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INSTRUCTION OF RACK ASSEMBLY STEPS / 齿条装配说明

为了可以更顺利的安装连接用齿条，标准齿条的两端断面将会加工为半齿齿底；以方便跟下一支齿条的端面半齿齿底连接成一个全齿。下图表示为两支齿条如何连接并由齿规可以拥有准确的齿距位置。

关于斜齿齿条相接可以借由反向齿规的配合以便可以精准的连接齿条。

1.而在齿条安装相接时，我们建议先锁上齿条侧面的安装孔，并依照底座上相对应的孔位依序锁上；并借由安装齿规可以很准确的将齿条的齿距位置安装完成。

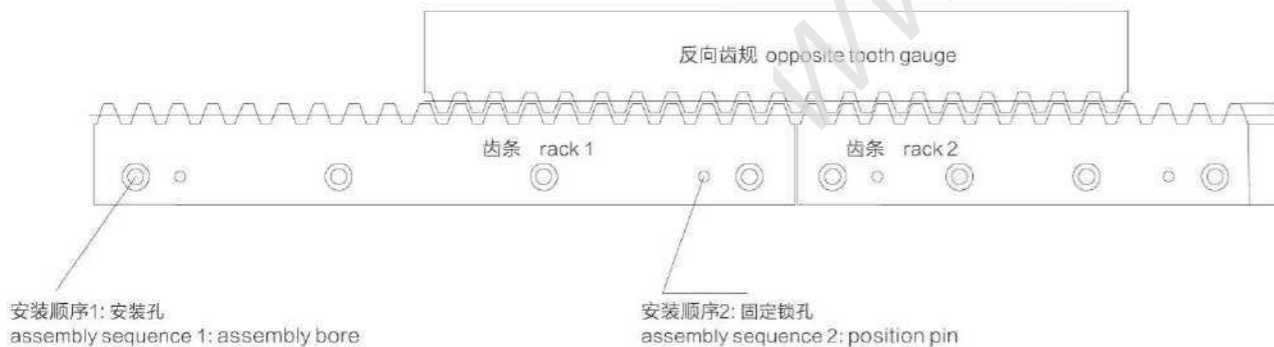
2.最后再将齿条上的两端侧面的固定销孔给固定上即完成安装。

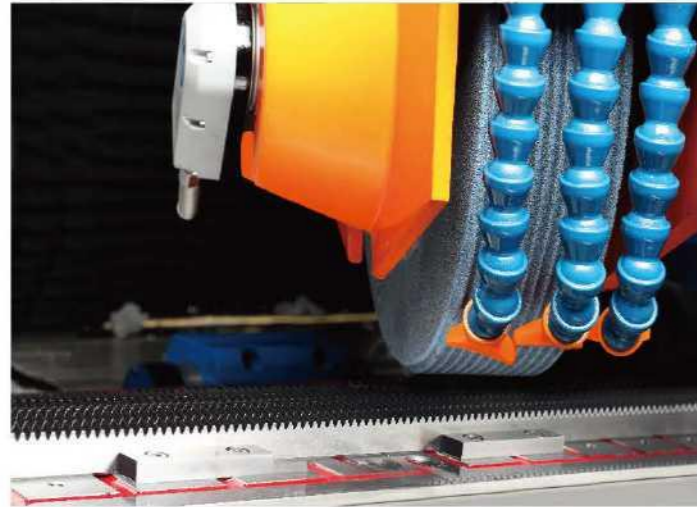
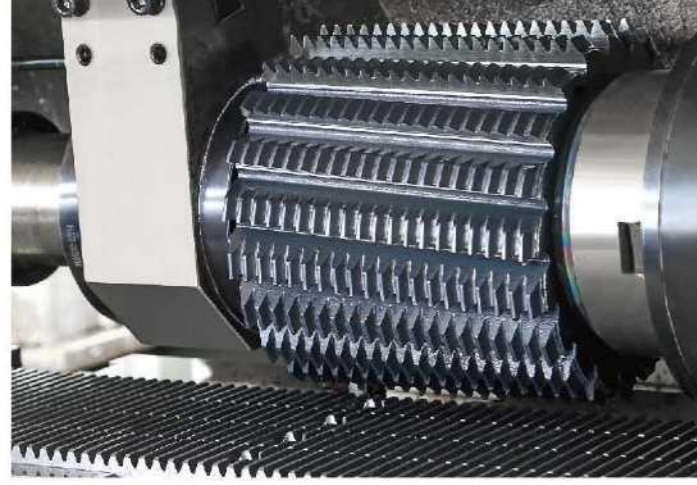
To assemble connected racks more smoothly, 2 ends of a standard rack would add half tooth which is convenient for next half tooth of next rack to be connected to a complete tooth. the following drawing show how 2 racks connect and tooth gauge can control pitch position accurately.

With regard to connection of helical racks, it can be connected accurately by opposite tooth gauge.

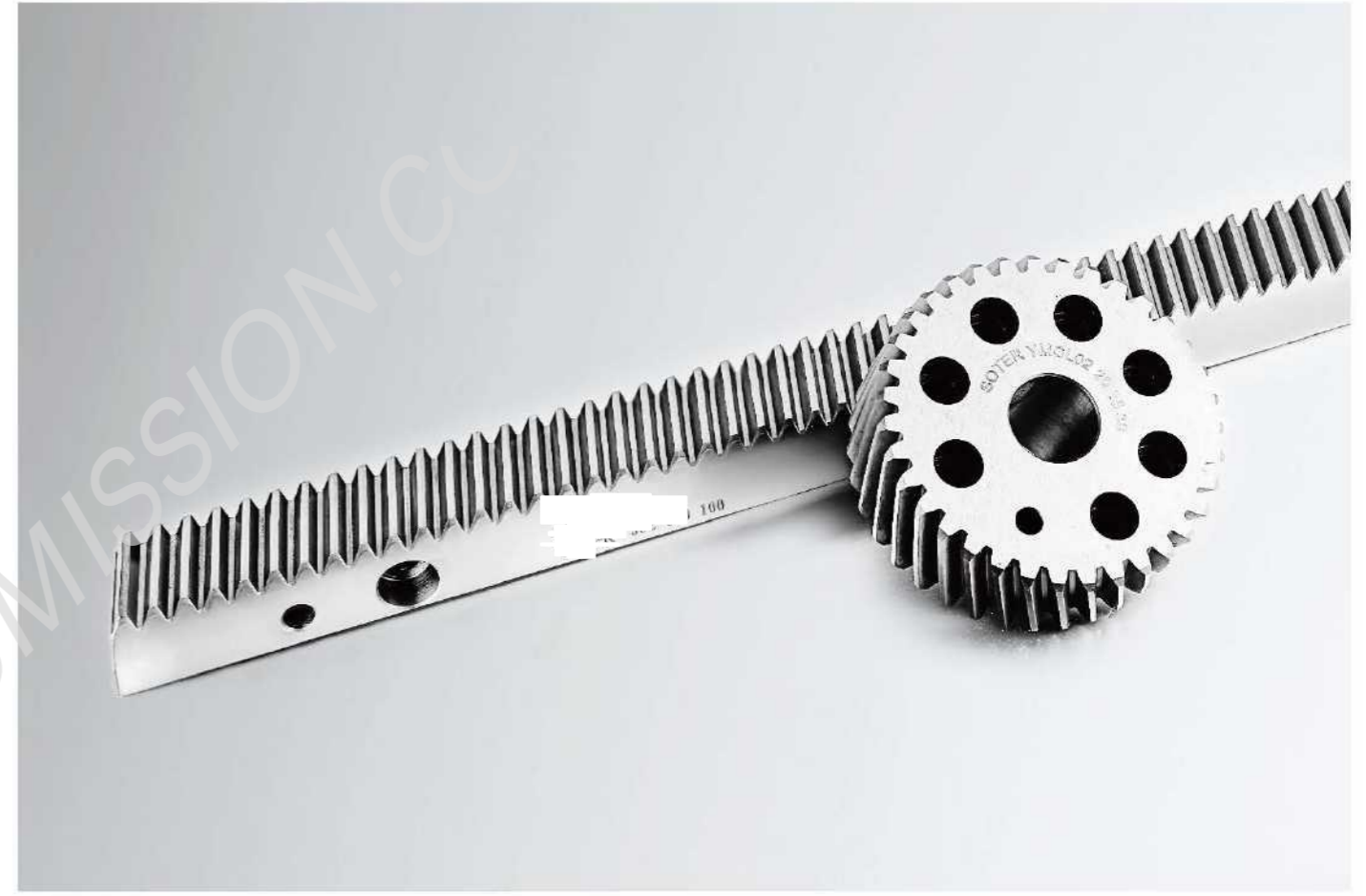
1. When connecting racks, we recommend lock bores on the sides of rack first, and lock bores by the sequence of the foundation. With assembling the tooth gauge, pitch position of racks can be assembled accurately and completely.

