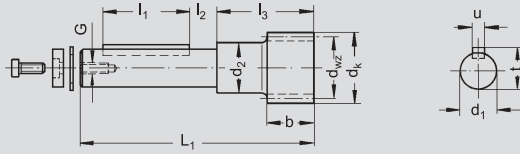




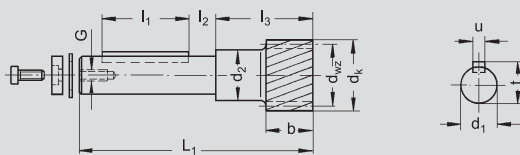
直齿系统, 20°压力角, 磨削齿, 并进行齿冠优化, 公差符合DIN 3962/63/67
straight tooth system, 20° pressure angle, teeth are ground and crowned, tolerances acc. to DIN 3962/63/67



16MnCr5, 1.7131 Case hardening steel
表面渗碳淬火 case-hardened
精度等级. / tooth. qual. 6 e 25

订货代码 Order code	减速箱中心距 Gearbox a0 HP/E/B	模数 module	齿数 no. of teeth	x	d _{wz}	d _k	b	d _{1h6}	d ₂	L ₁	l ₁	l ₂	l ₃	u	t	G	a	kg
20 28 115	32	2	15	0,375	31,50	35,5	25	20	24	105	28	13,5	50,0	6	22,5	M 5	37,75	0,50
20 28 021	50	2	21	-	42,00	46,0	25	25	35	141	63	13,0	53,0	8	28,0	M 8	43,00	1,21
20 28 332	50	2	32	-	64,00	68,0	25	25	38	141	63	13,0	53,0	8	28,0	M 8	54,00	1,25
20 28 321	50	3	21	-	63,00	69,0	30	25	38	143	63	13,0	55,0	8	28,0	M 8	57,50	1,33
20 28 432	63	2	32	-	64,00	68,0	25	28	42	166	80	14,5	57,5	8	31,0	M 8	54,00	1,50
20 28 421	63	3	21	-	63,00	69,0	30	28	42	168	80	14,5	60,0	8	31,0	M 8	57,50	1,60
20 28 417	63	4	17	-	68,00	76,0	40	28	42	173	80	14,5	65,0	8	31,0	M 8	69,00	2,00
20 28 532	80	2	32	-	64,00	68,0	25	36	48	181	100	12,5	57,0	10	39,0	M 12	54,00	2,35
20 28 521	80	3	21	-	63,00	69,0	30	36	48	186	100	12,5	62,0	10	39,0	M 12	57,50	2,50
20 28 517	80	4	17	-	68,00	76,0	40	36	48	191	100	12,5	67,0	10	39,0	M 12	69,00	2,65
20 28 617	100	4	17	-	68,00	76,0	40	48	57	216	125	9,0	72,0	14	51,5	M 12	69,00	4,05
20 28 630	100	4	30	-	120,00	128,0	40	48	57	216	125	9,0	72,0	14	51,5	M 12	95,00	6,40
20 28 613	100	5	13	0,500	70,00	80,0	50	48	57	226	125	9,0	82,0	14	51,5	M 12	69,00	4,20
20 28 715	125	5	15	0,500	80,00	90,0	50	60	68	272	150	10,0	90,0	18	64,0	M 16	74,00	6,94
20 28 713	125	6	13	0,500	84,00	96,0	60	60	68	282	150	10,0	100,0	18	64,0	M 16	85,00	7,45

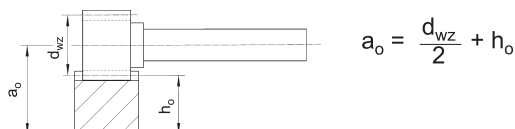
斜齿系统, 19° 31' 42" 左旋, 20° 压力角, 磨削齿, 并进行齿冠优化, 公差符合 DIN 3962/63/67
helical tooth system, 19°31'42" left, 20° pressure angle, teeth are ground and crowned, tolerances acc. to DIN 3962/63/67



