



### END-OF-ARM TOOLING

# TRANSPORTER® CYLINDER ACTUATED SPECIFICATIONS

## Permanent Magnetic, Air Release Tooling/End Effectors

Transporter® Magnets are ideal for use where vacuum cups and grippers are typically used for lifting and moving steel sheets, blanks, stamped parts and complete assemblies.

### Applications & Benefits:

- » Robotic "Pick & Place"
- » Manual and automated machine loading/unloading
- » Increases production and minimizes shop air costs
- » Designed for long, maintenance free operation
- » Operates effectively in any orientation
- » Will not drop parts if system air-loss occurs
- » Destacking (requires proper magnet selection)



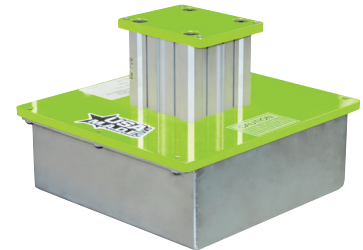
TPCA200EM  
(Exposed Magnet Face)



TPCA100 Series



TPCA200CM  
(Covered Magnet Face)



TPCA200CMDS  
(Covered Magnet Face,  
Destacker)

### Transporter® Cylinder Actuated (TPCA) Magnets:

The patented Transporter® utilizes a powerful, Rare Earth, Permanent Magnet Circuit to pick and place metal parts in automated transfers or lift-assist material handling applications.

TPCA's are designed to handle heavier parts than our TPLP (Transporter® Low Profile) series. Stamped, forged and hydro-formed parts or complete parts assemblies, TPCA's provide material handling safety while significantly minimizing shop air costs.

Ideal for applications in Automotive under body parts, Lawn/Farm equipment components, Application pumps, compressors, motors and fan assemblies.

Note: IMI does not provide on-site plumbing;  
Air Supply Must Be Clean, Dry, Compressed  
Air Regulated To 85-90 PSI

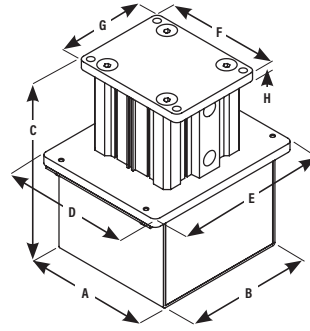
### FEATURES:

- » Instantaneous pickup and release
- » Permanent magnet requires no electricity
- » Can be retrofitted on existing tooling
- » Positively holds parts - no dropping
- » 3:1 Design Factor
- » Magnetic Pistons, for Limit Switches, standard on TPCA300 - TPCA800 series

### OPTIONS:

- » Solenoid control valves
- » Custom designed Pole Shoes
- » Magnet mounted control valves
- » Magnets designed into ergonomic lifting systems
- » Custom circuit designs are available
- » Magnetic Pistons, for Limit Switches, available on TPCA100 & TPCA200 series

TOLL FREE 1.888.582.0823 [imi@magnetics.com](mailto:imi@magnetics.com)



**TPCA100 SERIES SPECIFICATIONS:**

- » Two 1/8 NPT cylinder air ports
- » Polyurethane magnet housing

**TPCA200 -TPCA500 SERIES SPECIFICATIONS:**

- » Two 3/8 NPT cylinder air ports
- » Stainless Steel magnet housing
- » Destacking (DS) versions available