2. Last, lock the position pins on 2 sides of rack; the assembly is completed.





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为全球客户提供 高品质产品

索特制造基地配备国内领先的数控加工设备,全现代化的设备以及管理系统,严格管控生产制造环节,领先国际的技术标准,精细的工艺制造确保产品具备世界领先水平。

Sort Manufacturing Base is equipped with leading domestic NC machining equipment, fully modern equipment and management system, strict control of production and manufacturing links, leading international technical standards, fine process manufacturing to ensure that products have the world's leading level.



规格参数
 规格：24*24*1000
 模数：m2
 齿数：Z=150
 压力角： $\alpha=20^\circ$
 齿顶高系数： $ha=1$
 齿型：斜齿
 右旋角： $19^\circ31'42''$
 精度等级：DIN6 国标5级
 硬度处理：齿面高频淬火HRC50-55°
 生产工艺：四面研磨，齿面研磨

Specification parameter
 Specifications: 24*24*1000
 Modulus: M2
 Tooth number: Z=150
 Pressure angle: $\alpha=20^\circ$
 Addendum coefficient: $ha=1$
 Tooth profile: helical teeth
 Right angle: $19^\circ31'42''$
 Accuracy grade: DIN6 GB 5
 Hardness treatment: tooth surface high frequency quenching HRC50-55°
 Production process: four side grinding, tooth surface grinding

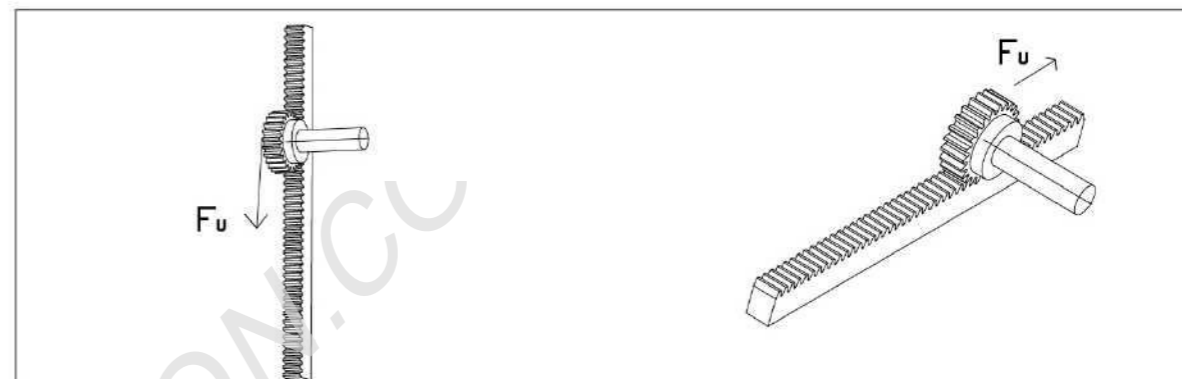


规格参数
 规格：29*29*1000
 模数：m3
 齿数：Z=100
 压力角： $\alpha=20^\circ$
 齿顶高系数： $ha=1$
 齿型：斜齿
 右旋角： $19^\circ31'42''$
 精度等级：DIN6 国标5级
 硬度处理：齿面高频淬火HRC50-55°
 生产工艺：四面研磨，齿面研磨

Specification parameter
 Specifications: 29*29*1000
 Modulus: M3
 Tooth number: Z=100
 Pressure angle: $\alpha=20^\circ$
 Addendum coefficient: $ha=1$
 Tooth profile: helical teeth
 Right angle: $19^\circ31'42''$
 Accuracy grade: DIN6 GB 5
 Hardness treatment: tooth surface high frequency quenching HRC50-55°
 Production process: four side grinding, tooth surface grinding

齿条 Racks

齿条传动形式 selection rack and pinion drive



上升/下降 | lift/lower

$$F_u = m \cdot g + m \cdot a$$

概括 | general

名称 | description

加速度 | acceleration

速度 | speed

距离 | distance

时间 | time

转速 | revolutions per minute, rpm

分度圆直径 | pitch diameter

扭矩 | torque

功率 | power

水平 | drive

$$F_u = m \cdot g + \mu \cdot m \cdot a$$

代号/公式
symbol / formula

单位
dimension

$$a = \frac{v}{t} = \frac{2 \cdot s}{t^2}$$

m/s²

$$a = \frac{s}{t} = \sqrt{2 \cdot a \cdot s}$$

m/s

s

m

t

s

$$n = \frac{v \cdot 60 \cdot 000}{\pi \cdot d_0}$$

1/min

d_0

mm

$$M = \frac{F_u \cdot d_0}{2000}$$

Nm

$$P = \frac{M \cdot n}{9550} = \frac{F_u \cdot n \cdot d_0}{19100}$$

KW

第09页至第10页是关于各种齿轮、齿条配合时所能承受的最大允许功率表

设计参数
 使用系数 1,0
 齿间连接安全系数 1,0
 防齿裂安全系数 1,4
 使用寿命 20.000h

所测得的试验齿条的弯曲疲劳极限 σ_{rim} 和试验齿条的接触疲劳极限 σ_{Hlim} 值如下

On pages 2 and 4 are listed some selection tables for rack/pinion drives for the maximum permissible power.

The dimensioning happened with
 application factor: 1,0
 safety for stress at single tooth contact 1,0
 safety for Tooth root stress: 1,4
 service life in hours: 20.000h

We calculate with following values for rolling load σ_{rim} and bending load σ_{Hlim}

材料	σ_{rim} [N/mm ²]	σ_{Hlim} [N/mm ²]
C45	440	550
C45 高频淬火 induction hardened	750	1250
16MnCr5 渗碳淬火 Carburized and hardened	920	1500
42CrMo4V	600	730

selection and load tables

在具有充足的润滑油脂，安全及使用系数1.0，
线速度v=1.5m/s的情况下，最大允许扭矩Nm

maximum permissible torques in Nm with adequate lubrication with
safety and application factor 1,0;and a speed of 1.5 m/s

模数 module		1 b=10 mm				1,5 b=15 mm				2 b=20 mm				
齿数 number of teeth		15	20	25	40	15	20	25	40	15	20	25	30	40
齿条 rack 材料和齿形 material & tooth system	圆柱齿轮 pinion													
C45材料 C45 soft 直齿 straight	C45材料 C45 soft	0,3	0,9	1,1	10,7	1,0	2,8	8,8	35,3	4,4	14,1	26,9	44,2	98,2
	C45高频淬火 C45 ind.-hardened	1,2	2,5	4,5	14,7	2,0	5,7	17,7	60,0	13,8	28,1	48,0	74,1	134,7
C45 高频淬火 C45 ind.-hardened 直齿 straight	C45高频淬火 C45 ind.-hardened	2,0	8,7	14,7	25,3	7,0	28,2	52,9	95,3	29,8	75,0	128,2	151,7	200,2
C45 高频淬火 C45 ind.-hardened 齿面经磨削 直齿 ground teeth;straight	C45高频淬火 C45 ind.-hardened													
C45 高频淬火 C45 ind.-hardened 齿面经磨削 斜齿 ground teeth;helical	C45高频淬火 C45 ind.-hardened													
16MnCr5 渗碳淬火 16MnCr5 case-hardened 齿面经磨削 直齿 ground teeth;straight	16MnCr5 渗碳淬火 16MnCr5 case-hardened 齿面经磨削 ground teeth													
16MnCr5 渗碳淬火 16MnCr5 case-hardened 齿面经磨削 斜齿 ground teeth;helical	16MnCr5 渗碳淬火 16MnCr5 case-hardened 齿面经磨削 ground teeth													
42CrMo4V 调质 & tempered 直齿 straight	16MnCr5 渗碳淬火 16MnCr5 case-hardened 齿面经磨削 ground teeth													
42CrMo4V 调质 & tempered 斜齿 helical	16MnCr5 渗碳淬火 16MnCr5 case-hardened 齿面经磨削 ground teeth													

模数 module		2,5 b=25 mm				3 b=30 mm				
齿数 number of teeth		15	20	25	40	15	20	25	30	40
齿条 rack 材料和齿形 material & tooth system	圆柱齿轮 pinion									
C45材料 C45 soft 直齿 straight	C45材料 C45 soft	8.5	25,1	52,8	175,2	13	46	97,2	159,6	339,8
	C45高频淬火 C45 ind.-hardened	15.6	45,1	95	145.2	40,8	91,9	168,2	243,4	450,3
C45 高频淬火 C45 ind.-hardened 直齿 straight	C45高频淬火 C45 ind.-hardened	60	149,9	255,8	399,7	87,1	215,1	440,0	497,3	780
C45 高频淬火 C45 ind.-hardened 齿面经磨削 直齿 ground teeth;straight	C45高频淬火 C45 ind.-hardened									
C45 高频淬火 C45 ind.-hardened 齿面经磨削 斜齿 ground teeth;helical	C45高频淬火 C45 ind.-hardened									
16MnCr5 渗碳淬火 16MnCr5 case-hardened 齿面经磨削 直齿 ground teeth;straight	16MnCr5 渗碳淬火 16MnCr5 case-hardened 齿面经磨削 ground teeth									
16MnCr5 渗碳淬火 16MnCr5 case-hardened 齿面经磨削 斜齿 ground teeth;helical	16MnCr5 渗碳淬火 16MnCr5 case-hardened 齿面经磨削 ground teeth									
42CrMo4V 调质 & tempered 直齿 straight	16MnCr5 渗碳淬火 16MnCr5 case-hardened 齿面经磨削 ground teeth									
42CrMo4V 调质 & tempered 斜齿 helical	16MnCr5 渗碳淬火 16MnCr5 case-hardened 齿面经磨削 ground teeth									