16MnCr5, 1.7131 表面渗碳淬火 case-hardened
精度等级 tooth. qual. 6 e 25

订货代码 Order code	减速箱中心距 Gearbox a0 HP/E/B	模数 module	齿数 no. of teeth	x	d _{wz}	d _k	b	d _{1h6}	d ₂	L ₁	l ₁	l ₂	l ₃	u	t	G	a	kg
20 29 120	32	1,5	20	-	31,83	34,83	20	20	26	100	40	7,5	45,0	6	22,5	M 5	33,42	0,60
20 29 115	32	2	15	0,4172	33,50	37,50	25	20	24	105	28	13,5	50,0	6	22,5	M 5	39,75	0,50
20 29 020	50	2	20	-	42,44	46,44	25	25	35	141	63	13,0	53,0	8	28,0	M 8	43,22	1,21
20 29 330	50	2	30	-	63,66	67,70	25	25	38	141	63	13,0	53,0	8	28,0	M 8	53,83	1,25
20 29 320	50	3	20	-	63,66	69,70	30	25	38	143	63	13,0	55,0	8	28,0	M 8	57,83	1,33
20 29 430	63	2	30	-	63,66	67,70	25	28	42	166	80	14,5	57,5	8	31,0	M 8	53,83	1,50
20 29 420	63	3	20	-	63,66	69,70	30	28	42	168	80	14,5	60,0	8	31,0	M 8	57,83	1,60
20 29 415	63	4	15	-	63,66	71,70	40	28	42	173	80	14,5	65,0	8	31,0	M 8	66,83	1,85
20 29 530	80	2	30	-	63,66	69,70	25	36	48	181	100	12,5	57,0	10	39,0	M 12	53,83	2,40
20 29 520	80	3	20	-	63,66	69,70	30	36	48	186	100	12,5	62,0	10	39,0	M 12	57,87	2,40
20 29 515	80	4	15	-	63,66	71,70	40	36	48	191	100	12,5	67,0	10	39,0	M 12	66,83	2,50
20 29 615	100	4	15	-	63,66	71,70	40	48	57	216	125	9,0	72,0	14	51,5	M 12	66,83	3,90
20 29 630	100	4	30	-	127,32	135,30	40	48	57	216	125	9,0	72,0	14	51,5	M 12	98,66	6,90
20 29 612	100	5	12	0,434	68,00	78,00	50	48	57	226	125	9,0	82,0	14	51,5	M 12	68,00	4,20
20 29 715	125	5	15	0,500	84,58	94,50	50	60	68	272	150	10,0	90,0	18	64,0	M 16	76,29	7,24
20 29 713	125	6	13	0,500	88,76	100,70	60	60	70	282	150	10,0	100,0	18	64,0	M 16	87,38	7,89

齿轮和齿条之间的中心距计算。
Calculation of centre distance a between pinion and rack.



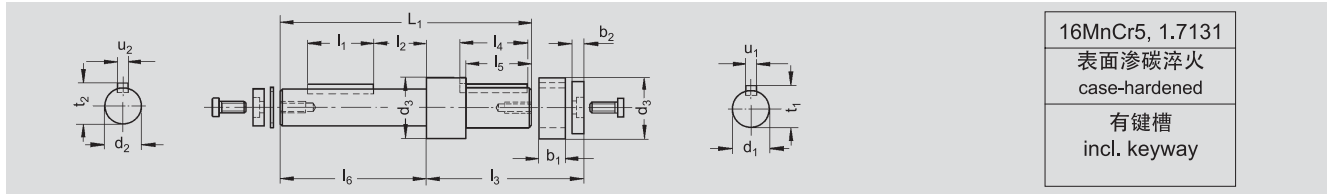


键连接输出驱动轴

Output drive shafts for key connection

无齿轮 16 MnCr 5, 材料编号 1.7131

without teeth, of 16 MnCr 5, Mat. No.1.7131



16MnCr5, 1.7131
表面渗碳淬火
case-hardened
有键槽
incl. keyway

订货代码 Order code	减速箱中心距 Gearbox ao HP/E/B	d _{1h6}	d _{2j6}	d ₃	L ₁	l ₁	l ₂	l ₃	l ₄	l ₅	l ₆	u ₁	u ₂	t ₁	t ₂	b ₁	b ₂	kg
65 02 001	32	20	20	-	119,0	40	-	Paarungs- abhängig	40	-	-	6	6	22,5	22,5	-	-	0,6
65 03 040	50	25	25	40	160,0	63	13,0	dep. on pairing	50	48	87	8	8	28,0	28,0	20	8,0	0,9
65 03 140	50	25	25	40	210,0	63	13,0		50	48	87	8	8	28,0	28,0	20	8,0	1,3
65 04 040	63	28	30	45	185,0	80	14,5		50	48	107	8	8	31,0	33,0	20	8,0	1,1
65 04 140	63	28	30	45	235,0	80	14,5		50	48	107	8	8	31,0	33,0	20	8,0	1,7
65 05 040	80	36	35	48	203,5	100	12,5		50	48	123	10	10	39,0	38,0	20	11,5	2,0
65 05 140	80	36	35	48	253,5	100	12,5		50	48	123	10	10	39,0	38,0	20	11,5	2,7
65 06 040	100	48	45	60	248,5	125	9,0		70	68	143	14	14	51,5	48,5	40	11,5	4,0
65 06 140	100	48	45	60	298,5	125	9,0		70	68	143	14	14	51,5	48,5	40	11,5	5,0
65 07 040	125	60	55	74	316,0	150	10,0		100	99	182	16	18	59,0	64,0	20	16,0	8,6

淬火的齿轮和胀紧盘安装, 我们建议重新计算轴的受力

In the case of hardened gears and shrink-plate mounting of the gears we recommend to recalculate the shaft strength.

