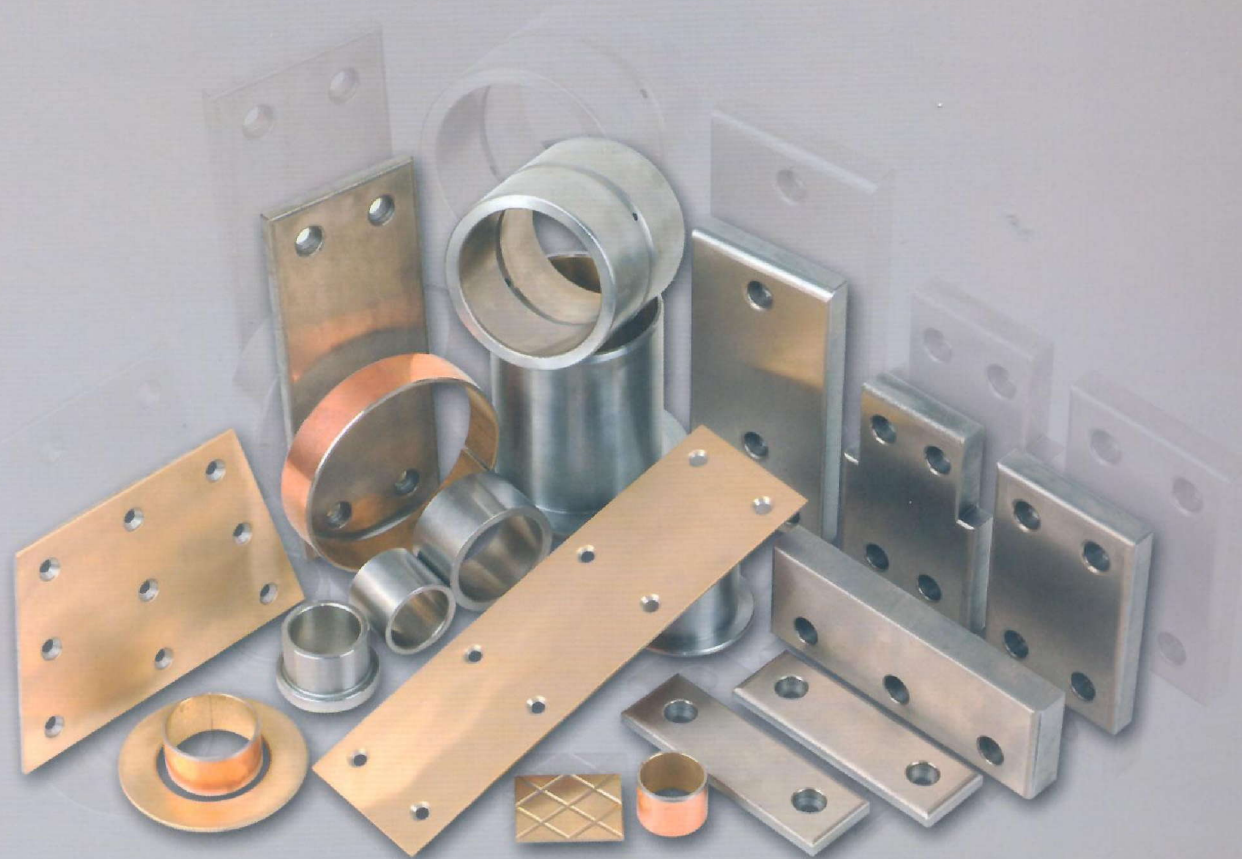


NOVIN Ball Bearing
www.novinballbearing.com

ISO/TS16949 认证单位



TF系列轴承



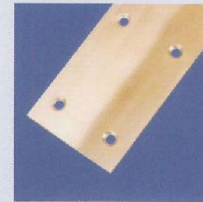
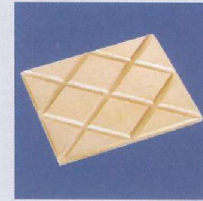
TF-1石墨散嵌合金轴承
TF-1 Bearing

产品介绍

TF-1石墨散嵌合金轴承是我公司新近开发出的一种新产品，是我公司JF-800双金属轴承的改良型，突破了JF-800双金属轴承必须加油润滑的局限性，可长期在无油润滑条件下工作，产品性能与国外DEVA-BM相近。

它是钢板或铜板为基板，表面烧结青铜合金层，合金层内均匀弥散分布固体润滑剂，当轴与轴承摩擦时，烧结合金层内的固体润滑材料会在轴与轴承之间形成一层减摩层，从而达到无油润滑的效果。产品在高温轮胎模具中使用效果良好，其他机械中需要加油或无法加油的场合均可选用。

根据产品应用的不同领域，本公司共研制了三种不同基板的TF-1石墨散嵌合金轴承来供顾客选用。



Product introduction:

TF-1 graphite dispersion embedded alloy bearing is a new product developed by our company, it is the improved type of JF-800 bearing. It breaches the restriction that JF-800 bearing working must be with oil lubricating. It can work under oilless condition perpetually.

It's base plate is steel or copper, bronze alloy layer was sintered on its surface, The solid lubricant is dispersed in the alloy layer. When the shaft turns in the bearing, the solid lubricant in the alloy layer forms a friction-lightening layer, so the oilless purpose is reached. It is suitable for the cases of heavy load, high speed and that of oil lubricant can not be added for long time.

According to the multiple application fields, our company developed TF-1 bearings with three types of different base plates, for selecting by customers.

