

**TITAN**

**Permanent Magnetic Lifter**

**TPML Series**

**Usage Manual**

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Notice to vast users: Please carefully read this description before use. If some vague points appear to you, please feel free to call us or send correspondence to us. Let's discuss together to form a common understanding before using the product.

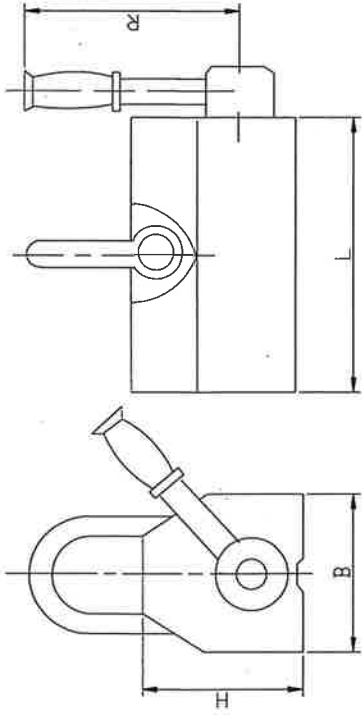
### 1. Use and Characteristic of the product

TPML series high strength permanent magnet hoisting machine is used for holding the plate type or cylindrical work-pieces made of ferry-magnetic materials during the hoisting process. It has the features such as light and handy structure, easy operation, strong holding force, fine safety and reliability etc. It helps to improve the working conditions of the loading, unloading and transport tasks and enhance the labor productivity. Therefore it has been widely used as the hoisting tool in the factory, wharf, warehouse, communications and transportation industries.

### 2. Structure and Parameters

High strength permanent magnet hoisting machine adopts the high-energy permanent magnetic materials. It produces strong holding force in the magnetic circuit. It puts the hoisting machine in the operating or closed condition by the handle's rotating the pole piece shaft. It needs no exterior power-supply for its operation and running. The holding face at the bottom of the hoisting machine forms a pair of longitudinal magnet poles. It firmly holds the work-pieces made of steel-magnetic materials. There also is a V-groove in the holding face. As a result, it can hold both the plate type and cylindrical work-pieces.the diameter of the cylindrical work-piece.

The main technical parameters are given as follows:



Model	Rated Lifting Capacity (KG)		Shape Size (mm)				Test Max Pull Off Force (KG)		Weight (KG)
	Steel plate	Round steel	L	B	H	R			
TPML-100	100	50	92	64	72	148	350	3.2	
TPML-300	300	150	166	99	108	223	1050	12.4	
TPML-600	600	300	228	118	126	257	2100	23.6	
TPML-1000	1000	500	266	150	158	303	3500	42.8	
TPML-2000	2000	1000	394	196	204	470	7000	105	
TPML-3000	3000	/	431	234	232	576	10500	160.4	
TPML-5000	5000	/	595	294	289	728	15000	344	

3. Product model and meaning

3.1 Product model classification

TPML-100 TPML-300 TPML-600 TPML-1000 TPML-2000 TPML-3000 TPML-5000

4. Selection of Types

4.1 The corresponding models should be chosen according to the hoisted object thickness, weight, gap between the hoisted object and permanent magnet jack, hoisted object material, absorption area, weight balancing, roughness of the holding face etc.

	Steel plate thickness		Rate of the hoisting Capacity									
	mm	inch	TPML-5000	TPML-3000	TPML-2000	TPML-1000	TPML-600	TPML-300	TPML-100	TPML-	TPML-	TPML-
T1	Up65	Up2.56	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
T2	60	2.36	95%	100%	100%	100%	100%	100%	100%	100%	100%	100%
T3	55	2.16"	90%	95%	95%	95%	95%	95%	95%	95%	95%	95%
T4	50	1.97"	85%	90%	90%	90%	90%	90%	90%	90%	90%	90%
T5	45	1.77"	80%	85%	85%	85%	85%	85%	85%	85%	85%	85%
T6	40	1.57"	70%	80%	80%	80%	80%	80%	80%	80%	80%	80%
T7	35	1.38"	60%	70%	75%	75%	75%	75%	75%	75%	75%	75%
T8	30	1.18"	50%	60%	65%	65%	65%	65%	65%	65%	65%	65%
T9	25	0.98"	40%	50%	55%	55%	55%	55%	55%	55%	55%	55%
T10	20	0.79"	30%	40%	45%	45%	45%	45%	45%	45%	45%	45%
T11	15	0.59"	/	30%	35%	35%	35%	35%	35%	35%	35%	35%
T12	10	0.39"	/	/	25%	25%	25%	25%	25%	25%	25%	25%
T13	5	0.20"	/	/	/	/	/	/	/	/	/	/