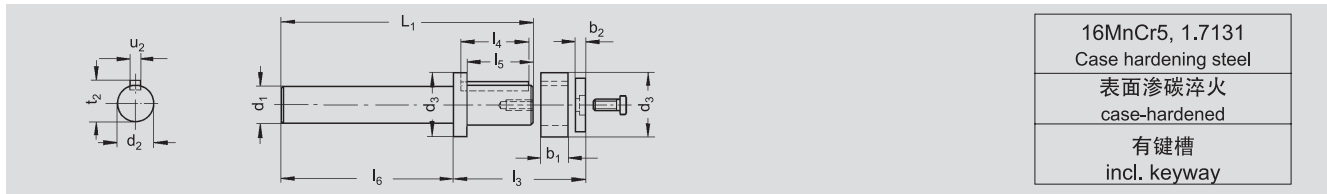


胀紧盘连接输出轴

Output drive for shrink-disc connection

无齿轮 16 MnCr 5, 材料编号 1.7131

without teeth, of 16 MnCr 5, Mat.No.1.7131



16MnCr5, 1.7131
Case hardening steel
表面渗碳淬火
case-hardened
有键槽
incl. keyway

订货代码 Order code	减速箱中心距 Gearbox ao HT/BG HP/E/B	d _{1h6}	d _{2j6}	d ₃	L ₁	l ₃	l ₄	l ₅	l ₆	u ₂	t ₂	b ₁	b ₂	kg
65 03 080	50	25	25	40	168	Paarungs- abhängig	50	48	113,5	8	28	20	8	0,8
65 03 180	50	25	25	40	218		50	48	113,5	8	28	20	8	1,2
65 04 080	50	63	28	30	200	dep. on pairing	50	48	141	8	33	20	8	1,0
65 04 180	50	63	28	30	250		50	48	141	8	33	20	8	1,6
65 05 080	63	80	36	35	226		50	48	170,5	10	38	20	11,5	1,8
65 05 180	63	80	36	35	276		50	48	170,5	10	38	20	11,5	2,5
65 06 080	80	100	48	45	273		70	68	196,5	14	48,5	40	11,5	3,8
65 06 180	80	100	48	45	323		70	68	196,5	14	48,5	40	11,5	4,8
65 07 080	100	125	60	55	329		100	99	220	16	64	20	16	8,0

淬火的齿轮和胀紧盘安装, 我们建议重新计算轴的受力。

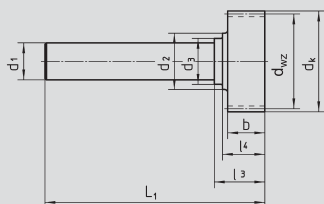
In the case of hardened gears and shrink-plate mounting of the gears we recommend to recalculate the shaft strength.



ATLANTA

胀紧盘连接齿轮轴
Pinion for shrink-disc connection

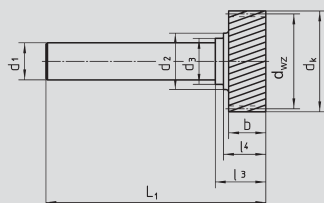
直齿系统, 20°压力角, 磨削齿, 并进行齿冠优化, 公差符合DIN 3962/63/67
straight tooth system, 20° pressure angle, teeth are ground and crowned, tolerances acc. to DIN 3962/63/67



16MnCr5, 1.7131 Case hardening steel
表面渗碳淬火 case-hardened
精度等级 tooth. qual. 6 e 25

订货代码 Order code	减速箱中心距 Gearbox size HT/BG HP/E/B	模数 module	齿数 no. of teeth	x	d _{wz}	d _k	b	d _{1h6}	d ₂	d ₃	L ₁	l ₃	l ₄	a	kg	
20 88 115	32	2	15	0,375	31,50	35,5	25	20	24	-	105	31,0	-	37,75	0,50	
20 88 021	50	2	21	-	42,00	46,0	25	25	35	31	148	34,0	28,5	43,00	1,21	
20 88 332	50	2	32	-	64,00	68,0	25	25	38	31	148	34,0	28,5	54,00	1,25	
20 88 321	50	3	21	-	63,00	69,0	30	25	31	-	150	36,5	-	57,50	1,33	
20 88 432	50	63	2	32	-	64,00	68,0	25	28	42	36	180	38,5	33,0	54,00	1,50
20 88 421	50	63	3	21	-	63,00	69,0	30	28	42	36	183	41,0	35,5	57,50	1,60
20 88 417	50	63	4	17	-	68,00	76,0	40	28	36	-	188	46,0	-	69,00	2,00
20 88 532	63	80	2	32	-	64,00	68,0	25	36	48	-	203	32,5	-	54,00	2,35
20 88 521	63	80	3	21	-	63,00	69,0	30	36	48	-	208	37,5	-	57,50	2,50
20 88 517	63	80	4	17	-	68,00	76,0	40	36	48	-	213	42,5	-	69,00	2,65
20 88 617	80	100	4	17	-	68,00	76,0	40	48	57	-	240	43,5	-	69,00	4,05
20 88 630	80	100	4	30	-	120,00	128,0	40	48	57	-	240	43,5	-	95,00	6,40
20 88 613	80	100	5	13	0,500	70,00	80,0	50	48	57	-	250	53,5	-	69,00	4,10
20 88 715	100	125	5	15	0,500	80,00	90,0	50	60	68	-	275	55,0	-	74,00	6,30
20 88 713	100	125	6	13	0,500	84,00	96,0	60	60	68	-	285	65,0	-	85,00	6,84