轴承材质 Bearing materials

型号Type	基板材质 plate material	合金层材质 alloy layer material
TF-1	低碳钢板 mild steel plate	CuSnPb+石墨粉 CuSnPb+Gr
TF-1B	青铜板 bronze plate	CuSnPb+石墨粉 CuSnPb+Gr
TF-1S	不锈钢板 stainless steel plate	CuSn+石墨粉 CuSn+Gr

产品性能 Product properties

性能performance		单位unit	指标 target data
最高承载压力 Loading limit	静载 Static	N/mm ²	320
	动载 Dynamic	N/mm ²	150
最大线速度 (干摩擦) Speed limit(dry)		m/s	0.5
摩擦系数 (干摩擦) Friction coef. (dry)			0.05~0.18
极根PV值 (干摩擦) Max. PV value(dry)		N/mm ² . m/s	1
最高使用温度 Temperature limit		°C	300
合金层硬度 Hardness of alloy layer		HB	>40

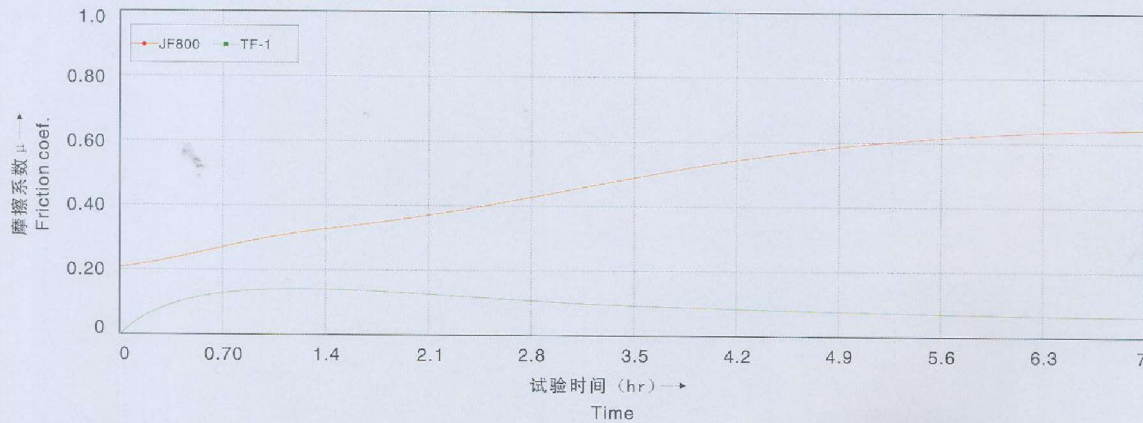
TF-1与JF800冲床滑板试验对比曲线

The test with TF-1 and JF800

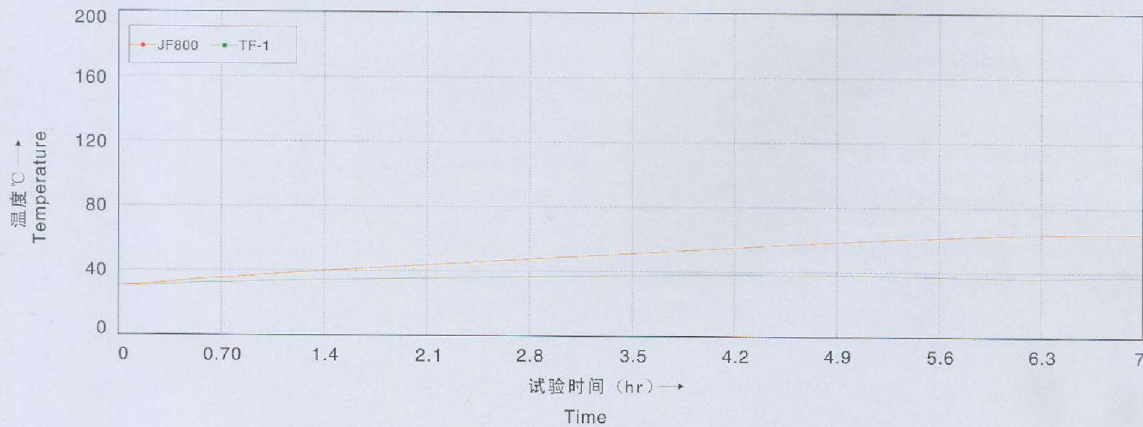
试验条件 Test condition

产品型号 Type	TF-1、JF800	环境温度 Temperature	20°C-25°C	滑动速度 Velocity	3m/min	
试件尺寸 Size	50×50×5	试验面压 Load	4.5MPa	润滑条件 Lubrication	干摩擦 No lubrication	
对磨轴材质 Mating material	45# HRC45-50	试验时间 Time	7小时(hr)	试验形态 Test type	滑板往复运动 Plate reciprocating motion	

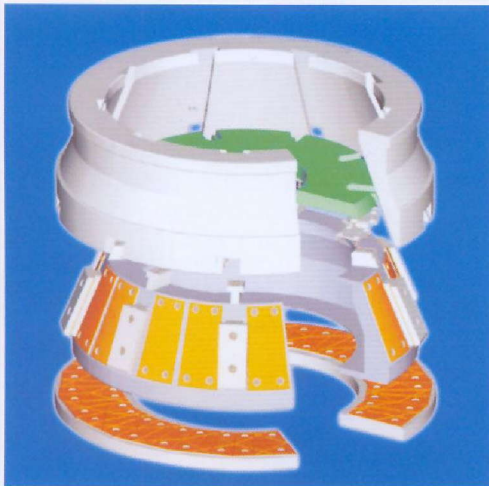
摩擦系数数据 Friction coef. Data



试验温度数据 Temperature Data



应用实例
Examples of application



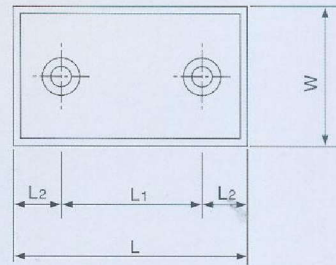
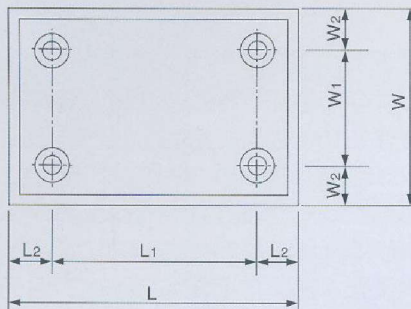
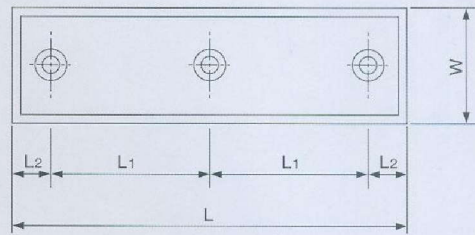
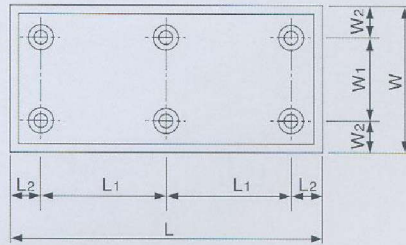
轮胎模具
Tyres in shape



