

Product name : Permanent magnetic chuck (Sine) TSJ-3015A

PERFORMANCE PARAMETERS

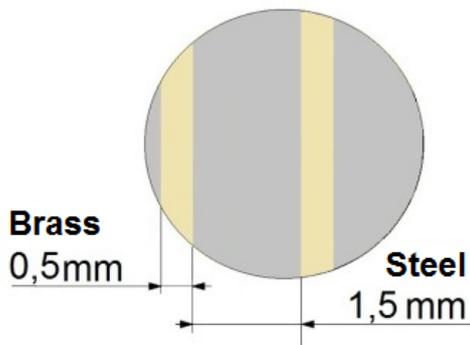
Length	300 [mm]
Width	150 [mm]
Height	95 [mm]
Magnet type	Neodymium
Maximum working temperature	≤ 80 °[C]
pole layout	poprzeczny do kierunku obróbki, 1,5 + 0,5 mm
with separable magnetic field	yes
Magnetic field switcher	yes, one for all planes
handling mode	ręczny
for the small parts holding	yes
Number of axis to attach details	1
force needed to mount (to attract) items	100
Weight	31 [kg]

TSJ series rectangular permanent magnetic sine chucks are designed to clamp ferromagnetic workpieces (i.e. iron, structural steel, alloy steel, cast iron) during grinding, milling and electrical discharge machining in a horizontal position and at the angle of 52°. The body of the chuck consists of a single block of steel, while its top plate is made from steel and brass lamellas placed interchangeably. The steel base ensures a high rigidity and thus also a high accuracy of grinding. TSJ series chucks use neodymium magnets, thanks to which the maximum clamping force is obtained.

The chuck can be set at a required angle by placing gauge blocks between the base of the chuck and its support roller (the height of blocks is selected according to the table attached to the manual). Another way to set a required angle is to use a precision protractor.

The rigid structure of the chuck enables very precise machining, while its tightness allows using the chuck for operations involving coolant or operations in full submersion. In order to make it easier to clamp workpieces at an angle, the chuck has a stop rail useful in positioning.

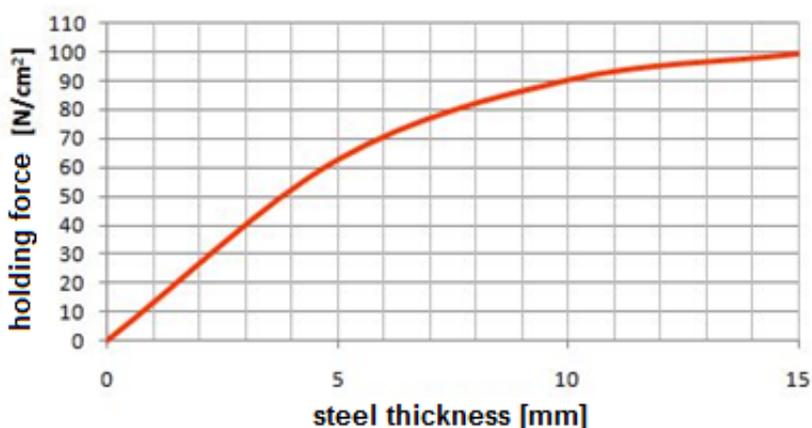
The pole pitch (1.5 ± 0.5 mm) allows holding workpieces of different sizes. Pole pitch diagram:



The clamping force depends on the following parameters:

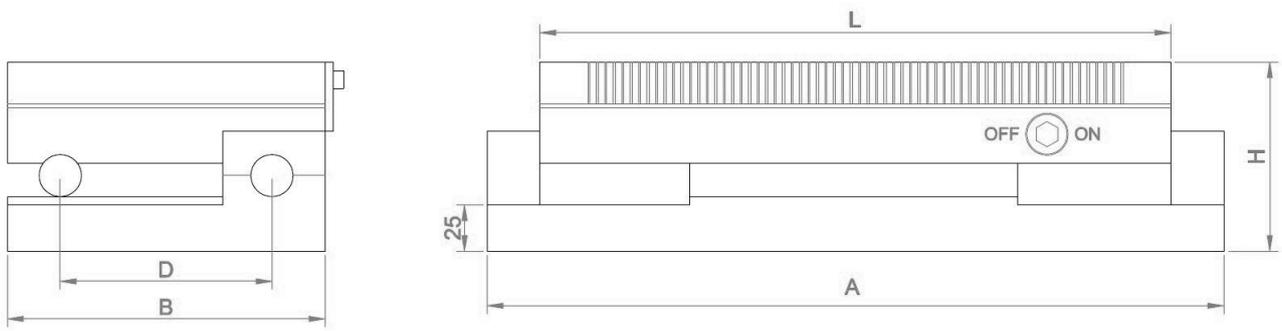
- type of material:
(the clamping force increases proportionally to the content of iron in steel)
 - Armco iron 100%
 - low-carbon steel 90% (St3s)
 - high-carbon steel 80% (St45)
 - alloy steel 70% (Corrax)
 - high-alloy steel 65% (1.2436)
 - cast iron 50%
- roughness of the surface of the chuck and the workpiece clamped:
 - for Ra up to 0.08 μm 100%
 - for Ra up to 0.20 μm 90%
 - for Ra up to 1.25 μm 70%
 - for Ra up to 6.30 μm 50%
 - for Ra up to 25.00 μm 30%
- thickness of the workpiece clamped (the tests were carried out for plates with the size of 20 x 20 mm made of Armco iron):

Graph of holding force depending on the material thickness



- contact area - in order to ensure good holding, workpieces cannot be shorter than 3 mm and additionally, in the case of small surfaces, they should be surrounded with auxiliary plates. The maximum clamping force per sq. cm is obtained for workpieces with an area of approx. 4 sq. cm. A further increase in the workpiece area does not translate into a higher clamping force. It is also important that the workpiece clamped is parallel to the chuck, because every roughness, even the smallest, causes a decrease of the clamping force. The design of the chuck allows regenerating the working area by grinding it to 5 mm of the thickness.

The rectangular permanent magnetic sine chucks available in our offer are presented below:



Chuck type	Dimensions [mm]						Weight [kg]
	A	L	B	D	H	Pole pitch	
TSJ-1515A	200	150	150	100	90	1,5+0,5	16,0
TSJ-1710A	225	175	100	75	85	1,5+0,5	12,0
TSJ-3015A	350	300	150	100	95	1,5+0,5	31,0

The kit includes:

- magnetic chuck
- stop rails with bolts - 2 sets
- Allen wrench to turn on the magnetic field - 1 piece