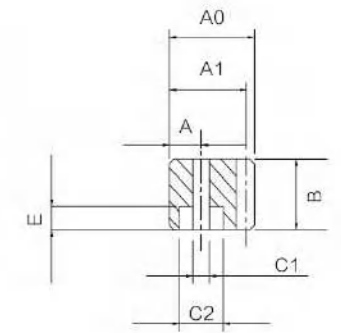
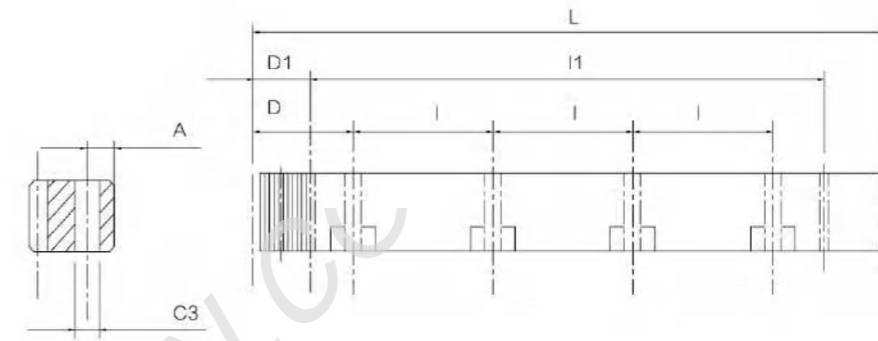
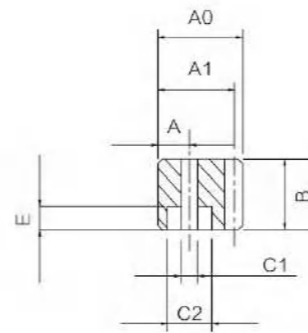
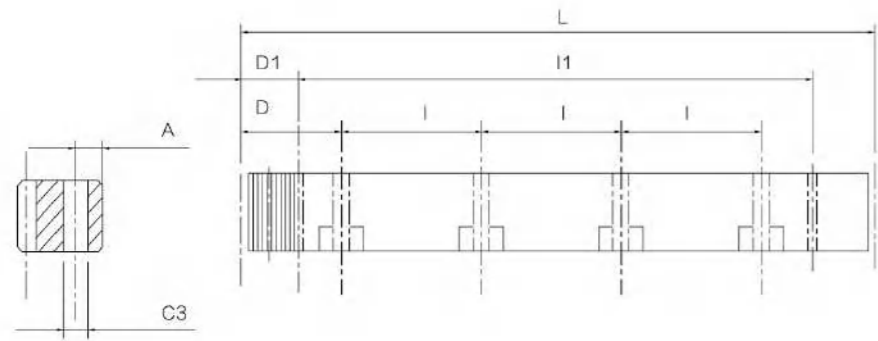
selection and load tables

在具有充足的润滑油脂，安全及使用系数1.0，
线速度v=1.5m/s的情况下，最大允许扭矩Nm

maximum permissible torques in Nm with adequate lubrication with
safety-and application factor 1,0;and a speed of 1.5 m/s

模数 module		4 b=40 mm				5 b=50 mm				6 b=60 mm			
齿数 number of teeth		15	20	25	30	40	15	20	25	40	15	20	25
齿条 rack 材料和齿形 material & tooth system	圆柱齿轮 pinion												
C45材料 C45 soft 直齿 straight	C45材料 C45 soft	39,9	115,1	240,2	414,1	850,1	89,8	230,0	489,7	800,4	170,2	429,7	870,4
	C45高频淬火 C45 ind.-hardened	130	249,9	415,2	593,2	1100,4	259,7	499,7	800,4	1200,1	470	810,3	1400,5
C45 高频淬火 C45 ind.-hardened 直齿 straight	C45高频淬火 C45 ind.-hardened	220,2	640,1	1070,1	1306,9	1710,4	450	1150,0	1660,4	1999,5	794,6	2200,5	2950,0
C45 高频淬火 C45 ind.-hardened 齿面经磨削 直齿 ground teeth;straight	C45高频淬火 C45 ind.-hardened												
C45 高频淬火 C45 ind.-hardened 齿面经磨削 斜齿 ground teeth;helical	C45高频淬火 C45 ind.-hardened												
16MnCr5 渗碳淬火 16MnCr5 case-hardened 齿面经磨削 直齿 ground teeth;straight	16MnCr5 渗碳淬火 16MnCr5 case-hardened 齿面经磨削 ground teeth												
16MnCr5 渗碳淬火 16MnCr5 case-hardened 齿面经磨削 斜齿 ground teeth;helical	16MnCr5 渗碳淬火 16MnCr5 case-hardened 齿面经磨削 ground teeth												
42CrMo4V 调质 & tempered 直齿 straight	16MnCr5 渗碳淬火 16MnCr5 case-hardened 齿面经磨削 ground teeth												
42CrMo4V 调质 & tempered 斜齿 helical	16MnCr5 渗碳淬火 16MnCr5 case-hardened 齿面经磨削 ground teeth												

模数 module		8 b=80 mm			10 b=100 mm
齿数 number of teeth		15	20	25	20
齿条 rack 材料和齿形 material & tooth system	圆柱齿轮 pinion				
C45材料 C45 soft 直齿 straight	C45材料 C45 soft	420,1	1050,5	2101,0	
	C45高频淬火 C45 ind.-hardened	1149,5	2101,0	3398,0	4000
C45 高频淬火 C45 ind.-hardened 直齿 straight	C45高频淬火 C45 ind.-hardened	1898,0	4502,0	7500,0	9900,0
C45 高频淬火 C45 ind.-hardened 齿面经磨削 直齿 ground teeth;straight	C45高频淬火 C45 ind.-hardened				
C45 高频淬火 C45 ind.-hardened 齿面经磨削 斜齿 ground teeth;helical	C45高频淬火 C45 ind.-hardened				
16MnCr5 渗碳淬火 16MnCr5 case-hardened 齿面经磨削 直齿 ground teeth;straight	16MnCr5 渗碳淬火 16MnCr5 case-hardened 齿面经磨削 ground teeth				
16MnCr5 渗碳淬火 16MnCr5 case-hardened 齿面经磨削 斜齿 ground teeth;helical	16MnCr5 渗碳淬火 16MnCr5 case-hardened 齿面经磨削 ground teeth				
42CrMo4V 调质 & tempered 直齿 straight	16MnCr5 渗碳淬火 16MnCr5 case-hardened 齿面经磨削 ground teeth				
42CrMo4V 调质 & tempered 斜齿 helical	16MnCr5 渗碳淬火 16MnCr5 case-hardened 齿面经磨削 ground teeth				



型号 Code	模数 Module	P_t	L	齿数 Tooth No.	B	A0	A1	D	I	孔数 Hole No.	A	C1	C2	E	D1	I1	C3	Fp
551 010 050	1.5	4.7123	499.51	106	17	17	15.5	62.44	124.88	4	7	6	9.5	7	29	441.5	5.7	0.029
551 010 100	1.5	4.7123	999.03	212	17	17	15.5	62.44	124.88	8	7	6	9.5	7	29	941.0	5.7	0.033
551 015 150	1.5	4.7123	499.5	106	19	19	17.5	62.44	124.88	4	8	7	11	7	29	441.5	5.7	0.029
551 015 100	1.5	4.7123	999.03	212	19	19	17.5	62.44	124.88	8	8	7	11	7	29	941.0	5.7	0.033
551 020 050	2	6.2831	502.65	80	24	24	22	62.83	125.66	4	8	7	11	7	31.3	440.1	5.7	0.029
551 020 100	2	6.2831	1005.31	160	24	24	22	62.83	125.66	8	8	7	11	7	31.3	942.7	5.7	0.034
551 030 050	3	9.4247	508.94	54	29	29	26	63.62	127.23	4	9	10	15	9	34.4	440.1	7.7	0.032
551 030 100	3	9.4247	1017.88	108	29	29	26	63.62	127.23	8	9	10	15	9	34.4	949.1	7.7	0.037
551 040 050	4	12.5666	502.65	40	39	39	35	62.83	125.66	4	12	10	15	9	37.5	427.7	7.7	0.034
551 040 100	4	12.5666	1005.31	80	39	39	35	62.83	125.66	8	12	10	15	9	37.5	930.3	7.7	0.04
551 050 050	5	15.7079	502.65	32	49	39	34	62.83	125.66	4	12	14	20	13	30.1	442.4	11.7	0.034
551 050 100	5	15.7079	1005.31	64	49	39	34	62.83	125.66	8	12	14	20	13	30.1	945.0	11.7	0.04
551 060 050	6	18.8495	508.94	27	59	49	43	63.62	127.23	4	16	18	26	17	31.4	446.1	15.7	0.034
551 060 100	6	18.8495	1017.88	54	59	49	43	63.62	127.23	8	16	18	26	17	31.4	955.0	15.7	0.04
551 080 050	8	25.1327	502.65	20	79	79	71	62.83	125.66	4	25	22	33	21	26.6	449.5	19.7	0.037
551 080 100	8	25.1327	1005.31	40	79	79	71	62.83	125.66	8	25	22	33	21	26.6	952.0	19.7	0.043
551 100 050	10	31.4159	1005.31	32	99	99	89	62.83	125.66	8	32	33	48	32	125.7	753.96	19.7	0.043
551 120 100	12	37.6991	1017.88	27	120	120	108	63.6	127.23	8	40	39.0	58	38	127.23	763.4	19.7	0.046

端面齿距 $P_e = \text{模数} \times \pi$ F_p = 总齿距误差

技术要求

精度等级: DIN6 国标5级

材料: S45C/20CrMnTi

齿型: 直齿

硬度处理: 高频淬火 HRC50-55°

生产工艺: 硬齿面处理后四面平磨, 齿面研磨

Technical requirement

Accuracy level: DIN6 international 5 level.