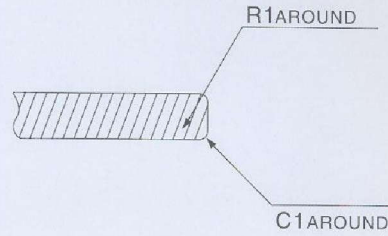
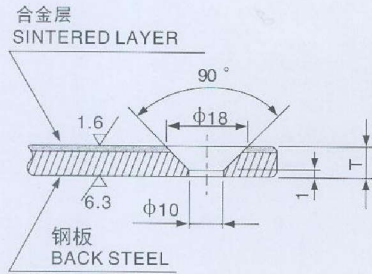
风力发电机
New impetus from the wind energy

TF-1 标准滑板(5mm)

TF-1 standard slide plate(5mm)



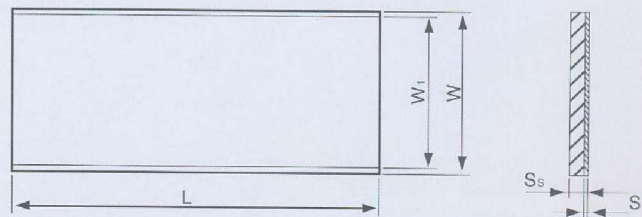
型号 Parts Number	宽度 W		长度 L		厚度 T	螺钉孔尺寸(Mounting Hole Pitch)				螺钉孔数目 Number of Holes
						L1		L2		
TF1-2250	22	-0.1 -0.3	50	-0.1 -0.3	5	±0.015	20	±0.2	15	2
TF1-2275	"	"	75	"	"	"	45	"	"	"
TF1-22100	"	"	100	"	"	"	70	"	"	"
TF1-22150	"	"	150	"	"	"	60	"	"	3
TF1-2850	28	"	50	"	"	"	20	"	"	2
TF1-2875	"	"	75	"	"	"	45	"	"	"
TF1-28100	"	"	100	"	"	"	70	"	"	"
TF1-28150	"	"	150	"	"	"	60	"	"	3
TF1-3850	38	"	50	"	"	"	20	"	"	2
TF1-3875	"	"	75	"	"	"	45	"	"	"
TF1-38100	"	"	100	"	"	"	70	"	"	"
TF1-38150	"	"	150	"	"	"	60	"	"	3
TF1-4850	48	"	50	"	"	"	20	"	"	2
TF1-4875	"	"	75	"	"	"	45	"	"	"
TF1-48100	"	"	100	"	"	"	70	"	"	"
TF1-48150	"	"	150	"	"	"	60	"	"	3



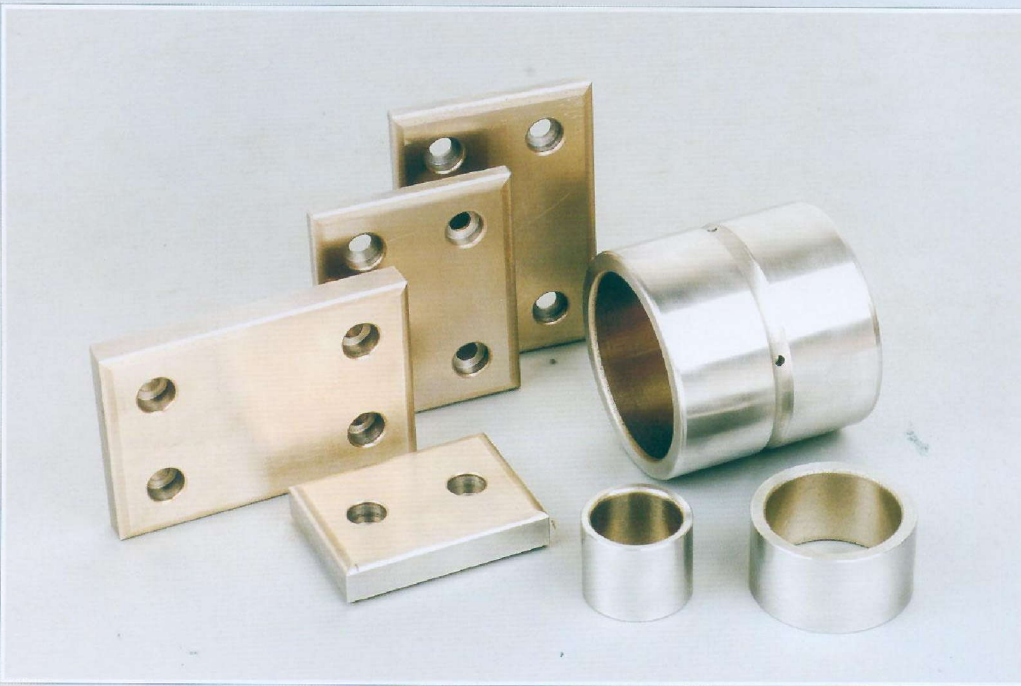
型号 Parts Number	宽度 W		长度 L		厚度 T		螺钉孔尺寸(Mounting Hole Pitch)				螺钉孔数目 Number of Holes		
							W1	W2	L1	L2			
TF1-7575	75	-0.1 -0.3	75	-0.1 -0.3	5	±0.015	45	±0.2	15	45	±0.2	15	4
TF1-75100	"	"	100	"	"	"	"	"	"	70	"	"	"
TF1-75125	"	"	125	"	"	"	"	"	"	95	"	"	"
TF1-75150	"	"	150	"	"	"	"	"	"	60	"	"	6
TF1-100100	100	"	100	"	"	"	70	"	"	70	"	"	4
TF1-100125	"	"	125	"	"	"	"	"	"	95	"	"	"
TF1-100150	"	"	150	"	"	"	"	"	"	60	"	"	6

TF-1 石墨散嵌合金板材标准尺寸

TF-1 Slide Plates



厚度 Wall thickness S_s	厚度公差 Wall thickness tolerance	最小合金层厚度 Min.sliding layer thickness. S_L	有效宽度 Useful width w_1 Tol.:+1mm	长度 Length L tol.:+3mm
2.5	±0.05	0.75	200	1750
3.0	±0.05	1.05	200	1750
5.0	±0.05	1.55	200	1750



TF-2 镍石墨散嵌合金轴承
TF-2 Bearing

产品介绍

TF-2镍石墨散嵌合金轴承是我公司根据国外相关资料，结合我公司多年设计生产滑动轴承的经验而开发出的一种新型固体润滑轴承产品。它是以优质低碳钢板为基体，表面经1100℃以上烧结一层厚度约1mm的铁镍合金层，合金层中均匀弥散分布着耐高温固体润滑材料。具有摩擦系数低、耐磨损，最高可在600℃温度下长期工作等优点。

产品的可供货形式有滑板、带法兰轴承与轴承三种，轴承由于无开口缝，故其内外径加工精度较高。

Product properties

TF-2 nickel graphite dispersion embedded alloy bearing is a new kind of solid lubricant bearing based on relative foreign information and the experiences of designing and manufacturing for years in our company. Its base plate is fine mild steel, a iron-nickel alloy layer is formed through sintering above 1100℃ on its surface, the solid lubricant withstanding high temperature is dispersed in the alloy layer uniformly. It possesses the merits of lower friction coefficient and wear resisting. It can work until 600℃ for long time.