| PART NO.    | LIFTING CAPACITY (3:1 DESIGN FACTOR) OF MAGNETS ON SPECIFIED METAL BLANK THICKNESSES |                   |                    |                    |                    |                    |                    |                    |                    |
|-------------|--|-------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
|             | 26 GA (0.0179")  | 22 GA (0.0299")   | 18 GA (0.0478")    | 16 GA (0.0598")    | 12 GA (0.100")     | 3/16" (0.1875")    | 1/4" (0.250")      | 1/2" (0.500")      | 3/4" (0.750")      |
|             | 0.45 MM  | 0.76 MM           | 1.21 MM            | 1.52 MM            | 2.54 MM            | 4.76 MM            | 6.35 MM            | 12.7 MM            | 19.05 MM           |
| TPCA100CM   | 5 lbs (2.27 kg)  | 8 lbs (3.63 kg)   | 12 lbs (5.44 kg)   | 16 lbs (7.26 kg)   | 22 lbs (9.98 kg)   | 23 lbs (10.43 kg)  | 23 lbs (10.43 kg)  | 23 lbs (10.43 kg)  | 23 lbs (10.43 kg)  |
| TPCA100EM   | 6 lbs (2.72 kg)  | 9 lbs (4.08 kg)   | 15 lbs (6.80 kg)   | 20 lbs (9.07 kg)   | 32 lbs (14.51 kg)  | 36 lbs (16.29 kg)  | 36 lbs (16.29 kg)  | 36 lbs (16.29 kg)  | 36 lbs (16.29 kg)  |
| TPCA200CM   | 28 lbs (12.7 kg)   | 44 lbs (19.99 kg) | 68 lbs (38.84 kg)  | 89 lbs (40.37 kg)  | 144 lbs (65.3 kg)  | 171 lbs (77.6 kg)  | 171 lbs (77.6 kg)  | 171 lbs (77.6 kg)  | 171 lbs (77.6 kg)  |
| TPCA200CMDS | 53 lbs (24.04 kg)  | 75 lbs (34.02 kg) | 92 lbs (41.73 kg)  | 107 lbs (48.5 kg)  | 160 lbs (72.4 kg)  | 160 lbs (72.4 kg)  | 160 lbs (72.4 kg)  | 160 lbs (72.4 kg)  | 160 lbs (72.4 kg)  |
| TPCA200EM   | 8 lbs (3.63 kg)  | 15 lbs (6.80 kg)  | 23 lbs (10.43 kg)  | 32 lbs (14.51 kg)  | 62 lbs (28.1 kg)   | 120 lbs (54.3 kg)  | 120 lbs (54.3 kg)  | 120 lbs (54.3 kg)  | 120 lbs (54.3 kg)  |
| TPCA300CM   | 40 lbs (18.14 kg)  | 64 lbs (29.03 kg) | 96 lbs (43.54 kg)  | 121 lbs (54.9 kg)  | 199 lbs (90.3 kg)  | 269 lbs (122 kg)   | 278 lbs (126 kg)   | 280 lbs (127 kg)   | 280 lbs (127 kg)   |
| TPCA300CMDS | 85 lbs (38.56 kg)  | 121 lbs (54.9 kg) | 147 lbs (66.7 kg)  | 172 lbs (78 kg)    | 270 lbs (122.5 kg) | 275 lbs (124.7 kg) | 275 lbs (124.7 kg) | 275 lbs (124.7 kg) | 275 lbs (124.7 kg) |
| TPCA300EM   | 14 lbs (6.35 kg)   | 24 lbs (10.89 kg) | 40 lbs (18.14 kg)  | 52 lbs (23.59 kg)  | 102 lbs (46.3 kg)  | 227 lbs (103 kg)   | 238 lbs (108 kg)   | 259 lbs (117.5 kg) | 263 lbs (119.3 kg) |
| TPCA400CM   | 46 lbs (20.87 kg)  | 72 lbs (32.65 kg) | 114 lbs (51.7 kg)  | 144 lbs (65.3 kg)  | 238 lbs (108 kg)   | 395 lbs (179.2 kg) | 400 lbs (181.4 kg) | 400 lbs (181.4 kg) | 400 lbs (181.4 kg) |
| TPCA400CMDS | 133 lbs (60.3 kg)  | 188 lbs (85.3 kg) | 230 lbs (104.3 kg) | 268 lbs (121.6 kg) | 423 lbs (191.9 kg) | 429 lbs (194.6 kg) | 429 lbs (194.6 kg) | 429 lbs (194.6 kg) | 429 lbs (194.6 kg) |
| TPCA400EM   | 15 lbs (6.80 kg)   | 25 lbs (11.34 kg) | 42 lbs (19.05 kg)  | 53 lbs (24.04 kg)  | 103 lbs (46.7 kg)  | 235 lbs (106.6 kg) | 312 lbs (141.5 kg) | 401 lbs (181.9 kg) | 412 lbs (186.9 kg) |
| TPCA500CM   | 63 lbs (28.58 kg)  | 93 lbs (42.18 kg) | 143 lbs (64.9 kg)  | 179 lbs (81.2 kg)  | 288 lbs (130 kg)   | 491 lbs (222 kg)   | 575 lbs (260 kg)   | 667 lbs (302 kg)   | 667 lbs (302 kg)   |
| TPCA500CMDS | 213 lbs (96.6 kg)  | 302 lbs (137 kg)  | 369 lbs (167.4 kg) | 431 lbs (195.5 kg) | 678 lbs (307.5 kg) | 689 lbs (312.5 kg) | 689 lbs (312.5 kg) | 689 lbs (312.5 kg) | 689 lbs (312.5 kg) |
| TPCA500EM   | 22 lbs (9.98 kg)   | 34 lbs (15.42 kg) | 52 lbs (23.59 kg)  | 78 lbs (35.38 kg)  | 124 lbs (56.3 kg)  | 249 lbs (112.9 kg) | 366 lbs (166 kg)   | 638 lbs (289.4 kg) | 672 lbs (304.8 kg) |