Material: S45C/20CrMnTi

Tooth type: straight tooth.

Hardness treatment: high frequency quenching HRC50-55°

Production process: four side grinding after hard tooth surface treatment, tooth surface grinding.

亦供应无钻孔的齿条, 请于型号后备注"N", 如STOER010N。
不同尺寸与材质以依照图面客制化。

此样本中的所有产品型号及参数如有变更恕不另行通告, 订货前请于本公司联系确认。

Racks without holes are also available. Note "N" in the end of code number. i.e. SOTER010N. Other Dimensions / Materials could be customized by drawings.

The content of this document is subject to change without notice. Please contact us before ordering.

型号 Code	模数 Module	P_t	L	齿数 Tooth No.	B	A0	A1	D	I	孔数 Hole No.	A	C1	C2	E	D1	I1	C3	Fp
661 010 050	1.5	4.7123	499.51	106	17	17	15.5	62.44	124.88	4	7	6	9.5	7	29	441.5	5.7	0.066
661 010 100	1.5	4.7123	999.03	212	17	17	15.5	62.44	124.88	8	7	6	9.5	7	29	941.0	5.7	0.074
661 015 050	1.5	4.7123	499.5	106	19	19	17.5	62.44	124.88	4	8	7	11	7	29	441.5	5.7	0.066
661 015 100	1.5	4.7123	999.03	212	19	19	17.5	62.44	124.88	8	8	7	11	7	29	941.0	5.7	0.074
661 020 050	2	6.2831	502.65	80	24	24	22	62.83	125.66	4	8	7	11	7	31.3	440.1	5.7	0.066
661 020 100	2	6.2831	1005.31	160	24	24	22	62.83	125.66	8	8	7	11	7	31.3	942.7	5.7	0.074
661 030 050	3	9.4247	508.94	54	29	29	26	63.62	127.23	4	9	10	15	9	34.4	440.1	7.7	0.066
661 030 100	3	9.4247	1017.88	108	29	29	26	63.62	127.23	8	9	10	15	9	34.4	949.1	7.7	0.072
661 040 050	4	12.5666	502.65	40	39	39	35	62.83	125.66	4	12	10	15	9	37.5	427.7	7.7	0.072
661 040 100	4	12.5666	1005.31	80	39	39	35	62.83	125.66	8	12	10	15	9	37.5	930.3	7.7	0.078
661 050 050	5	15.7079	502.65	32	49	39	34	62.83	125.66	4	12	14	20	13	30.1	442.4	11.7	0.072
661 050 100	5	15.7079	1005.31	64	49	39	34	62.83	125.66	8	12	14	20	13	30.1	945.0	11.7	0.078
661 060 050	6	18.8495	508.94	27	59	49	43	63.62	127.23	4	16	18	26	17	31.4	446.1	15.7	0.072
661 060 100	6	18.8495	1017.88	54	59	49	43	63.62	127.23	8	16	18	26	17	31.4	955.0	15.7	0.078
661 080 050	8	25.1327	502.65	20	79	79	71	62.83	125.66	4	25	22	33	21	26.6	449.5	19.7	0.08
661 080 100	8	25.1327	1005.31	40	79	79	71	62.83	125.66	8	25	22	33	21	26.6	952.0	19.7	0.085
661 100 050	10	31.4159	1005.31	32	99	99	89	62.83	125.66	8	32	33	48	32	125.7	753.96	19.7	0.09
661 120 100	12	37.6991	1017.88	27	120	120	108	63.6	127.23	8	40	39	58	38	127.23	763.4	19.7	0.09

端面齿距 $P_e = \text{模数} \times \pi$ F_p = 总齿距误差

技术要求

精度等级: DIN8 国标7级

材料: S45C

齿型: 直齿

硬度处理: 调质处理 HB20-25°

生产工艺: 四面平磨精插

Technical requirement

Accuracy level: DIN8 international 7 level.

Material: S45C

Tooth type: straight tooth.

Hardness treatment: quenching and tempering treatment HB20-25°

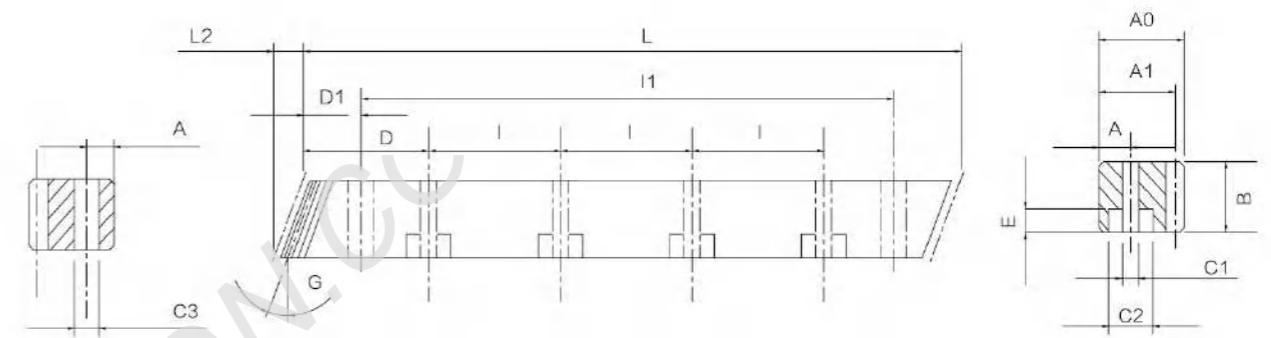
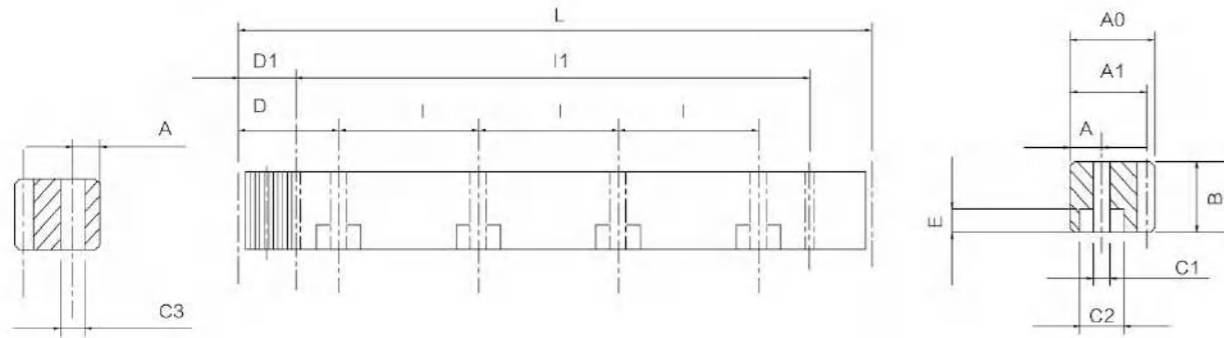
Production process: four sides flat grinding and fine cutting

亦供应无钻孔的齿条, 请于型号后备注"N", 如STOER010N。
不同尺寸与材质以依照图面客制化。

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Racks without holes are also available. Note "N" in the end of code number. i.e. SOTER010N. Other Dimensions / Materials could be customized by drawings.