The delivery type have three modes: slide plate, bearing with flange, bearing. The precisions of I.D. and O.D. are higher because of no split in bearing.

产品性能 Product properties

性能 performance		单位 unit	指标 data
最高承载压力 Max. loading pressure	静载 still loading	N/mm ²	73.5
	动载 motive loading	N/mm ²	24.5
最大线速度 (干摩擦) Max. linear velocity (dry friction)		m/s	0.5
摩擦系数 (干摩擦) Friction coef. (dry friction)			0.03~0.18
极根PV值 (干摩擦) Max. PV value(dry friction)		N/mm ² . m/s	1.63
最高使用温度 Max. use temperature		°C	600
合金层硬度 Hard of alloy layer		HB	>45

轴承材质 Bearing materials

型号 Type	基板材质 plate material	合金层材质 alloy layer material
TF-2	低碳钢板 mild steel plate	CuFeNiSn+石墨粉 CuFeNiSn+Gr

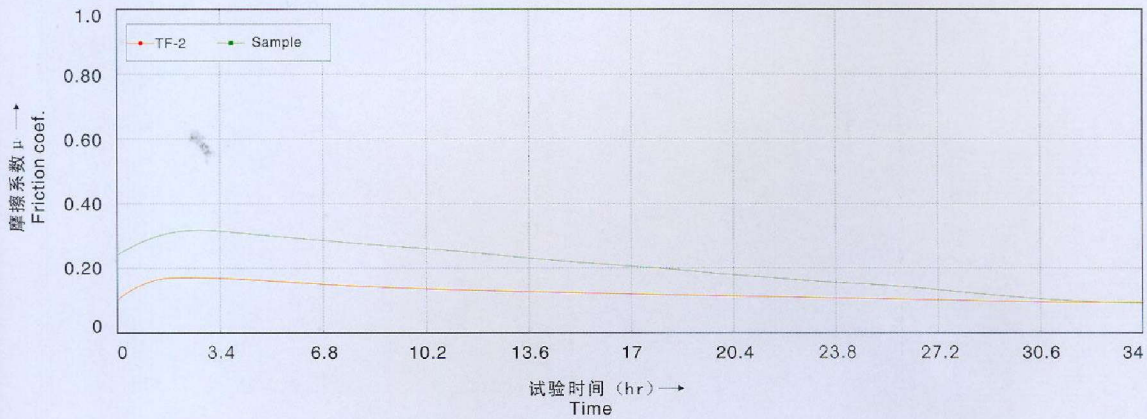
TF-2与国外产品冲床滑板试验对比曲线

The test with TF-2 and Sample

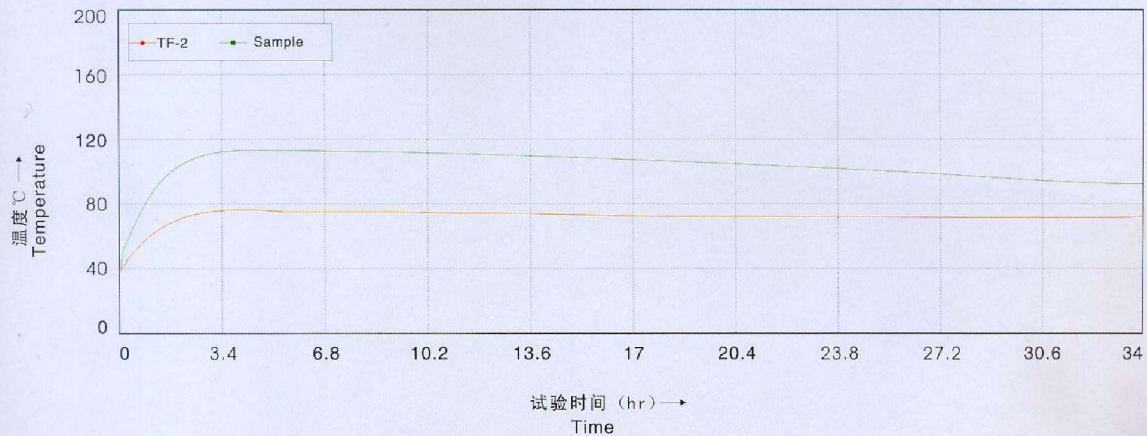
试验条件 Test condition

产品型号 Type	TF-2、国外来样 TF-2、sample	环境温度 Temperature	20°C-25°C	滑动速度 Velocity	7m/min	
试件尺寸 Size	100×20×20	试验面压 Load	50kg/cm ²	润滑条件 Lubrication	一次性涂油脂 Initial greasing only	
对磨轴材质 Mating material	45# HRC45-50	试验时间 Time	34小时(hr)	试验形态 Test type	滑板往复运动 Plate reciprocating motion	