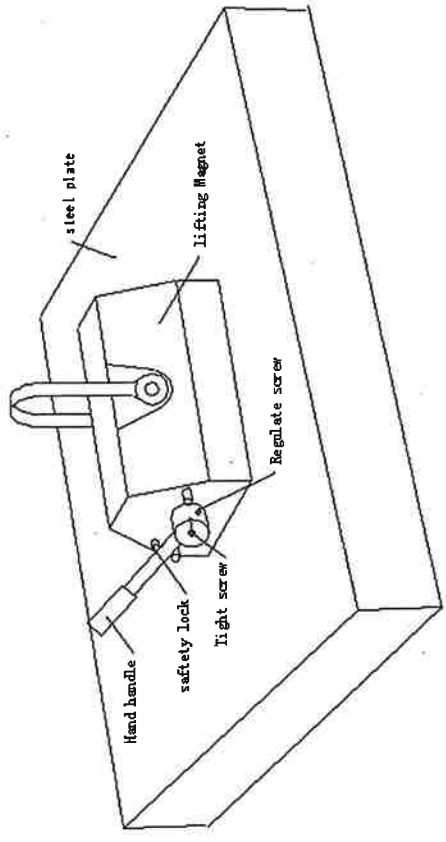
4.2 Reference table of the flatness roughness (Fx) of the steels, materials class of the steels and the hoisting capacity:

	0	50%	100%	125%	M1	M2	M3	M4	M5
F1	1.6 μm	125%	100%	80%	Low carbon steel	100%	100%	100%	100%
F2	6.3 μm	100%	90%	75%	Inside carbon steel	95%	95%	95%	95%
F3	12.6 μm	90%	85%	75%	High carbon steel	85%	85%	85%	85%
F4	~	80%	75%	60%	Low metal Alloy steel	75%	75%	75%	75%
					Cast iron	60%	60%	60%	60%

4.3 Conversion equation of safety hoisting scope ---  
 (Tx\*Fx\*Mx\* rated hoisting capacity, kg)

4.4 Example:  
 T8, F1,M3,1000Kg (TPML-1000)  
 Steel materials: T8, F1M3, 1000Kg (TPML-1000)  
 70%\*125%\*85%\*1000=744Kg

5. Operation and Usage  
 5.1 The outset proceeds install according to the chart.



5.2 Before operation, estimate the hoisting capacity of the permanent magnetic hoisting machine according to the above-mentioned conversion equation based on the flatness roughness(Fx), Material of the steels (Mx) and the hoisting capacity. Overloading is prohibited.

5.3 The environmental conditions for the use of the permanent magnet hoisting machine are:

- a. Ambient air temperature no higher than 80;
- b. No violent vibration and impact;
- c. No aggressive agent to corrode the metal in the ambient media;

5.4 During the hoisting, the permanent magnet hoisting machine should be placed in the flat surface of the work-piece. The lifting line of the permanent magnet hoisting machine should pass the center of gravity to the work-piece as far as possible. Then bring the handle from "OFF" to "ON", examine the slide key in the handle whether it has been automatically locked with the linchpin. Only after the confirmation of firm locking and

no reverse of the handle, can the hoisting tool be hooked with the hanging ring of the permanent magnet hoisting machine and start lifting. If the hoisting line of the permanent magnet hoisting machine deviates the work-piece center of gravity, the work-piece will decline during the hoisting process and the loading capacity of the permanent magnet hoisting machine will also be reduced following the increase of the work-piece slant. So the work-piece can be put down if necessary in order to re-adjust the position of permanent magnet hoisting machine be placed in the work-piece.

5.5 If it needs to lift the cylindrical work-piece, place the permanent magnet hoisting machine in the cylindrical surface of the work-piece, pass the hoisting line of the hoisting machine to the work-piece center of gravity as far as possible. As it is only two straight lines for the contact between the work-piece cylindrical surface and the bottom V-groove of the permanent magnet hoisting machine, so the actual loading capacity is commonly regarded as 30%--50% of the rated loading capacity according to

the diameter of the cylindrical work-piece. (The diameter size relates to the decrease by degrees of the loading capacity)

5.6 After the completion of the hoisting, take off the press button from the top of the handle, separate the slide key inside the handle from the linchpin, pull the handle reset to "OFF" position, put the hoisting machine in a closed condition. In this way, it can immediately take off the permanent magnet hoisting machine.

5.9 The gravity center should be considered when lifting long workpiece, in principle the length of the workpiece should be less than 3000mm.

## 6. Maintenance and Cautions

6.1 Don't pull the handle if there is no steel-magnetic material under the permanent magnet hoisting machine.

6.2 The lifting height must be less than 1.5 meters. People or equipment is prohibited to pass when permanent magnetic lifter is lifting.

6.3 It is forbidden to move the workpiece until it is hoisted into the air.

6.4 Check if the connections of the steel string, shaft, pawls and clasp are reliable and run well locked, if damaged, it should be repaired before use.

6.5 It should constantly keep clean and smooth of the holding surface of the permanent magnet hoisting machine.

6.6 During the conveyance and use process, the permanent magnet hoisting machine should be prevented from knocking and damaging in order not to influence the use performance.

6.7 There should be a standardization every year from the use date of the permanent magnet hoisting machine for safe of guarantee its security.