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型号 Code	模数 Module	P_t	L	齿数 Tooth No.	B	A0	A1	D	I	孔数 Hole No.	A	C1	C2	E	D1	I1	C3	Fp
771 010 050	1.5	4.7123	499.51	106	17	17	15.5	62.44	124.88	4	7	6	9.5	7	29	441.5	5.7	0.08
771 010 100	1.5	4.7123	999.03	212	17	17	15.5	62.44	124.88	8	7	6	9.5	7	29	941.0	5.7	0.09
771 015 050	1.5	4.7123	499.5	106	19	19	17.5	62.44	124.88	4	8	7	11	7	29	441.5	5.7	0.08
771 015 100	1.5	4.7123	999.03	212	19	19	17.5	62.44	124.88	8	8	7	11	7	29	941.0	5.7	0.09
771 020 050	2	6.2831	502.65	80	24	24	22	62.83	125.66	4	8	7	11	7	31.3	440.1	5.7	0.08
771 020 100	2	6.2831	1005.31	160	24	24	22	62.83	125.66	8	8	7	11	7	31.3	942.7	5.7	0.09
771 030 050	3	9.4247	508.94	54	29	29	26	63.62	127.23	4	9	10	15	9	34.4	440.1	7.7	0.088
771 030 100	3	9.4247	1017.88	108	29	29	26	63.62	127.23	8	9	10	15	9	34.4	949.1	7.7	0.101
771 040 050	4	12.5666	502.65	40	39	39	35	62.83	125.66	4	12	10	15	9	37.5	427.7	7.7	0.095
771 040 100	4	12.5666	1005.31	80	39	39	35	62.83	125.66	8	12	10	15	9	37.5	930.3	7.7	0.109
771 050 050	5	15.7079	502.65	32	49	39	34	62.83	125.66	4	12	14	20	13	30.1	442.4	11.7	0.095
771 050 100	5	15.7079	1005.31	64	49	39	34	62.83	125.66	8	12	14	20	13	30.1	945.0	11.7	0.109
771 060 050	6	18.8495	508.94	27	59	49	43	63.62	127.23	4	16	18	26	17	31.4	446.1	15.7	0.095
771 060 100	6	18.8495	1017.88	54	59	49	43	63.62	127.23	8	16	18	26	17	31.4	955.0	15.7	0.109
771 080 050	8	25.1327	502.65	20	79	79	71	62.83	125.66	4	25	22	33	21	26.6	449.5	19.7	0.1
771 080 100	8	25.1327	1005.31	40	79	79	71	62.83	125.66	8	25	22	33	21	26.6	952	19.7	0.11
771 100 050	10	31.4159	1005.31	32	99	99	89	62.83	125.66	8	32	33	48	32	125.7	753.96	19.7	0.12
771 120 100	12	37.6991	1017.88	27	120	120	108	63.6	127.23	8	40	39	58	38	127.23	763.4	19.7	0.12

端面齿距 $P_e = \text{模数} \times \pi$ Fp=总齿距误差

技术要求

精度等级: DIN8 国标7级
材料: S45C
齿型: 直齿
硬度处理: 高频淬火 HRC50-55°
生产工艺: 四面平磨精插, 表面发黑或磷化

Technical requirement

Accuracy level: DIN8 international 7 level.
Material: S45C
Tooth type: straight tooth.
Hardness treatment: high frequency quenching HRC50-55°
Production process: four sides flat grinding, fine insertion, surface blackening or phosphating.

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型号 Code	模数 Module	P_t	L	L2	齿数 Tooth No.	B	A0	A1	D	I	孔数 Hole No.	A	C1	C2	E	D1	I1	C3	Fp
552 010 050	1.5	4.9999	500.00	6	100	17	17	15.5	62.5	125	4	7	6	9.5	7	31.7	436.6	5.7	0.029
552 010 100	1.5	4.9999	1000.00	6	200	17	17	15.5	62.5	125	8	7	6	9.5	7	31.7	936.6	5.7	0.033
552 015 150	1.5	4.9999	500.00	6.03	100	19	19	17.5	62.5	125	4	8	7	11	7	31.7	436.6	5.7	0.029
552 015 100	1.5	4.9999	1000.00	6.74	200	19	19	17.5	62.5	125	8	8	7	11	7	31.7	936.6	5.7	0.033
552 020 050	2	6.6666	500.00	8.5	75	24	24	22	62.5	125	4	8	7	11	7	31.7	436.6	5.7	0.029
552 020 100	2	6.6666	1000.00	8.5	150	24	24	22	62.5	125	8	8	7	11	7	31.7	936.6	5.7	0.034
552 030 050	3	9.9999	500.00	10.3	50	29	29	26	62.5	125	4	9	10	15	9	35.0	430.0	7.7	0.032
552 030 100	3	9.9999	1000.00	10.3	100	29	29	26	62.5	125	8	9	10	15	9	35.0	930.0	7.7	0.037
552 040 050	4	13.3333	506.67	13.8	38	39	39	35	62.5	125	4	12	10	15	9	33.3	433.0	7.7	0.034
552 040 100	4	13.3333	1000.00	13.8	75	39	39	35	62.5	125	8	12	10	15	9	33.3	933.4	7.7	0.04
552 050 050	5	16.6666	500.00	17.4	30	49	39	34	62.5	125	4	12	14	20	13	37.5	425.0	11.7	0.034
552 050 100	5	16.6666	1000.00	17.4	60	49	39	34	62.5	125	8	12	14	20	13	37.5	925.0	11.7	0.04
552 060 050	6	19.9999	500.00	20.9	25	59	49	43	62.5	125	4	16	18	26	17	37.5	425.0	15.7	0.034
552 060 100	6	19.9999	1000.00	20.9	50	59	49	43	62.5	125	8	16	18	26	17	37.5	925.0	15.7	0.04
552 080 050	8	26.6667	480.00	28.0	18	79	79	71	60.0	120	4	25	22	33	21	120.0	240.0	19.7	0.037
552 080 100	8	26.6667	960.00	28.0	36	79	79	71	60.0	120	8	25	22	33	21	120.0	720.0	19.7	0.043
552 100 050	10	33.3333	1000.00	35.11	30	99	99	89	62.5	125	8	32	33	48	32	125.0	750.0	19.7	0.043
552 120 100	12	39.9999	1000.00	42.56	25	120	120	108	40	125	8	40	39	58	38	125.0	750.0	19.7	0.046

端面齿距 $P_e = \text{模数} \times \pi / \cos(19^\circ 31' 42')$ Fp=总齿距误差

技术要求

精度等级: DIN6 国标5级
材料: S45C/20CrMnTi
齿型: 斜齿
右旋角: $19^\circ 31' 42'$
硬度处理: 高频淬火 HRC50-55°/渗碳淬火 HRC55-60°
生产工艺: 硬齿面处理后四面平磨, 齿面研磨

Technical requirement

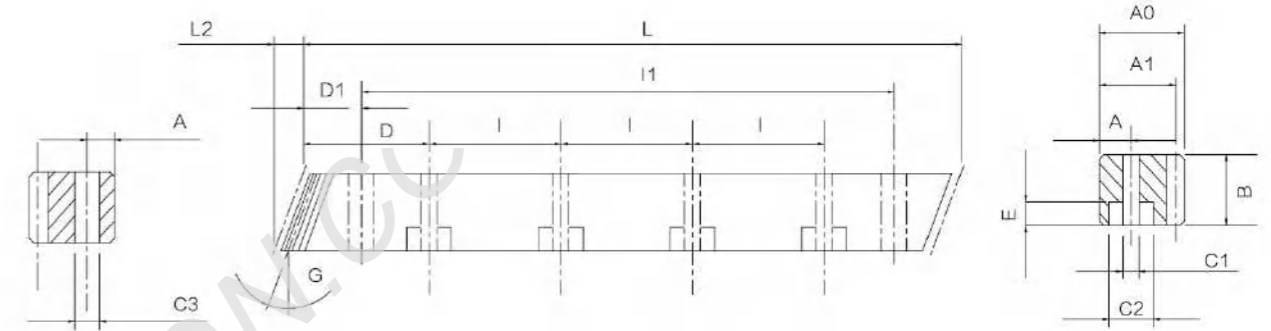
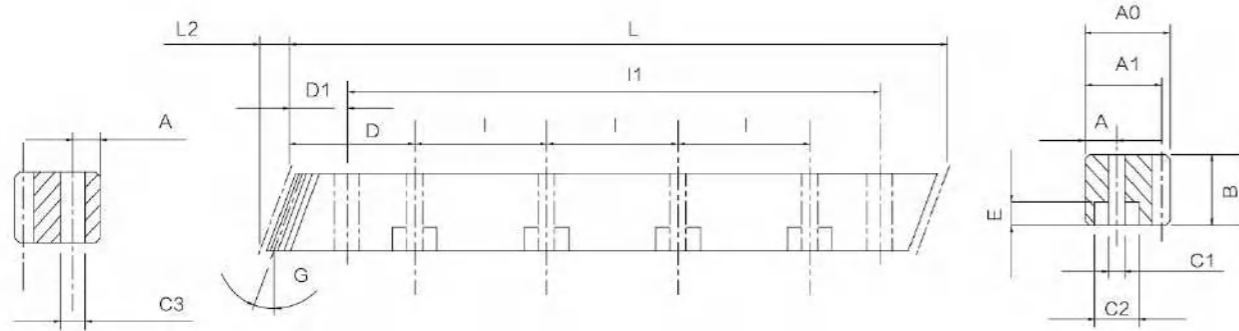
Accuracy level: DIN6 international 5 level.
Material: S45C/20CrMnTi
Tooth profile: helical teeth
Right angle: $19^\circ 31' 42'$
Hardness treatment: high frequency quenching HRC50-55°/ carburizing quenching HRC55-60°
Production process: four side grinding after hard tooth surface treatment, tooth surface grinding.