摩擦系数数据 Friction coef. Data



试验温度数据 Temperature Data



应用实例
Examples of application

高速冲床
Punch

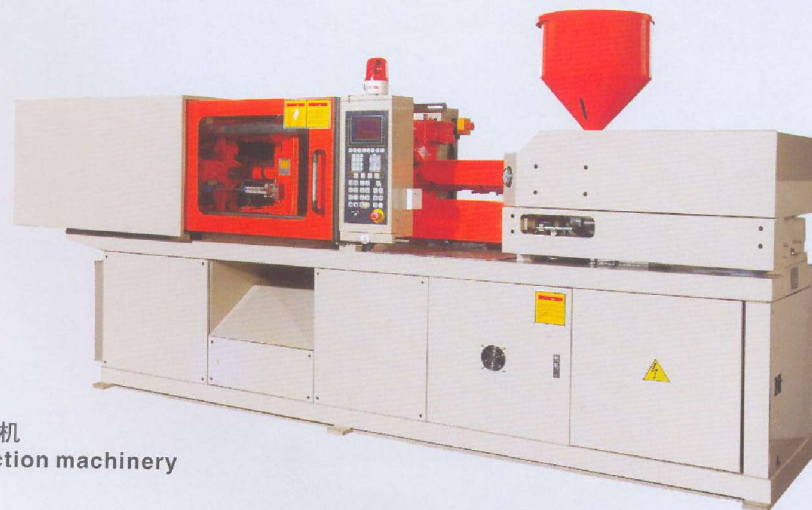


挖掘机
Hydraulic shovel



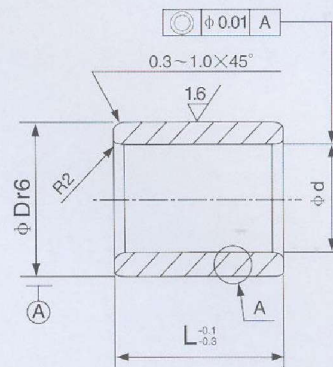
高温设备
High temperature equipment

注塑机
Injection machinery



TF-2 轴套

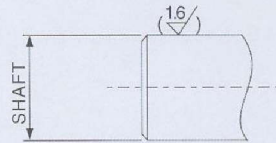
TF-2 standard bearing



烧结层 (最小厚度0.8mm)
SINTERED LAYER(0.8mm MIN)

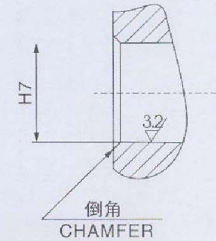


轴配合公差 (MATING SHAFT)



轴 (SHAFT) g6:正常使用(Normal use)
r7重载(High load)

轴承座孔(HOUSING)



I.D. ϕd	O.D. ϕD	L $\begin{smallmatrix} -0.1 \\ -0.3 \end{smallmatrix}$																	
		8	10	12	15	16	19	20	25	30	35	40	50	60	70	80	90	100	120
12	+0.049 +0.038	18	+0.034 +0.023	△	△	△	△	△	△	△	△								
13	+0.053 +0.042	19	+0.041 +0.028		△	△	△			△	△	△							
14	"	20	"		△	△	△			△	△	△							
15	"	21	"		△	△	△	△		△	△	△							
16	"	22	"		△	△	△	△	△	△	△	△	△	△					
18	"	24	"		△	△	△	△		△	△	△		△					
20	+0.060 +0.047	28	"		△	△	△	△	△	△	△	△	△	△	△				

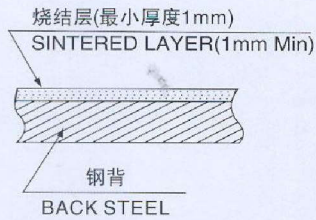
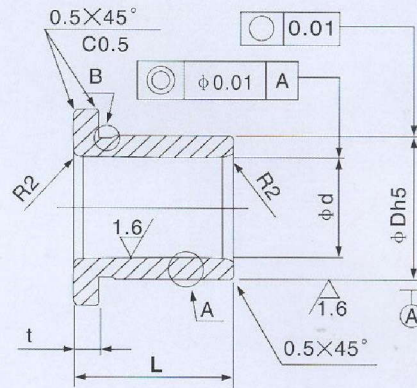
NOVIN **B**all **B**earing

www.novinballbearing.com

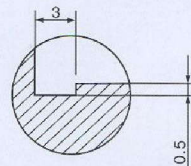
I.D.		O.D.		L ^{-0.1} _{-0.3}																		
ϕd		ϕD		8	10	12	15	16	19	20	25	30	35	40	50	60	70	80	90	100	120	
"	"	30	"				△	△		△	△	△	△	△	△							
25	+0.065 +0.052	33	+0.050 +0.034			△	△	△		△	△	△	△	△	△	△						
"	"	35	"				△	△		△	△	△	△	△	△	△						
28	"	38	"							△	△	△		△								
30	"	"	"			△	△			△	△	△	△	△	△	△						
"	"	"	"				△			△	△	△	△	△	△	△						
35	+0.076 +0.060	44	"							△	△	△	△	△	△	△						
"	"	45	"							△	△	△	△	△	△	△						
40	"	50	"			△				△	△	△	△	△	△	△	△	△				
45	+0.081 +0.065	55	+0.060 +0.041									△	△	△	△	△						
"	"	60	"									△		△	△	△	△	△				
50	"	"	"							△		△	△	△	△	△	△	△				
"	"	62	"									△		△	△	△	△					
"	"	65	"									△		△	△	△	△	△			△	
55	+0.091 +0.072	70	+0.062 +0.043									△		△	△	△	△					
60	"	74	"									△	△	△	△	△	△	△				
"	"	75	"									△	△	△	△	△	△	△			△	
65	"	80	"											△	△	△	△	△				
70	+0.096 +0.077	85	+0.073 +0.051									△	△	△	△	△	△	△			△	
"	"	90	"												△	△	△	△				
75	"	"	"												△	△	△	△			△	
"	"	95	"															△			△	
80	"	96	"												△	△	△	△	△		△	△
"	"	100	"												△	△	△	△	△		△	△
90	+0.107 +0.085	110	+0.076 +0.054												△	△		△	△		△	△
100	"	120	"												△	△	△	△	△		△	△

TF-2 带法兰轴套

TF-2 standard bearing with flange

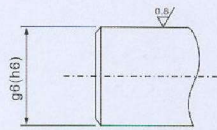


A部
Section A



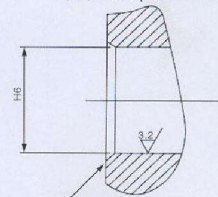
B部
section B

轴配合公差(MATING SHAFT)



轴 (SHAFT)
g6:正常使用(Normal use)
r7重载(High load)

轴承座孔(HOUSING)