斜齿系统, 19°31'42"左旋, 20°压力角, 磨削齿, 并进行齿冠优化, 公差符合DIN 3962/63/67
helical tooth system, 19°31'42" left, 20° pressure angle, teeth are ground and crowned, tolerances acc. to DIN 3962/63/67

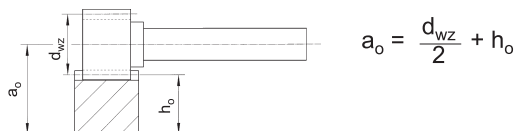


16MnCr5, 1.7131 Case hardening steel
表面渗碳淬火 case-hardened
精度等级 tooth. qual. 6 e 25

订货代码 Order code	减速箱中心距 Gearbox size HT/BG HP/E/B	模数 module	齿数 no. of teeth	x	d _{wz}	d _k	b	d _{1h6}	d ₂	d ₃	L ₁	l ₃	l ₄	a	kg	
20 89 120	32	1,5	20	-	31,83	34,83	20	20	26	-	100,25	26,0	-	33,40	0,50	
20 89 115	32	2	15	0,4172	33,50	37,50	25	20	24	-	105	31,0	-	38,75	0,50	
20 89 020	50	2	20	-	42,44	46,44	25	25	35	31	148	34,0	28,5	43,22	1,21	
20 89 330	50	2	30	-	63,66	67,70	25	25	38	31	148	34,0	28,5	53,83	1,25	
20 89 320	50	3	20	-	63,66	69,70	30	25	31	-	150	36,5	-	57,83	1,33	
20 89 430	50	63	2	30	-	63,66	67,70	25	28	42	36	180	38,5	33,0	53,83	1,60
20 89 420	50	63	3	20	-	63,66	69,70	30	28	42	36	183	41,0	35,5	57,83	1,60
20 89 415	50	63	4	15	-	63,66	71,70	40	28	36	-	188	46,0	-	66,83	1,85
20 89 530	63	80	2	30	-	63,66	69,70	25	36	48	-	203	32,5	-	53,83	2,35
20 89 520	63	80	3	20	-	63,66	69,70	30	36	48	-	208	37,5	-	57,83	2,40
20 89 515	63	80	4	15	-	63,66	71,70	40	36	48	-	213	42,5	-	66,83	2,50
20 89 615	80	100	4	15	-	63,66	71,70	40	48	57	-	240	43,5	-	66,83	3,90
20 89 630	80	100	4	30	-	127,32	135,30	40	48	57	-	240	43,5	-	98,66	6,90
20 89 612	80	100	5	12	0,434	68,00	78,00	50	48	57	-	250	53,5	-	68,00	4,10
20 89 613	80	100	6	13	0,500	86,76	100,76	60	48	57	-	260	63,5	-	87,38	4,30
20 89 715	100	125	5	15	0,500	84,58	94,50	50	60	70	-	275	55,0	-	76,29	6,57
20 89 713	100	125	6	13	0,500	82,76	100,76	60	60	70	-	285	65,0	-	84,38	7,13
20 48 713*	100	125	6	13	0,500	88,76	100,76	60	60	70	-	285	65,0	-	87,38	7,13
20 48 715*	100	125	6	15	0,500	101,49	113,49	60	60	70	-	285	65,0	-	73,75	7,60

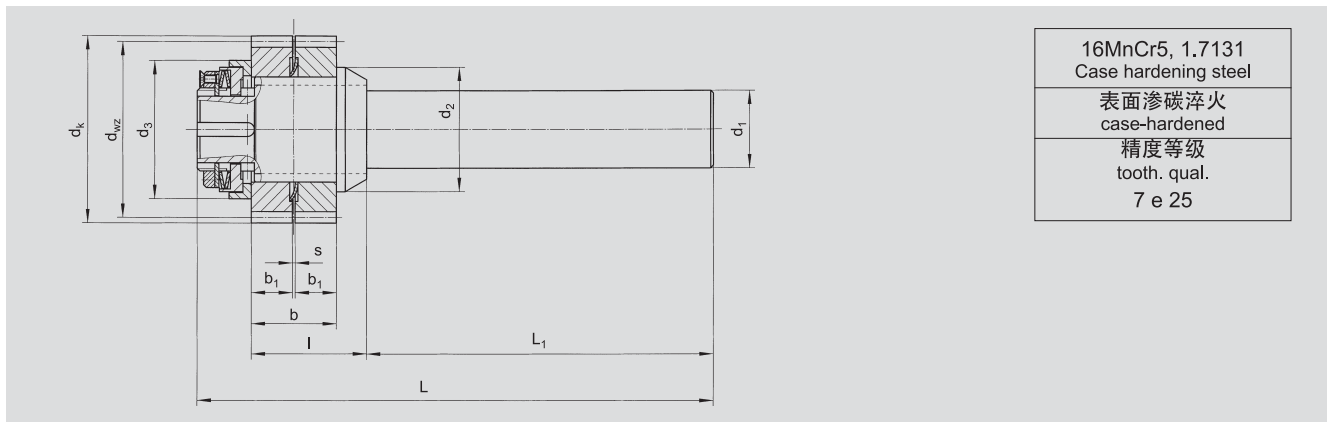
* 齿轮精度 4 e 22 / Gearing quality 4 e 22

齿轮和齿条之间的中心距计算
Calculation of centre distance a between pinion and rack.