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型号 Code	模数 Module	P_t	L	L2	齿数 Tooth No.	B	A0	A1	D	I	孔数 Hole No.	A	C1	C2	E	D1	I1	C3	Fp
662 010 050	1.5	4.9999	500.00	6	100	17	17	15.5	62.5	125	4	7	6	9.5	7	31.7	436.6	5.7	0.066
662 010 100	1.5	4.9999	1000.00	6	200	17	17	15.5	62.5	125	8	7	6	9.5	7	31.7	936.6	5.7	0.074
662 015 050	1.5	4.9999	500.00	6.03	100	19	19	17.5	62.5	125	4	8	7	11	7	31.7	436.6	5.7	0.066
662 015 100	1.5	4.9999	1000.00	6.74	200	19	19	17.5	62.5	125	8	8	7	11	7	31.7	936.6	5.7	0.074
662 020 050	2	6.6666	500.00	8.5	75	24	24	22	62.5	125	4	8	7	11	7	31.7	436.6	5.7	0.066
662 020 100	2	6.6666	1000.00	8.5	150	24	24	22	62.5	125	8	8	7	11	7	31.7	936.6	5.7	0.074
662 030 050	3	9.9999	500.00	10.3	50	29	29	26	62.5	125	4	9	10	15	9	35.0	430.0	7.7	0.066
662 030 100	3	9.9999	1000.00	10.3	100	29	29	26	62.5	125	8	9	10	15	9	35.0	930.0	7.7	0.072
662 040 050	4	13.3333	506.67	13.8	38	39	39	35	62.5	125	4	12	10	15	9	33.3	433.0	7.7	0.072
662 040 100	4	13.3333	1000.00	13.8	75	39	39	35	62.5	125	8	12	10	15	9	33.3	933.4	7.7	0.078
662 050 050	5	16.6666	500.00	17.4	30	49	39	34	62.5	125	4	12	14	20	13	37.5	425.0	11.7	0.072
662 050 100	5	16.6666	1000.00	17.4	60	49	39	34	62.5	125	8	12	14	20	13	37.5	925.0	11.7	0.078
662 060 050	6	19.9999	500.00	20.9	25	59	49	43	62.5	125	4	16	18	26	17	37.5	425.0	15.7	0.072
662 060 100	6	19.9999	1000.00	20.9	50	59	49	43	62.5	125	8	16	18	26	17	37.5	925.0	15.7	0.078
662 080 050	8	26.6667	480.00	28.0	18	79	79	71	60.0	120	4	25	22	33	21	120	240.0	19.7	0.08
662 080 100	8	26.6667	960.00	28.0	36	79	79	71	60.0	120	8	25	22	33	21	120	720.0	19.7	0.085
662 100 050	10	33.3333	1000.00	35.11	30	99	99	89	62.5	125	8	32	33	48	32	125	750.0	19.7	0.09
662 120 100	12	39.9999	1000.00	42.56	25	120	120	108	40	125	8	40	39	58	38	125	750.0	19.7	0.09

端面齿距 $P_e = \text{模数} \times \pi / \cos(19^\circ 31' 42'')$ Fp=总齿距误差

技术要求

精度等级: DIN8 国标7级
材料: S45C
齿型: 斜齿
右旋角: $19^\circ 31' 42''$
硬度处理: 调质处理 HB20-25°
生产工艺: 四面平磨精插

亦供应无钻孔的齿条, 请于型号后备注"N", 如STOER010N。
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Technical requirement

Accuracy level: DIN8 international 7 level.
Material: S45C
Tooth profile: helical teeth
Right angle: $19^\circ 31' 42''$
Hardness treatment: quenching and tempering treatment HB20-25°
Production process: four sides flat grinding and fine cutting

Racks without holes are also available. Note "N" in the end of code number. I.e. SOTER010N. Other Dimensions / Materials could be customized by drawings.

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型号 Code	模数 Module	P_t	L	L2	齿数 Tooth No.	B	A0	A1	D	I	孔数 Hole No.	A	C1	C2	E	D1	I1	C3	Fp
772 010 050	1.5	4.9999	500.00	6	100	17	17	15.5	62.5	125	4	7	6	9.5	7	31.7	436.6	5.7	0.08
772 010 100	1.5	4.9999	1000.00	6	200	17	17	15.5	62.5	125	8	7	6	9.5	7	31.7	936.6	5.7	0.09
772 015 050	1.5	4.9999	500.00	6.03	100	19	19	17.5	62.5	125	4	8	7	11	7	31.7	436.6	5.7	0.08
772 015 100	1.5	4.9999	1000.00	6.74	200	19	19	17.5	62.5	125	8	8	7	11	7	31.7	936.6	5.7	0.09
772 020 050	2	6.6666	500.00	8.5	75	24	24	22	62.5	125	4	8	7	11	7	31.7	436.6	5.7	0.08
772 020 100	2	6.6666	1000.00	8.5	150	24	24	22	62.5	125	8	8	7	11	7	31.7	936.6	5.7	0.09
772 030 050	3	9.9999	500.00	10.3	50	29	29	26	62.5	125	4	9	10	15	9	35.0	430.0	7.7	0.088
772 030 100	3	9.9999	1000.00	10.3	100	29	29	26	62.5	125	8	9	10	15	9	35.0	930.0	7.7	0.101
772 040 050	4	13.3333	506.67	13.8	38	39	39	35	62.5	125	4	12	10	15	9	33.3	433.0	7.7	0.095
772 040 100	4	13.3333	1000.00	13.8	75	39	39	35	62.5	125	8	12	10	15	9	33.3	933.4	7.7	0.109
772 050 050	5	16.6666	500.00	17.4	30	49	39	34	62.5	125	4	12	14	20	13	37.5	425.0	11.7	0.095
772 050 100	5	16.6666	1000.00	17.4	60	49	39	34	62.5	125	8	12	14	20	13	37.5	925.0	11.7	0.109
772 060 050	6	19.9999	500.00	20.9	25	59	49	43	62.5	125	4	16	18	26	17	37.5	425.0	15.7	0.095
772 060 100	6	19.9999	1000.00	20.9	50	59	49	43	62.5	125	8	16	18	26	17	37.5	925.0	15.7	0.109
772 080 050	8	26.6667	480.00	28.0	18	79	79	71	60.0	120	4	25	22	33	21	120	240.0	19.7	0.1
772 080 100	8	26.6667	960.00	28.0	36	79	79	71	60.0	120	8	25	22	33	21	120	720.0	19.7	0.11
772 100 050	10	33.3333	1000.00	35.11	30	99	99	89	62.5	125	8	32	33	48	32	125	750.0	19.7	0.12
772 120 100	12	39.9999	1000.00	42.56	25	120	120	108	40	125	8	40	39	58	38	125	750.0	19.7	0.12

端面齿距 $P_e = \text{模数} \times \pi / \cos(19^\circ 31' 42'')$ Fp=总齿距误差

Technical requirement

Accuracy level: DIN8 international 7 level.
Material: S45C
Tooth profile: Oblique tooth
Right angle: $19^\circ 31' 42''$
Hardness treatment: high frequency quenching HRC50-55°
Production process: four sides flat grinding, fine insertion, surface blackening or phosphating.

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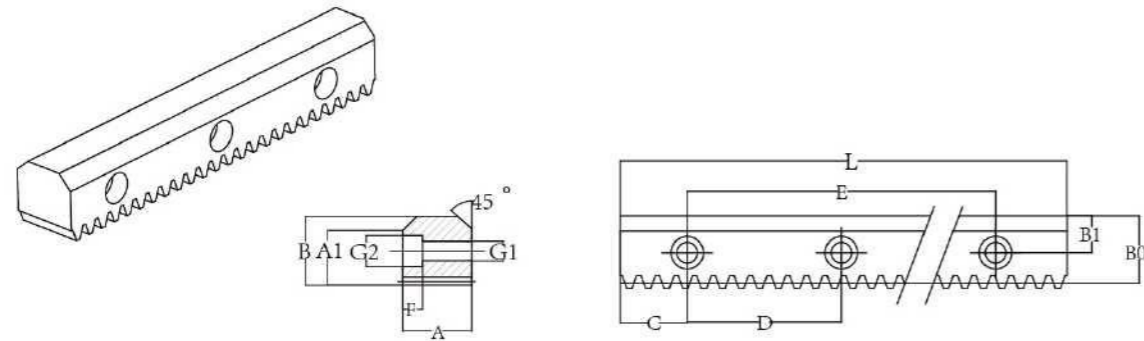
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技术要求