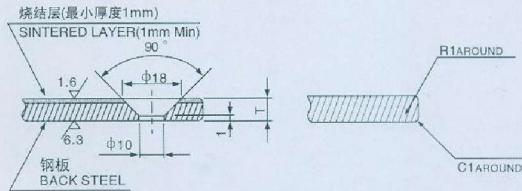
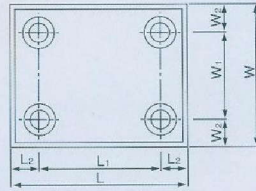
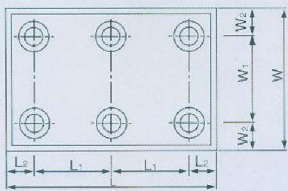
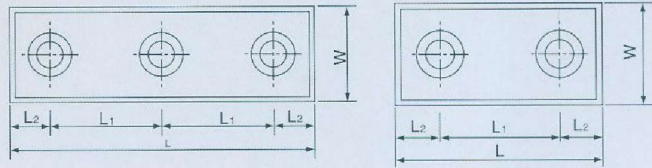
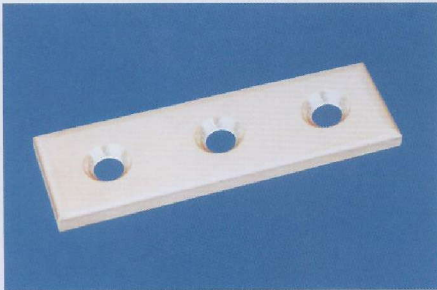


倒角
CHAMFER

I.D. ϕd	O.D. ϕD	Flange			L $\begin{matrix} 0 \\ -0.3 \end{matrix}$										
		ϕF	t		30	40	50	60	80	100	120				
20	+0.013 +0.004	28	0 -0.009	38	-0.2 -0.3	7	+0.05 0	Δ	Δ						
25	"	33	0 -0.011	43	"	"	"	Δ		Δ					
30	"	38	"	48	"	"	"	Δ			Δ				
35	+0.016 +0.005	44	"	54	"	10	"		Δ			Δ			
40	"	50	"	60	"	"	"		Δ			Δ			
50	"	62	0 -0.013	72	"	"	"			Δ			Δ		
60	+0.019 +0.006	28	"	84	"	"	"				Δ				Δ

TF-2 标准滑板(5mm)

TF-2 standard slide plate(5mm)

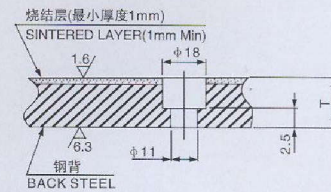
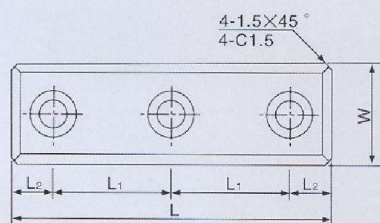
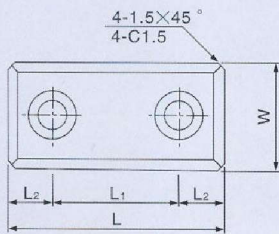
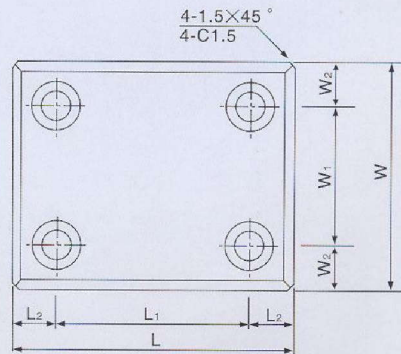
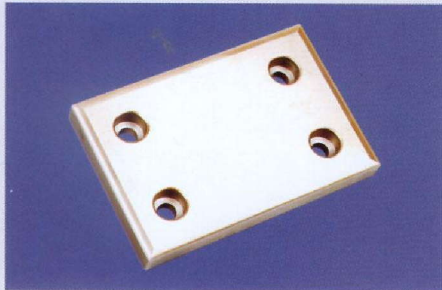


型号 Parts Number	宽度 W		长度 L		厚度 T	螺钉孔尺寸(Mounting Hole Pitch)			螺钉孔数目 Number of Holes	
						L1	L2			
TSPT-2250	22	-0.1 -0.3	50	-0.1 -0.3	5	±0.015	20	±0.2	15	2
TSPT-2275	"	"	75	"	"	"	45	"	"	"
TSPT-22100	"	"	100	"	"	"	70	"	"	"
TSPT-22150	"	"	150	"	"	"	60	"	"	3
TSPT-2850	28	"	50	"	"	"	20	"	"	2
TSPT-2875	"	"	75	"	"	"	45	"	"	"
TSPT-28100	"	"	100	"	"	"	70	"	"	"
TSPT-28150	"	"	150	"	"	"	60	"	"	3
TSPT-3850	38	"	50	"	"	"	20	"	"	2
TSPT-3875	"	"	75	"	"	"	45	"	"	"
TSPT-38100	"	"	100	"	"	"	70	"	"	"
TSPT-38150	"	"	150	"	"	"	60	"	"	3
TSPT-4850	48	"	50	"	"	"	20	"	"	2
TSPT-4875	"	"	75	"	"	"	45	"	"	"
TSPT-48100	"	"	100	"	"	"	70	"	"	"
TSPT-48150	"	"	150	"	"	"	60	"	"	3

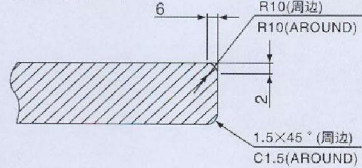
型号 Parts Number	宽度 W		长度 L		厚度 T		螺钉孔尺寸(Mounting Hole Pitch)						螺钉孔数目 Number of Holes
							W1	W2	L1	L2			
TSPT-7575	75	-0.1 -0.3	75	-0.1 -0.3	5	±0.015	45	±0.2	15	45	±0.2	15	4
TSPT-75100	"	"	100	"	"	"	"	"	"	70	"	"	"
TSPT-75125	"	"	125	"	"	"	"	"	"	95	"	"	"
TSPT-75150	"	"	150	"	"	"	"	"	"	60	"	"	6
TSPT-100100	100	"	100	"	"	"	70	"	"	70	"	"	4
TSPT-100125	"	"	125	"	"	"	"	"	"	95	"	"	"
TSPT-100150	"	"	150	"	"	"	"	"	"	60	"	"	6

TF-2 滑板(10mm)

