	1.1	<table><tr><th>Driving Torque [Nm]</th><th>Correction value for articulation Angle</th><th>Selected torque selection of size Acc.to table</th></tr><tr><td>8.8 Nm</td><td>20°</td><td></td></tr><tr><td>8.8 Nm</td><td>1.25</td><td>8.8 Nm x 1.25= 11Nm</td></tr><tr><td colspan="3">Operating speed = 2000 min⁻¹</td></tr></table>		Driving Torque [Nm]	Correction value for articulation Angle	Selected torque selection of size Acc.to table	8.8 Nm	20°		8.8 Nm	1.25	8.8 Nm x 1.25= 11Nm	Operating speed = 2000 min ⁻¹		
Driving Torque [Nm]	Correction value for articulation Angle			Selected torque selection of size Acc.to table											
8.8 Nm	20°														
8.8 Nm	1.25			8.8 Nm x 1.25= 11Nm											
Operating speed = 2000 min ⁻¹															
10°	1.00														
5°	0.8														
Articulation angle	Correction value	The selection of the size according to the table is based on the driving torque (8.8 Nm) x correction value(30=2, 2=138,6 Nm and the operating speed of 2000 min ⁻¹ Selected:Joint size 03													
		$\text{Torque [Nm]} = 9550 \times \frac{\text{Power [kW]}}{\text{Speed [min]}^{-1}}$													