精度等级: DIN8 国标7级
材料: S45C
齿型: 斜齿
右旋角: $19^\circ 31' 42''$
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型号 Code	模数 Module	P _t	L	A	B	B0	C	D	B1	A1	G1	G2	F	E
VX55315063	1.5915	5	630	14.5	24.5	22.9	15	100	13	20	7	11	7	600
VX55315103	1.5915	5	1030	14.5	24.5	22.9	15	100	13	20	7	11	7	1000
VX55320063	1.5915	5	630	19.5	29.5	27.9	15	100	15.5	23.5	9	15	9	600
VX55320103	1.5915	5	1030	19.5	29.5	27.9	15	100	15.5	23.5	9	15	9	1000
VX55325063	2.3873	7.5	630	24.7	33	30.61	15	100	18.5	25.2	9	15	9	600
VX55325093	2.3873	7.5	930	24.7	33	30.61	15	100	18.5	25.2	9	15	9	900
VX55325123	2.3873	7.5	1230	24.7	33	30.61	15	100	18.5	25.2	9	15	9	1200
VX55335063	3.1831	10	630	34.6	46.6	43.41	15	100	28.6	36.7	11	18	11	600
VX55335093	3.1831	10	930	34.6	46.6	43.41	15	100	28.6	36.7	11	18	11	900
VX55335123	3.1831	10	1230	34.6	46.6	43.41	15	100	28.6	36.7	11	18	11	1200

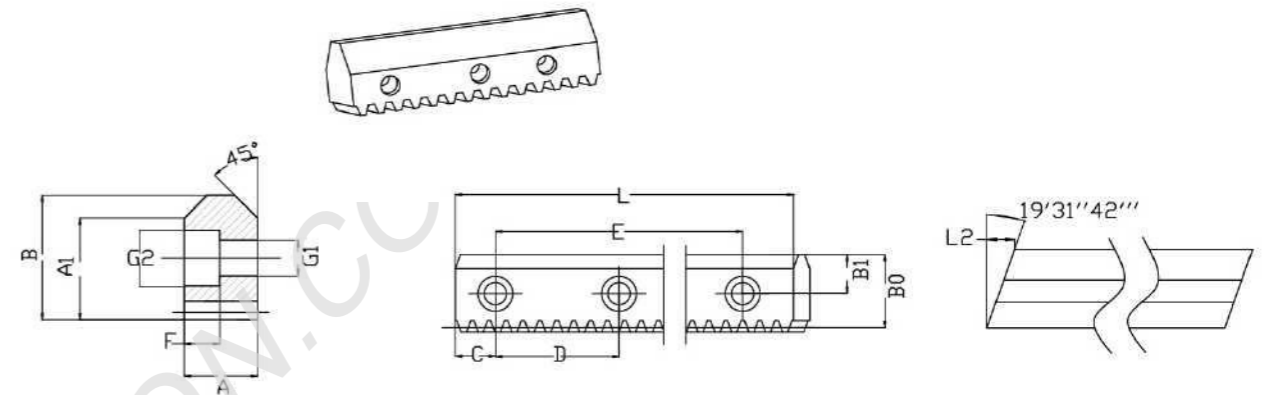
总齿距误差/Total pitch error
GTF/1000≤0.036mm

直齿V型研磨导轨齿条

技术要求：
精度等级：DIN6e25
材料：S45C/20CrMnTi
齿型：直齿
硬度处理：高频淬火HRC50-55°/渗碳淬火HRC55-60°
生产工艺：四面研磨，齿面研磨，V型导轨面研磨
V型导轨硬度HRC50-55°/HRC55-60°

Straight tooth V type grinding guide rail rack

Technical requirements:
Accuracy level: DIN6e25
Material: S45C/20CrMnTi
Tooth type: straight tooth.
Hardness treatment: high frequency quenching HRC50-55° / carburizing quenching HRC55-60°
Production process: four sides grinding, tooth surface grinding, V rail surface grinding. V rail hardness HRC50-55° /HRC55-60°



型号 Code	模数 Module	P _t	L	L2	A	B	B0	C	D	B1	A1	G1	G2	F	E
VXX66315063	1.5	4.9999	630	5.143	14.5	24.5	23	15	100	13	20	7	11	7	600
VXX66315103	1.5	4.9999	1030	5.143	14.5	24.5	23	15	100	13	20	7	11	7	1000
VXX66320063	1.5	4.9999	630	6.916	19.5	29.5	28	15	100	15.5	23.5	9	15	9	600
VXX66320103	1.5	4.9999	1030	6.916	19.5	29.5	28	15	100	15.5	23.5	9	15	9	1000
VXX66325064	2	6.6666	640	8.76	24.7	33	31	20	100	18.5	25.2	9	15	9	600
VXX66325094	2	6.6666	940	8.76	24.7	33	31	20	100	18.5	25.2	9	15	9	900
VXX66325124	2	6.6666	1240	8.76	24.7	33	31	20	100	18.5	25.2	9	15	9	1200
VXX66335063	3	9.9999	630	12.272	34.6	46.6	43.6	15	100	28.6	36.7	11	18	11	600
VXX66335093	3	9.9999	930	12.272	34.6	46.6	43.6	15	100	28.6	36.7	11	18	11	900
VXX66335123	3	9.9999	1230	12.272	34.6	46.6	43.6	15	100	28.6	36.7	11	18	11	1200

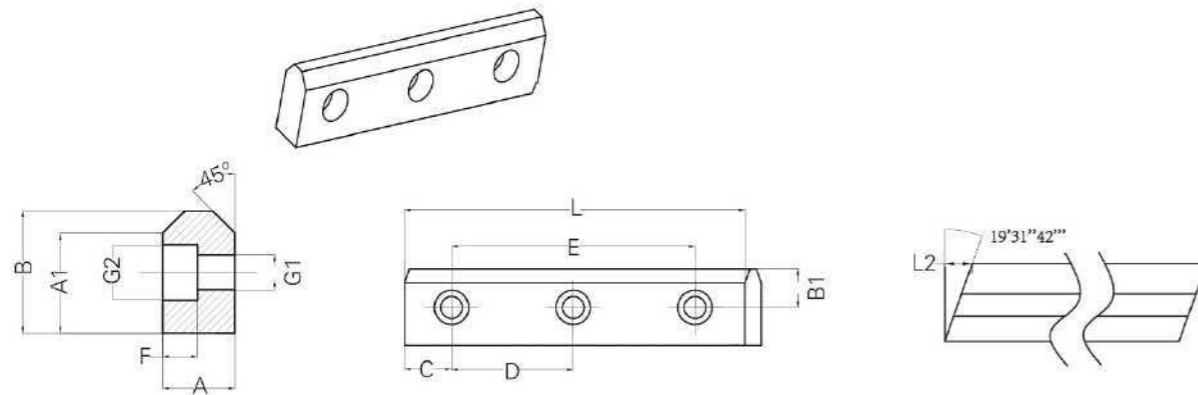
总齿距误差/Total pitch error
GTF/1000≤0.036mm

斜齿V型研磨导轨齿条

技术要求：
精度等级：DIN6e25
材料：S45C/20CrMnTi
齿型：斜齿
右旋角：19°31'42''
硬度处理：高频淬火HRC50-55°/渗碳淬火HRC55-60°
生产工艺：四面研磨，齿面研磨，V型导轨面研磨
V型导轨硬度HRC50-55°/HRC55-60°

Helical V type grinding guide rack

Technical requirements:
Accuracy level: DIN6e25
Material: S45C/20CrMnTi
Tooth profile: helical teeth
Right angle: 19° 31'42''
Hardness treatment: high frequency quenching HRC50-55° / carburizing quenching HRC55-60°
Production process: four sides grinding, tooth surface grinding, V rail surface grinding. V rail hardness HRC50-55° /HRC55-60°



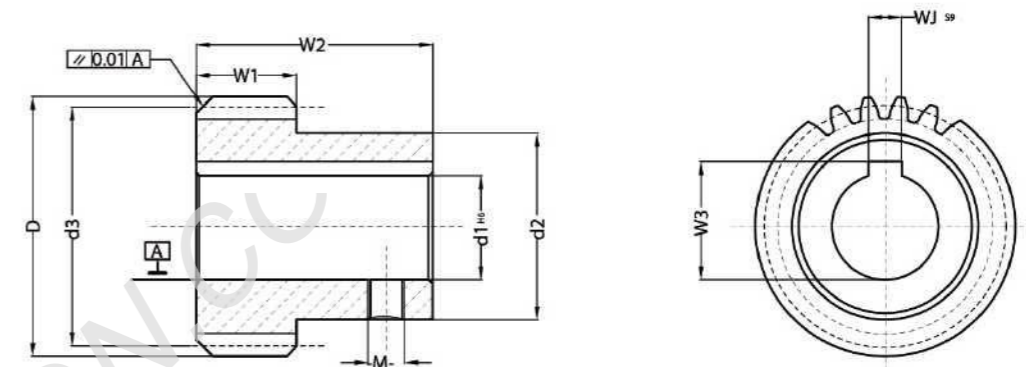
型号 Code	L	L2	A	B	C	D	B1	A1	G1	G2	F	E
VXT77315063	630	5.143	14.5	24.5	15	100	13	20	7	11	7	600
VXT77315103	1030	5.143	14.5	24.5	15	100	13	20	7	11	7	1000
VXT77320063	630	6.916	19.5	29.5	15	100	15.5	23.5	9	15	9	600
VXT77320103	1030	6.916	19.5	29.5	15	100	15.5	23.5	9	15	9	1000
VXT77325063	630	8.76	24.7	33	15	100	18.5	25.2	9	15	9	600
VXT77325093	930	8.76	24.7	33	15	100	18.5	25.2	9	15	9	900
VXT77325123	1230	8.76	24.7	33	15	100	18.5	25.2	9	15	9	1200
VXT77325063	630	12.272	34.6	46.6	15	100	28.6	36.7	11	18	11	600
VXT77335093	930	12.272	34.6	46.6	15	100	28.6	36.7	11	18	11	900
VXT77335123	1230	12.272	34.6	46.6	15	100	28.6	36.7	11	18	11	1200