斜齿齿轮, 19° 31' 42" 左旋, 压力角20° 磨削齿, 公差符合DIN 3962/63/67
with helical tooth system, 19°31'42" left hand, 20° transverse pressure angle, ground teeth, tolerance acc. to DIN 3962/63/67



16MnCr5, 1.7131 Case hardening steel
表面渗碳淬火 case-hardened
精度等级 tooth. qual. 7 e 25

订货代码 Order Code	模数 Module	减速性中心距 Gearbox size HT HP	胀紧盘 Shrink-disc	T ₂ (Nm)* 无预加载荷 without pre-load	T _{v max.} (Nm)* 最大预加载荷 with max. pre-load	z 齿数 No. of teeth	d _{wz} *	d _k	b	b ₁	d _{1h6}	d ₂	d ₃	s	l	L ₁	L	kg
74 92 330	2	50	80 83 030	135	67	30	63,66	67,7	31	15	25	45	50	1	37,5	114,0	171,5	1,41
74 92 430	2	50	63 80 84 036	135	67	30	63,66	67,7	31	15	28	45	50	1	42,0	141,5	203,5	1,75
74 93 320	3	50	80 83 030	250	125	20	63,66	69,7	31	15	25	45	50	1	37,5	114,0	171,5	1,45
74 93 420	3	50	63 80 84 036	250	125	20	63,66	69,7	31	15	28	45	50	1	42,0	141,5	203,5	1,70
74 93 520	3	63	80 85 050	250	125	20	63,66	69,7	31	15	36	48	50	1	41,0	170,5	237,5	2,45
74 94 515	4	63	80 85 050	385	192	15	63,66	71,7	41	20	36	48	50	1	46,0	170,5	237,5	2,50
74 95 615	5	80	100 80 86 062	650	325	15	84,58	94,5	52	25	48	57	70	2	57,0	196,5	284,5	5,50
74 96 613	6	80	100 80 86 062	975	487	13	88,76	100,7	62	30	48	57	68	2	67,0	196,5	284,5	6,00
74 96 713	6	100	125 80 87 080	975	487	13	88,76	100,7	62	30	60	72	68	2	67,0	220,0	308,0	9,00
74 98 712	8	100	125 80 87 080	2100	1050	12	109,86	125,8	82	40	60	80	88	2	88,0	220,0	332,0	9,50

* 扭矩基于淬火并磨削的齿条 / Torques based on using hardened and ground racks.

最大预加载荷

TVMAX/Max. pre-load torque Tv max

模数 Module	T _{v max.}	蝶形弹簧数量 Disc spring layers	旋紧调节螺母刻度 Tightening of adjusting nut
2	67 Nm	单层 / single	14 刻度 / 14 graduation marks
3	125 Nm	双层 / double	6 刻度 / 6 graduation marks
4	192 Nm	三层 / triple	7 刻度 / 7 graduation marks
5	325 Nm	双层 / double	3 刻度 / 3 graduation marks
6	487 Nm	双层 / double	5 刻度 / 5 graduation marks
8	550 Nm	双层 / double	3 刻度 / 3 graduation marks
8	1050 Nm	双层 / double	6 刻度 / 6 graduation marks

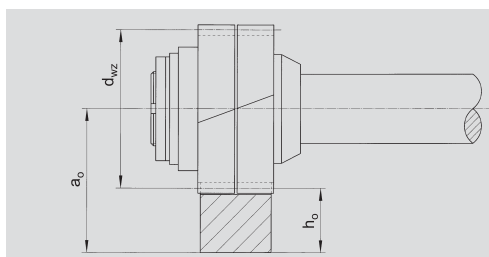
如何调整齿轮轴预载力, 请参考 GG-6
How to adjust the pre-load pinion shaft, see page GG-6.

注意: 多层蝶形弹簧可以增加预载力, 但是TV max必须很小。蝶形弹簧片可以单独订购。

Note: Stronger pre-load is obtainable by means of multiple spring layers, but then Tv max. has to be smaller. Disc springs can also be ordered separately.