| Double Blanks (DO NOT USE FOR DESTACKING) |  |  |  |  | Does Not Double Blank |  |  |  |  |
|---|--|--|--|--|-----------------------|--|--|--|--|
|---|--|--|--|--|-----------------------|--|--|--|--|

| Part No.    | DIMENSIONS             |                        |                        |                        |                        |                       |                       |                      | Approx. Weight       |
|-------------|------------------------|------------------------|------------------------|------------------------|------------------------|-----------------------|-----------------------|----------------------|----------------------|
|             | A (Magnet Length)      | B (Magnet Width)       | C (Overall Height)     | D (Overall Length)     | E (Overall Width)      | F (Flange Length)     | G (Flange Width)      | H (Flange Height)    |                      |
| TPCA100CM   | 3.75 in.<br>95.25 mm   | 1.63 in.<br>41.4 mm    | 4.94 in.<br>125.48 mm  | 5.50 in.<br>139.7 mm   | 3.00 in.<br>76.2 mm    | NA                    | NA                    | 0.25 in.<br>6.35 mm  | 3 lbs.<br>1.36 kg    |
| TPCA100EM   | 3.75 in.<br>95.25 mm   | 1.50 in.<br>38.1 mm    | 4.88 in.<br>123.95 mm  | 5.50 in.<br>139.7 mm   | 3.00 in.<br>76.2 mm    | 5.50 in.<br>139.7 mm  | 3.00 in.<br>76.2 mm   | 0.25 in.<br>6.35 mm  | 3 lbs.<br>1.36 kg    |
| TPCA200CM   | 5.29 in.<br>134.87 mm  | 5.44 in.<br>144.02 mm  | 8.02 in.<br>203.71 mm  | 5.81 in.<br>147.57 mm  | 7.00 in.<br>177.8 mm   | 5.00 in.<br>127.00 mm | 4.00 in.<br>101.60 mm | 0.38 in.<br>9.65 mm  | 20 lbs.<br>9.07 kg   |
| TPCA200CMDS | 9.75 in.<br>247.65 mm  | 9.67 in.<br>245.62 mm  | 7.79 in.<br>197.87 mm  | 10.44 in.<br>265.18 mm | 11.23 in.<br>280.92 mm | 5.00 in.<br>127.00 mm | 4.00 in.<br>101.60 mm | 0.38 in.<br>9.65 mm  | 41 lbs.<br>18.60 kg  |
| TPCA200EM   | 4.00 in.<br>101.60 mm  | 2.00 in.<br>50.80 mm   | 8.25 in.<br>201.93 mm  | 5.00 in.<br>127.00 mm  | 4.00 in.<br>101.60 mm  | 5.00 in.<br>127.00 mm | 4.00 in.<br>101.60 mm | 0.38 in.<br>9.65 mm  | 11 lbs.<br>4.99 kg   |
| TPCA300CM   | 6.88 in.<br>174.75 mm  | 6.67 in.<br>169.42 mm  | 10.05 in.<br>255.27 mm | 7.38 in.<br>187.45 mm  | 8.44 in.<br>214.38 mm  | 5.75 in.<br>146.05 mm | 5.00 in.<br>127.00 mm | 0.38 in.<br>9.65 mm  | 35 lbs.<br>15.88 kg  |
| TPCA300CMDS | 13.13 in.<br>333.50 mm | 12.77 in.<br>324.36 mm | 9.15 in.<br>232.41 mm  | 13.66 in.<br>346.96 mm | 14.34 in.<br>364.24 mm | 5.75 in.<br>146.05 mm | 5.00 in.<br>127.00 mm | 0.38 in.<br>9.65 mm  | 71 lbs.<br>32.21 kg  |
| TPCA300EM   | 4.00 in.<br>101.60 mm  | 2.00 in.<br>50.80 mm   | 9.64 in.<br>244.86 mm  | 4.75 in.<br>120.65 mm  | 4.75 in.<br>120.65 mm  | 5.75 in.<br>146.05 mm | 5.00 in.<br>127.00 mm | 0.38 in.<br>9.65 mm  | 16 lbs.<br>7.26 kg   |
| TPCA400CM   | 7.31 in.<br>185.67 mm  | 7.00 in.<br>177.8 mm   | 14.17 in.<br>359.92 mm | 7.62 in.<br>193.55 mm  | 8.50 in.<br>215.90 mm  | 6.75 in.<br>171.45 mm | 5.75 in.<br>146.05 mm | 0.38 in.<br>9.65 mm  | 59 lbs.<br>26.76 kg  |
| TPCA400CMDS | 15.94 in.<br>404.88 mm | 15.74 in.<br>399.80 mm | 10.62 in.<br>269.75 mm | 16.19 in.<br>411.23 mm | 17.44 in.<br>442.98 mm | 6.75 in.<br>171.45 mm | 5.75 in.<br>146.05 mm | 0.38 in.<br>9.65 mm  | 110 lbs.<br>49.90 kg |
| TPCA400EM   | 4.18 in.<br>106.17 mm  | 2.80 in.<br>71.12 mm   | 11.09 in.<br>281.69 mm | 5.75 in.<br>146.05 mm  | 5.75 in.<br>146.05 mm  | 6.75 in.<br>171.45 mm | 5.75 in.<br>146.05 mm | 0.38 in.<br>9.65 mm  | 30 lbs.<br>13.61 kg  |
| TPCA500CM   | 9.19 in.<br>233.43 mm  | 7.74 in.<br>194.82 mm  | 16.00 in.<br>433.32 mm | 9.56 in.<br>242.82 mm  | 9.25 in.<br>228.60 mm  | 8.50 in.<br>215.90 mm | 7.00 in.<br>177.80 mm | 0.50 in.<br>12.70 mm | 89 lbs.<br>43.09 kg  |
| TPCA500CMDS | 20.00 in.<br>508.00 mm | 19.74 in.<br>501.40 mm | 11.33 in.<br>287.78 mm | 20.50 in.<br>520.70 mm | 21.38 in.<br>543.05 mm | 8.50 in.<br>215.90 mm | 7.00 in.<br>177.80 mm | 0.50 in.<br>12.70 mm | 185 lbs.<br>83.91 kg |
| TPCA500EM   | 6.13 in.<br>155.70 mm  | 3.63 in.<br>92.20 mm   | 11.84 in.<br>300.74 mm | 7.00 in.<br>177.8 mm   | 7.00 in.<br>177.80 mm  | 8.50 in.<br>215.90 mm | 7.00 in.<br>177.80 mm | 0.50 in.<br>12.70 mm | 51 lbs.<br>23.13 kg  |