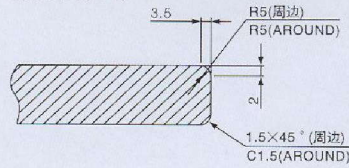
TF-2 standard slide plate(10mm)



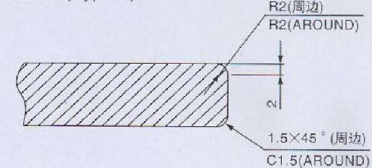
型式A(Type A)



型式B(Type B)



型式C(Type C)



NOVIN **B**all **B**earing

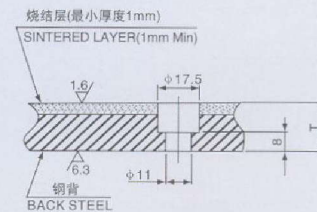
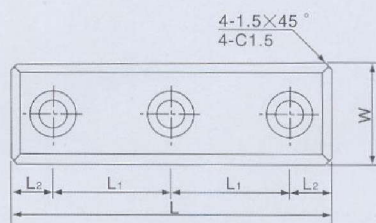
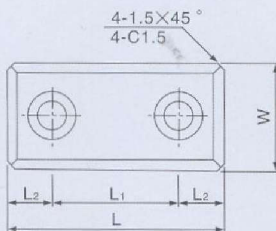
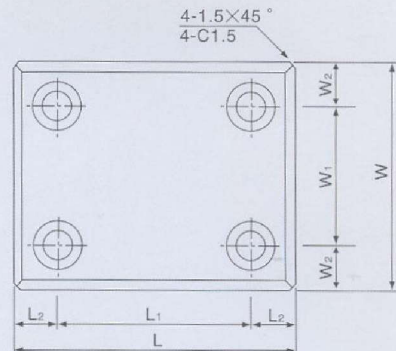
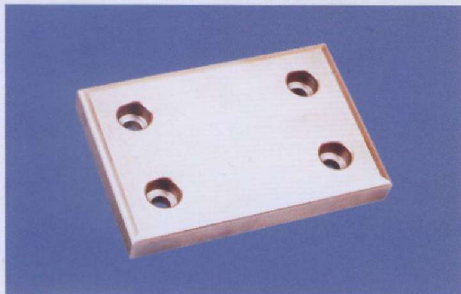
www.novinballbearing.com

型号 Parts Number	宽度 W		长度 L		厚度 T	螺钉孔尺寸(Mounting Hole Pitch)				螺钉孔数目 Number of Holes	倒角型式 Chamfer Geometry
						L1		L2			
TSPX-2875	28	-0.1 -0.3	75	-0.1 -0.3	10 ±0.01	45	±0.2	15		2	C
TSPX-28100	"	"	100	"	"	50	"	25		"	"
TSPX-28125	"	"	125	"	"	75	"	"		"	"
TSPX-28150	"	"	150	"	"	100	"	"		"	"
TSPX-3875	38	"	75	"	"	45	"	15		"	B
TSPX-38100	"	"	100	"	"	50	"	25		"	"
TSPX-38125	"	"	125	"	"	75	"	"		"	"
TSPX-38150	"	"	150	"	"	100	"	"		"	"
TSPX-4875	48	"	75	"	"	45	"	15		"	"
TSPX-48100	"	"	100	"	"	50	"	25		"	"
TSPX-48125	"	"	125	"	"	75	"	"		"	"
TSPX-48150	"	"	150	"	"	100	"	"		"	"
TSPX-48200	"	"	200	"	"	"	"	50		"	"
TSPX-48250	"	"	250	"	"	"	"	25		3	"
TSPX-7575	75	"	75	"	"	25	"	"		2	A
TSPX-75100	"	"	100	"	"	50	"	"		"	"
TSPX-75125	"	"	125	"	"	75	"	"		"	"

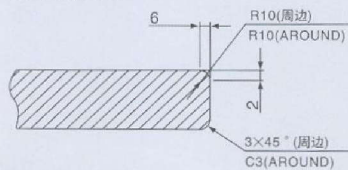
型号 Parts Number	宽度 W		长度 L		厚度 T	螺钉孔尺寸(Mounting Hole Pitch)				螺钉孔数目 Number of Holes	倒角型式 Chamfer Geometry	
						W1	W2	L1	L2			
TSPX-75150	75	-0.1 -0.3	150	-0.1 -0.3	10 ±0.01	-	-	-	100 ±0.2	25	2	A
TSPX-75200	"	"	200	"	"	"	"	"	150	"	"	"
TSPX-75250	"	"	250	"	"	"	"	"	100	"	3	"
TSPX-75300	"	"	300	"	"	"	"	"	"	50	"	"
TSPX-100100	100	"	100	"	"	50 ±0.2	25	50	"	25	4	"
TSPX-100125	"	"	125	"	"	"	"	75	"	"	"	"
TSPX-100150	"	"	150	"	"	"	"	100	"	"	"	"
TSPX-100200	"	"	200	"	"	"	"	150	"	"	"	"
TSPX-100250	"	"	250	"	"	"	"	200	"	"	"	"
TSPX-100300	"	"	300	"	"	"	"	"	"	50	"	"
TSPX-125125	125	"	125	"	"	75	"	75	"	25	"	"
TSPX-125150	"	"	150	"	"	50	"	37.5	100	"	"	"
TSPX-125200	"	"	200	"	"	"	"	150	"	"	"	"
TSPX-125250	"	"	250	"	"	"	"	200	"	"	"	"
TSPX-125300	"	"	300	"	"	"	"	"	"	50	"	"
TSPX-150150	150	"	150	"	"	100	"	25	100	"	25	"
TSPX-150200	"	"	200	"	"	"	"	150	"	"	"	"
TSPX-150250	"	"	250	"	"	"	"	200	"	"	"	"

TF-2 标准滑板 (20mm)

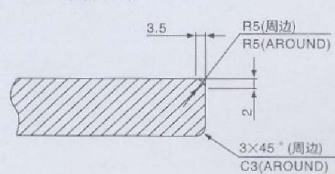
TF-2 standard slide plate(20mm)



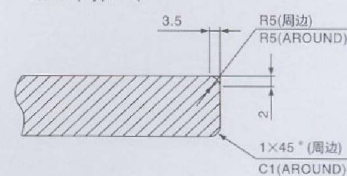
型式A(Type A)