V型研磨导轨

技术要求
 材料:S45C/20CrMnTi
 硬度处理:V型导轨面硬度50-60HRC/HRC55-60°
 生产工艺:四面研磨, V型导轨面研磨

V grinding Guide

Technical requirement
 Material: S45C/20CrMnTi
 Hardness: V rail surface hardness 50-60°HRC/HRC55-60°
 Production process: four side grinding, V rail surface grinding



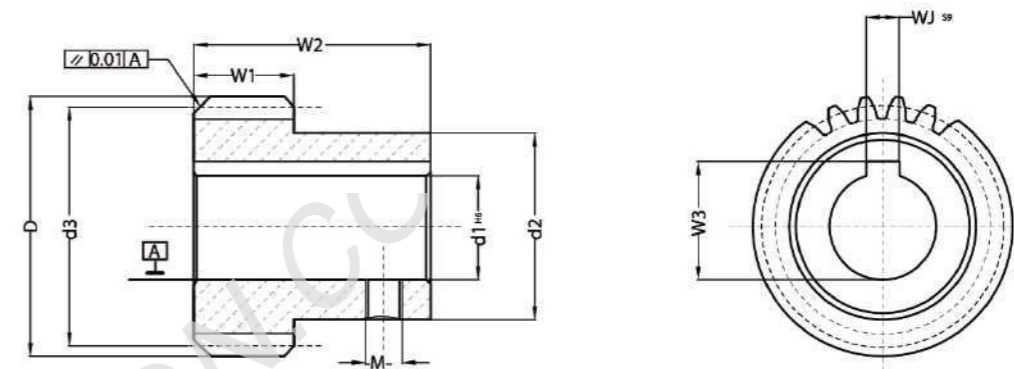
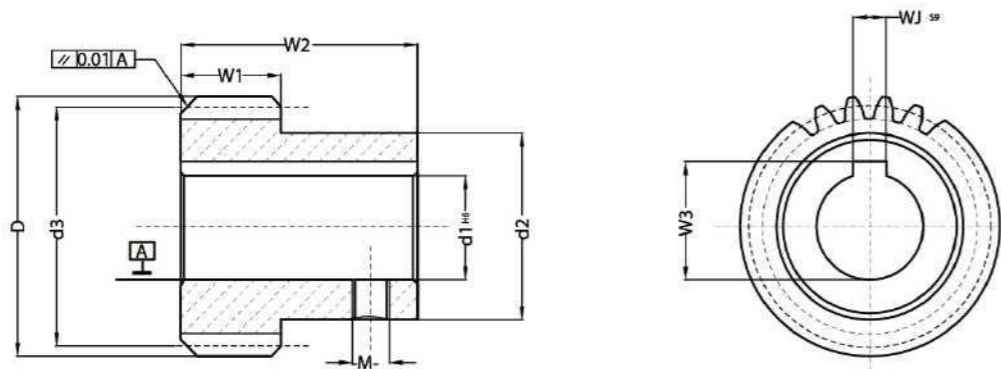
型号 Code	模数 Module	齿数	d1 _{H6}	d2	d3	D	w1	w2	w3	WJ ₅₉	M
YMCL151433	1.5	25	14	Φ26	Φ39.97	Φ42.97	19	33	16.3	5	4
YMCL151635	1.5	24	16	Φ28	Φ38.20	Φ41.20	15	35.5	18.3	5	6
YMCL151935	1.5	24	19	Φ28	Φ38.20	Φ41.20	15	35.5	21.8	6	6
YMCL152043	1.5	26	20	Φ32	Φ41.38	Φ44.38	22	43	22.8	6	6
YMCL152045	1.5	30	20	Φ38	Φ47.74	Φ50.74	25	45	22.8	6	6
YMCL152055	1.5	30	20	Φ38	Φ47.74	Φ50.74	25	55	22.8	6	6
YMCL152065	1.5	30	20	Φ38	Φ47.74	Φ50.74	25	65	22.8	6	6
YMCL152265	1.5	30	22	Φ38	Φ47.74	Φ50.74	25	65	24.8	6	6
YMCL152555	1.5	30	25	Φ38	Φ47.74	Φ50.74	25	55	27.8	6	6

斜齿研磨齿轮

技术要求
 精度等级: DIN6 国标5级
 材料: 40Cr/20CrMnTi
 齿型: 斜齿
 左旋角: 19° 31' 42''
 硬度处理: 高频淬火 HRC50-55° / 整体渗碳淬火 HRC55-60°
 生产工艺: 齿面研磨

Helical gear grinding

Technical requirement
 Accuracy level: DIN6 international 5 level.
 Material: 40Cr/20CrMnTi
 Tooth profile: helical teeth
 Left angle: 19° 31' 42''
 Hardness treatment: high frequency quenching HRC50-55° / whole carburizing quenching HRC55-60°
 Production process: gear grinding



型号 Code	模数 Module	齿数	d1 _{H6}	d2	d3	D	w1	w2	w3	WJ _{S9}	M
YMCL201438	2	21	14	Φ30	Φ44.56	Φ48.56	20	38	16.3	5	6
YMCL201936	2	25	19	Φ35	Φ53.05	Φ57.05	21	36	21.8	6	6
YMCL202034	2	21	20	Φ36	Φ44.56	Φ48.56	20	34	22.8	6	5
YMCL202058	2	25	20	Φ45	Φ53.29	Φ57.29	25	58	22.8	6	6
YMCL202054	2	27	20	Φ40	Φ57.29	Φ61.29	25	54	22.8	6	6
YMCL202242	2	20	22	Φ35	Φ46.44	Φ42.44	24	42	24.8	6	6
YMCL202250	2	25	22	Φ40	Φ57.29	Φ53.29	25	50	24.8	6	6
YMCL202243	2	30	22	Φ50	Φ63.66	Φ67.66	28	43	24.8	6	6
YMCL202250	2	30	22	Φ50	Φ63.66	Φ67.66	28	50	24.8	6	6
YMCL202555	2	30	25	Φ45	Φ63.66	Φ67.66	25	55	27.8	8	6
YMCL203255	2	32	32	Φ50	Φ67.9	Φ71.9	24	55	35.3	10	8
YMCL203258	2	36	32	Φ50	Φ76.39	Φ80.39	24	58	35.3	10	8

型号 Code	模数 Module	齿数	d1 _{H6}	d2	d3	D	w1	w2	w3	WJ _{S9}	M
YMCL302555	3	20	25	Φ50	Φ63.66	Φ69.66	30	55	28.3	8	8
YMCL302580	3	20	25	Φ50	Φ63.66	Φ69.66	30	80	28.3	8	8
YMCL303260	3	20	32	Φ55	Φ63.66	Φ69.66	28	60	35.3	10	8
YMCL303255	3	25	32	Φ66	Φ79.57	Φ85.57	30	55	35.3	10	8
YMCL303565	3	25	35	Φ55	Φ79.57	Φ85.57	28	65	38.8	10	8
YMCL304080	3	25	40	Φ70	Φ79.58	Φ85.58	39	80	43.3	12	12
YMCL404550	4	22	45	Φ65	Φ93.37	Φ101.4	40	50	38.3	10	8
YMCL403575	4	24	35	Φ55	Φ101.86	Φ109.9	40	75	38.3	10	8
YMCL404075	4	24	40	Φ62	Φ101.86	Φ109.9	40	75	43.3	12	10
YMCL404080	4	25	40	Φ80	Φ106.103	Φ114.103	42	80	43.3	12	10

斜齿研磨齿轮

技术要求
 精度等级: DIN6 国标5级
 材料: 40Cr/20CrMnTi
 齿型: 斜齿
 左旋角: 19° 31' 42"
 硬度处理: 高频淬火 HRC50-55° / 整体渗碳淬火 HRC55-60°
 生产工艺: 齿面研磨

Helical gear grinding

Technical requirement
 Accuracy level: DIN6 international 5 level.
 Material: 40Cr/20CrMnTi
 Tooth profile: helical teeth
 Left angle: 19° 31' 42"
 Hardness treatment: high frequency quenching HRC50-55° / whole carburizing quenching HRC55-60°
 Production process: gear grinding

斜齿研磨齿轮

技术要求
 精度等级: DIN6 国标5级
 材料: 40Cr/20CrMnTi
 齿型: 斜齿
 左旋角: 19° 31' 42"
 硬度处理: 高频淬火 HRC50-55° / 整体渗碳淬火 HRC55-60°
 生产工艺: 齿面研磨

Helical gear grinding

Technical requirement
 Accuracy level: DIN6 international 5 level.
 Material: 40Cr/20CrMnTi
 Tooth profile: helical teeth
 Left angle: 19° 31' 42"
 Hardness treatment: high frequency quenching HRC50-55° / whole carburizing quenching HRC55-60°
 Production process: gear grinding