齿轮和齿条的中心距计算

Calculation of centre distance "a" between pinion and toothed rack.



$$a_0 = \frac{d_{wz}}{2} + h_0$$

m	a ₀	x	h ₀
2	53,83	-	22
3	57,83	-	26
4	66,83	-	35
5	76,29	0,5	34
6	87,38	0,5	43
8	125,93	0,5	71



安装说明

消除齿轮轴由一个输出轴，一对斜齿齿轮和预加载系统组成。斜齿齿轮间有 $s=1\text{mm}$ ($m=2\cdots 4$) 和 $s=2\text{mm}$ ($m=5\cdots 8$) 的缝隙。通过减小两片齿轮间的缝隙（外侧齿轮沿轴向向内移动）来减小齿轮和齿条间的啮合背隙。齿轮和齿条的预载力可以通过预加载系统设置。

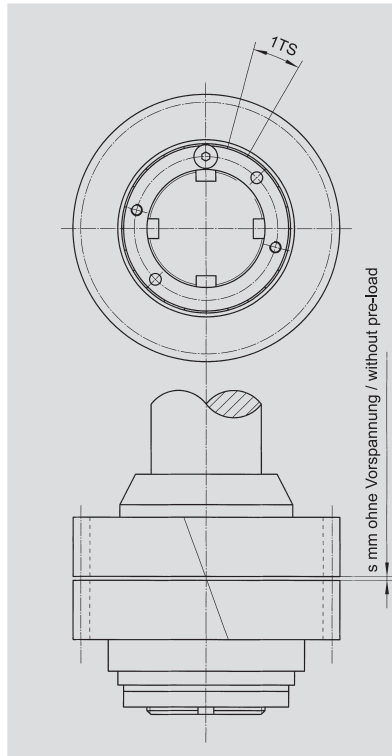
调整说明

预加载系统构成：

- 调节螺帽，用安全垫圈和沉头螺钉保证调整结果。
- 蝶形弹簧部件
- 止退垫片

$m=2\cdots 4$ 的止退垫片背面有24个标记， $m=5\cdots 8$ 有12个标记，调节螺帽有4个标记（刻度）。

1. 在无预加载情况下确定齿啮合的最佳接触。为了达到这个目的两个齿轮间的间隙应符合“s”（参考上面所述）。
2. 齿条和齿轮间的背隙应该 $<0.1\text{mm}$ 。
3. 旋紧调节螺帽（先松开沉头螺栓）直至无、背隙。两片齿轮的侧面均与齿条相接触可以通过千分表检测齿轮的齿面测得。
4. 通过调整调节螺帽到一定的标记（TS），（参考调节图表）来产生相应的预载力（ T_v ）



Description of operation

Pre-load pinion shafts consist of an output shaft, a helical split pinion and a pre-load unit. The split pinion is manufactured as a unit with an axial distance of $s = 1 \text{ mm}$ ($m = 2\cdots 4$) and $s = 2 \text{ mm}$ ($m = 5\cdots 8$). By reducing the distance between the pinions (axial displacement of the outer pinion) the backlash is reduced and pre-load initiated when teeth are in mesh with the rack. A defined pre-load torque between rack and split pinion can be produced by means of the pre-load unit.

Adjusting instructions

The pre-load unit consists of:

- an adjusting nut which is secured against turning by means of a safety washer and a countersunk screw
- a disc spring assembly
- a thrust plate.

The reverse side of the thrust plate is provided with 24 marks at $m = 2\cdots 4$ and 12 at $m = 5\cdots 8$, and the adjusting nut with 4 marks (graduations).

1. Determine the optimal tooth contact with non-preloaded split-pinion shaft. For this purpose mount the pinion shaft with gap „s“ (see above).
2. The backlash between rack and split pinion should be $< 0.1 \text{ mm}$.
3. Tighten the adjusting nut (loosen the countersunk screw) until no backlash remains. The two flanks of the split pinion should be in mutual contact. This can be checked by scanning the tooth flanks with a dial indicator.
4. The specified degree of pre-load (T_v) can be produced by turning the adjusting nut by a definite number of graduation marks (TS) (see adjusting

diagram).

预载力“ T_v ”是齿轮齿条系统传动过程中确保无背隙的一个扭矩。定位位置的驱动力矩 $T_{2\text{max}}$ 根据下面的公式计算：

$$T_{2\text{max}} = T_2 - T_v$$

如果： $T_{v\text{max}} = T_{2\text{max}}$ 全行程，无背隙驱动功能。

注意：预加载荷是在装配状态下调整的。因此装配的齿轮轴前段要由足够的调整空间。我们推荐的调整扳手，请参考GG-8页。

推荐润滑方式

毛毡齿轮和毛刷通过电子控制器供油润滑系统。毛毡齿轮的弹性，可以用于消除齿轮最大消除量的润滑。润滑油和齿轮齿条驱动的附件请参考伺服驱动目录ZE-2到ZE-9。

The pre-load torque „ T_v “ is the torque which ensures backlash-free positioning of the rack and pinion drive. The transmissible torque outside the positioning points „ $T_{2\text{max}}$ “ can be determined according to the following formula:

$$T_{2\text{max}} = T_2 - T_v$$

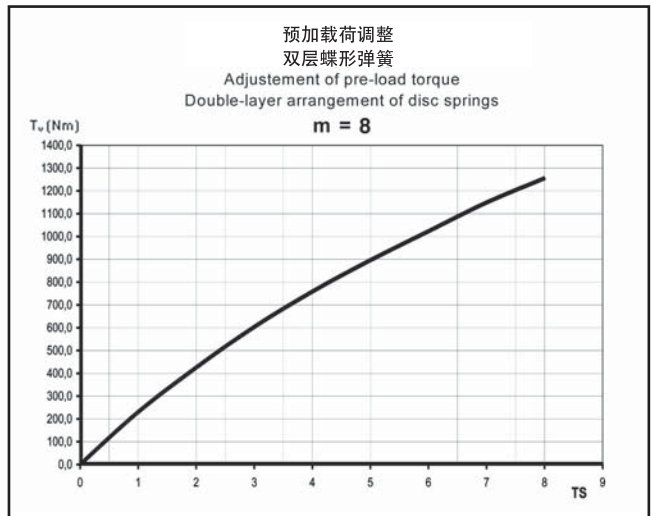
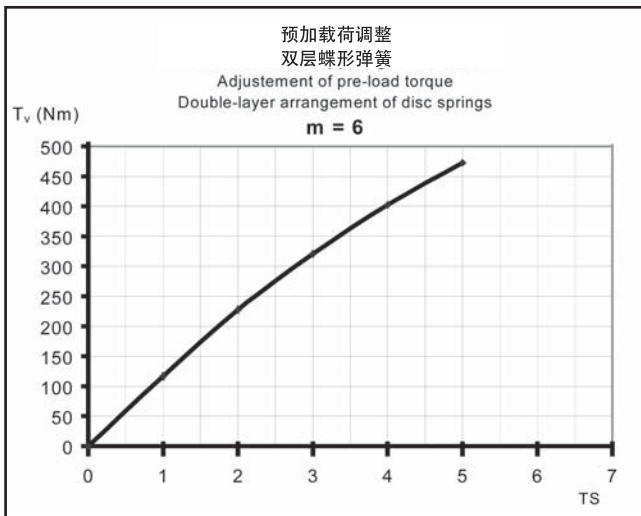
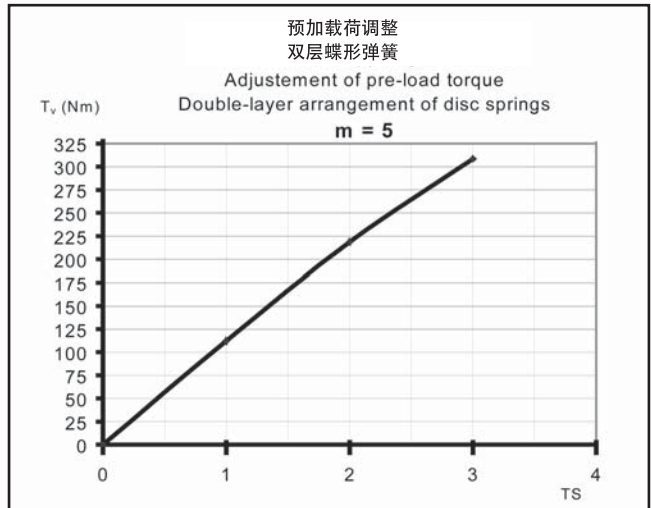
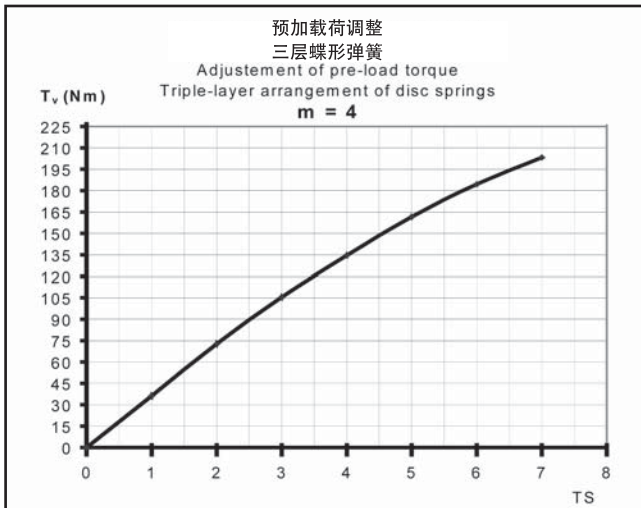
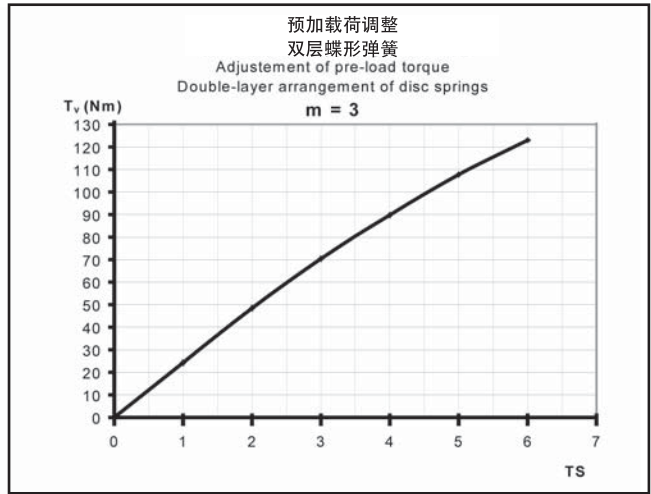
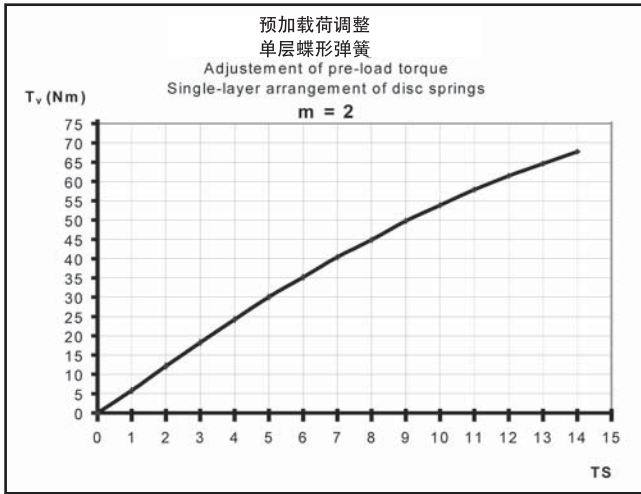
If: $T_{v\text{max}} = T_{2\text{max}}$ the drive is free from play throughout the travelling distance.

