GOUDSMIT
MAGNETIC SYSTEMS

# User Manual (EN)

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www.goudsmit-magnetics.nl

# Grab Head TPGC

Magnetic Grab head

## GENERAL

- The data published in this User Manual is based on the most recent information. It is issued subject to subsequent amendments. For further information, please contact Goudsmit Magnetic Systems b.v.:
  ☎ +31 40-2213283
  ✉ systems@goudsmit-magnetics.nl
- The "General conditions for the supply and erection of mechanical, electrical and electronic products (SE 01)" - published by Orgalime in Brussels in September 2001 - are applicable to this product.
- The guarantee on your Grab Head shall be terminated if the Grab Head has been opened, principle adjustments have been made to it without our permission, or if the Grab Head is used injudiciously, incorrectly or in a manner other than to magnetically grab ferromagnetic products.

## SAFETY

- The magnet generates a powerful magnetic field. Bear in mind that ferromagnetic parts which come within the magnetic field will suddenly be strongly attracted.
- People with heart pacemakers may not come within the magnetic field (a radius of at least 0.5 m) of the Grab Head.
- Credit cards, chip cards, viewing screens, watches and the like may become irreparably damaged if they are put within the magnetic field (a radius of at least 0.5 m).
- The Grab Head is safely covered and may never be opened, not even for repair purposes!
- The Grab Head is used to lift heavy objects. There is always danger when transporting lifted heavy objects!
- Falling heavy objects may cause danger to passers-by. Take shielding measures and ensure that there are good instructions and operating instructions. Never walk under a lifted heavy object.
- There is no knowledge of permanent magnetic radiation having any detrimental effect on one's health.

## ADVANTAGES

The following are some of the advantages that the Grab Head has to offer:

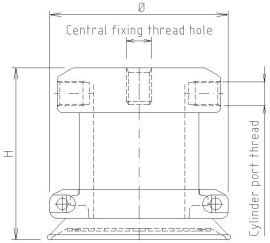
- Safety: The lifted object does not fall from the magnet in the case of loss of air, because of the double-acting pneumatically controlled on/off system.
- It is an excellent alternative to vacuum cups.
- It uses up to 95% less air than vacuum cups.
- It has an anti-slip magnetic working surface as a result of the durable PU profile.
- The PU profile is easy to replace.
- By applying a permanent magnet system, the Grab Head does not need any electricity.

## TECHNICAL DATA

**Temperatures**: Suitable for ambient temperatures ranging from -20 to +40°C.
**Noise**: The noise pressure level of the Grab Head is less than 70 dB.
**Vibrations**: The vibrations that are generated by the Grab Head are minimal.
**Air pressure**: Recommended (relative) excess pressure is 4 bar. The maximum is 6 bar! Except for TPGC13……: maximum 4 bar.
**Magnet force**: See table below. The magnetic force for the different plate thickness is also indicated.

| Type code | Magnet system type | ØxH [mm] | Central fixing thread hole | Cylinder port thread | Weight [kg] | Maximum holding force [N] | Magnet force on steel plate [N] | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Plate thickness [mm] | | |
| | | | | | | | ≥3 | 1 | 0,5 |
| TPGC020018 | R | 20x35 | M6 | M5 | 0,07 | 10 | 5 | 5 | 4 |
| TPGC030018 | R | 30x50 | M6 | M5 | 0,08 | 12 | 6 | 6 | 5 |
| TPGC040024 | FP | 42x35 | M8 | M5 | 0,08 | 26 | 13 | 13 | 12 |
| TPGC040028 | R | 42x55 | M8 | M5 | 0,10 | 50 | 25 | 20 | 16 |
| TPGC050014 | FP | 50x48 | M8 | M5 | 0,21 | 65 | 32 | 28 | 22 |
| TPGC050018 | R | 50x63 | M8 | M5 | 0,27 | 90 | 45 | 30 | 20 |
| TPGC070024 | FP | 70x47 | M10 | G1/8" | 0,31 | 130 | 65 | 55 | 40 |
| TPGC070026 | R | 70x64 | M10 | G1/8" | 0,38 | 195 | 98 | 60 | 40 |
| TPGC070028 | R | 70x80 | M10 | G1/8" | 0,41 | 205 | 102 | 45 | 32 |
| TPGC080014 | FP | 80x55 | M10 | G1/8" | 0,57 | 110 | 55 | 52 | 45 |
| TPGC080018 | R | 80x70 | M10 | G1/8" | 0,68 | 240 | 120 | 70 | 50 |
| TPGC100014 | FP | 100x55 | M10 | G1/8" | 0,91 | 245 | 122 | 115 | |
| TPGC100018 | R | 100x70 | M10 | G1/8" | 1,09 | 450 | 225 | 125 | |
| TPGC100024 | FP | 96x46 | M10 | G1/8" | 0,54 | 230 | 115 | 105 | |
| TPGC100028 | R | 96x63 | M10 | G1/8" | 0,68 | 340 | 170 | 85 | |
| TPGC130014 | FP | 130x65 | M12 | G1/8" | 1,60 | 640 | 320 | | |
| TPGC130018 | R | 130x80 | M12 | G1/8" | 2,02 | 1100 | 550 | | |

**Explanation of the table**
Magnet system type:
FP (Fine Pole): model to pick up thin plates one by one.
R (Reinforced): model for maximum (deep) lifting force.
Weight: Own weight.
In the column on the right the magnetic force on the steel plate is indicated in varying thickness.
These are magnetic forces in ideal circumstances. The following are factors which can reduce these forces:



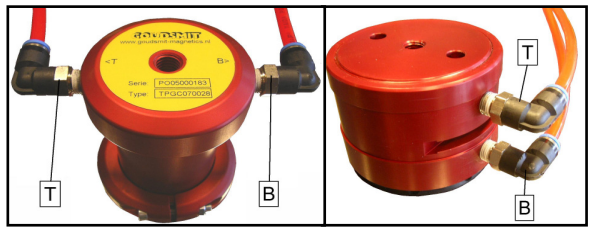

- Air gap between the plate and the magnet (also an insulator such as a layer of lacquer, for example, creates an air gap as it were).
- Contact surface: both the plate and the magnet are to be as dry, clean, smooth and even as possible, and free of tears, rust and catches as much as possible.
- Plate thickness: the magnet will provide less lifting force with a thin plate.
- Degree of perforation: the lifting force is reduced in the case of a perforated plate.
- Bending: in the case of a plate bending there is a "peeling effect", resulting in a great reduction of the magnetic force.
- Temperature: higher temperature reduces the lifting force.
- Material to be lifted: the table below may be regarded as indicative:

| Material | Lifting force [%] |
|---|---|
| St 37 (0.1-0.3% C) | 100 |
| Unalloyed steel 0.4-0.5% C | 90 |
| Alloyed steel F-522 | 80-90 |
| AISI 430 magnetic SS | 50 |
| Cast iron | 45-60 |
| AISI 304 SS / nickel | 0-10 |
| Brass, aluminium, copper, etc. | 0 |

## CONNECTIONS

By connecting two compressed air pipes (connections "T" and "B") the Grab Head can be switched on and off. Connection "T" (Top) switches on the magnetic force, connection "B" (Bottom) switches it off. 2 Models are shown here:

Horizontal connection: Vertical connection:




The aid of a (bi-stable) 5/3 valve (see pneumatic scheme) is recommended for the drive, but it is also possible to use a (mono-stable) 5/2 valve. The Grab Head itself has bi-stable working: the switch instruction that has been sent last is the one that is kept.