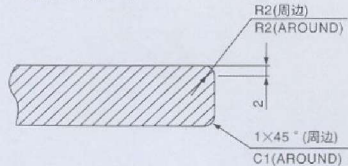
型式B(Type B)



型式C(Type C)



型式D(Type D)



NOVIN **B**all **B**earing

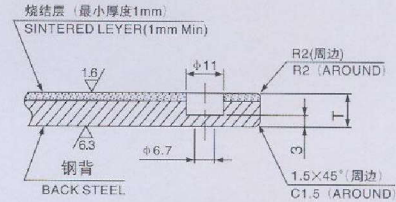
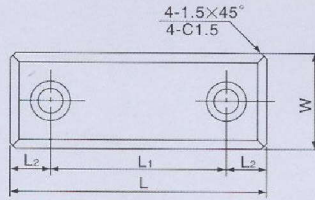
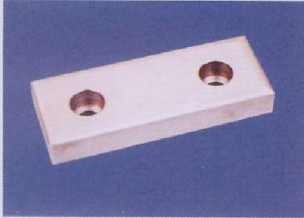
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型号 Parts Number	宽度 W		长度 L		厚度 T	螺钉孔尺寸(Mounting Hole Pitch)				螺钉孔数目 Number of Holes	倒角型式 Chamfer Geometry
						L1		L2			
TSPP-2875	28	-0.1 -0.3	75	-0.1 -0.3	20 ±0.01	45	±0.2	15		2	D
TSPP-28100	"	"	100	"	"	50	"	25		"	"
TSPP-28150	"	"	150	"	"	100	"	"		"	"
TSPP-3875	38	"	75	"	"	45	"	15		"	C
TSPP-38100	"	"	100	"	"	50	"	25		"	"
TSPP-38150	"	"	150	"	"	100	"	"		"	"
TSPP-4875	48	"	75	"	"	45	"	15		"	B
TSPP-48100	"	"	100	"	"	50	"	25		"	"
TSPP-48125	"	"	125	"	"	75	"	"		"	"
TSPP-48150	"	"	150	"	"	100	"	"		"	"
TSPP-48200	"	"	200	"	"	"	"	50		"	"
TSPP-48250	"	"	250	"	"	"	"	25		3	"
TSPP-5875	58	"	75	"	"	45	"	15		2	"
TSPP-58100	"	"	100	"	"	50	"	25		"	"
TSPP-58150	"	"	150	"	"	100	"	"		"	"

型号 Parts Number	宽度 W		长度 L		厚度 T	螺钉孔尺寸(Mounting Hole Pitch)				螺钉孔数目 Number of Holes	倒角型式 Chamfer Geometry	
						W1	W2	L1	L2			
TSPP-7575B	75	-0.1 -0.3	75	-0.1 -0.3	20 ±0.01	-	-	-	25 ±0.2	25	2	A
TSPP-75100B	"	"	100	"	"	"	"	"	50	"	"	"
TSPP-75125	"	"	125	"	"	"	"	"	75	"	"	"
TSPP-75150	"	"	150	"	"	"	"	"	100	"	"	"
TSPP-75200	"	"	200	"	"	"	"	"	150	"	"	"
TSPP-75250	"	"	250	"	"	"	"	"	100	"	3	"
TSPP-75300	"	"	300	"	"	"	"	"	"	50	"	"
TSPP-100100	100	"	100	"	"	50 ±0.2	25	50	"	25	4	"
TSPP-100125	"	"	125	"	"	"	"	75	"	"	"	"
TSPP-100150	"	"	150	"	"	"	"	100	"	"	"	"
TSPP-100200	"	"	200	"	"	"	"	150	"	"	"	"
TSPP-100250	"	"	250	"	"	"	"	200	"	"	"	"
TSPP-100300	"	"	300	"	"	"	"	"	"	50	"	"
TSPP-125125	125	"	125	"	"	"	37.5	75	"	25	"	"
TSPP-125150	"	"	150	"	"	"	"	100	"	"	"	"
TSPP-125200	"	"	200	"	"	"	"	150	"	"	"	"
TSPP-125250	"	"	250	"	"	"	"	200	"	"	"	"
TSPP-125300	"	"	300	"	"	"	"	"	"	50	"	"
TSPP-150150	150	"	150	"	"	100	"	25	100	"	25	"
TSPP-150200	"	"	200	"	"	"	"	150	"	"	"	"
TSPP-150250	"	"	250	"	"	"	"	200	"	"	"	"

TF-2 标准滑板(加长型)

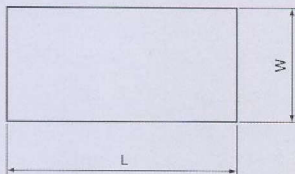
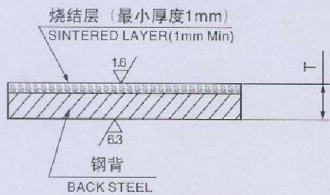
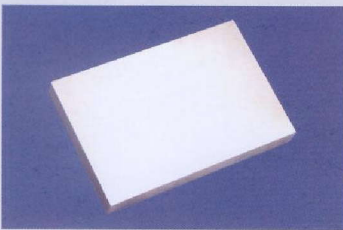
TF-2 standard longer slide plate



型号 Parts Number	宽度 W		长度 L		厚度 T		螺钉孔尺寸(Mounting Hole Pitch)			螺钉孔数目 Number of Holes
							L1	L2		
TSPA-1875	18	-0.1 -0.3	75	-0.1 -0.3	10	±0.01	45	±0.2	15	2
TSPA-18100	"	"	100	"	"	"	50	"	25	"
TSPA-18125	"	"	125	"	"	"	75	"	"	"
TSPA-18150	"	"	150	"	"	"	100	"	"	"

TF-2 标准滑板(留加工余量型)

TF-2 standard slide plate(For additional machining)



型号 Parts Number	宽度 W	长度 L	厚度 T
TSPI-504806	50	480	6 ±0.02
TSPI-504808	"	"	"
TSPI-10020010	100	200	10
TSPI-4048010	40	480	"
TSPI-15048010	150	"	"
TSPI-10020012	100	200	12
TSPI-15048012	150	480	"
TSPI-10020015	100	200	15
TSPI-15048015	150	480	"
TSPI-12020020	120	200	20
TSPI-15025020	150	250	"
TSPI-15042020	"	420	"
TSPI-10015025	100	150	25
TSPI-15025025	150	250	"
TSPI-15025030	"	"	30