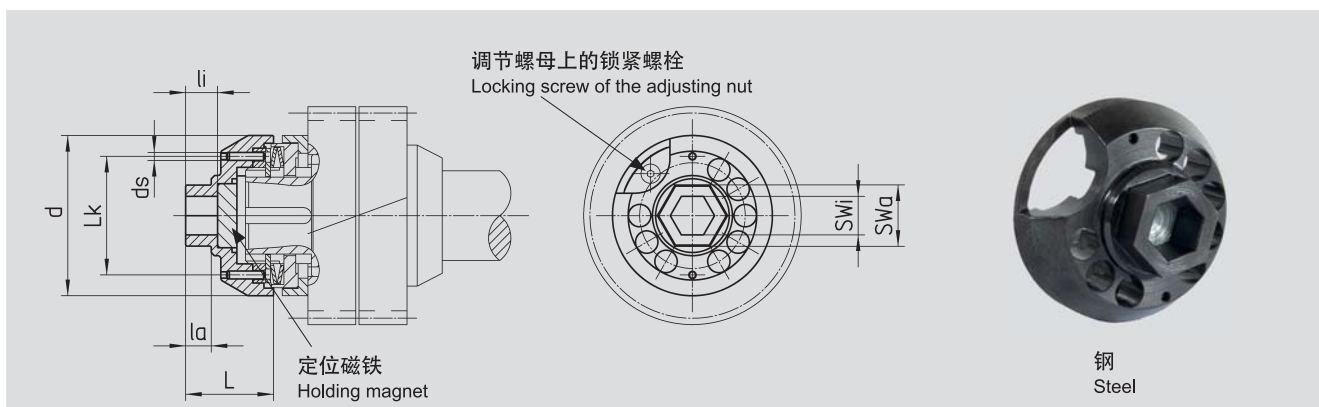
Attention: The pre-load is adjusted in assembled condition; therefore the front side of the pinion shaft must be accessible. To adjust the pre-load, we recommend our adjusting wrench (page GG-8).

Lubrication recommendations

Felt gearwheel or sliding brush with grease supply by means of an electronically controlled lubricator. Due to the elasticity of the teeth, the felt gearwheels can be used even with maximum backlash compensation.

Lubricants see Servo-Catalogue page ZE-2 to ZE-9.





订购代码 Order code	消除齿 轮轴 Pre-load T_2 max pinion shafts	SWa	la	SWi	li	ds	Lk	d	L	kg
74 90 001	74 92 330 74 92 430 74 93 320 74 93 420 74 93 520 74 94 515	19	8	12	10,0	2,5	37	50	27,5	0,113
74 90 002	74 95 615 74 96 613 74 96 713	19	8	12	12,5	4,0	50	74	34,0	0,338
74 90 003	74 98 612 74 98 712	22	9	12	13,0	6,0	67	96	40,0	0,625

注意:

手动应用调节扳手。

仔细调节找到调节扳手和固定螺栓的正确位置。

销钉必须同调节螺母相匹配（不要敲打）。

定位磁铁保持调节扳手在某一位置。

松开调节螺母上的锁紧螺栓。

注意功能特性和调节说明来调节预载力。

在SWi位置使用合适的内六角扳手，SWa位置使用合适的扳手来旋动调节扳手。

通过锁紧定位螺栓来固定调节螺母。

Attention:

Apply the adjusting wrench by hand.

Be careful to position the adjusting wrench correctly in relation to the locking screw.

Pins must engage the adjusting nut (do not tap).

The holding magnet holds the adjusting wrench in position.

Loosen the locking screw by the adjusting nut.

Mind the functional characteristics and adjusting instructions for making the adjustment.

Use the Allen wrench with width over flats SWi or the fork wrench with width over flats SWa for turning the adjusting wrench.

Tighten the locking screw by the adjusting nut.