**END-OF-ARM TOOLING**

**TRANSPORTER® CYLINDER ACTUATED SPECIFICATIONS**

**Specifications for TPCA600-TPCA800 series**

The TPCA600-800EM's are capable of handling heavier parts than the standard Transporter® series, such as tubes, castings or complete parts assemblies, and provide material handling safety with minimal shop air costs.

Offering a slim profile, instantaneous pickup and release and requiring no electricity, these Transporter® Cylinder Actuated Magnets are ideal for lifting in and out of totes, bins, or other hard to maneuver applications such as, components for automotive, lawn/farm equipment, pumps, compressors or motors and fan assemblies.

**SPECIFICATIONS:**

**TPCA600EM:**

- » Pneumatic Cylinder
- » 1/8" Ports
- » 40mm Bore
- » 50mm Stroke

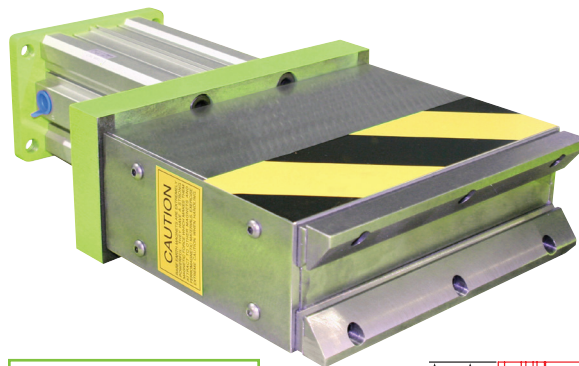
**TPCA700EM:**

- » Pneumatic Cylinder
- » 1/4" Ports
- » 63mm Bore
- » 50mm Stroke

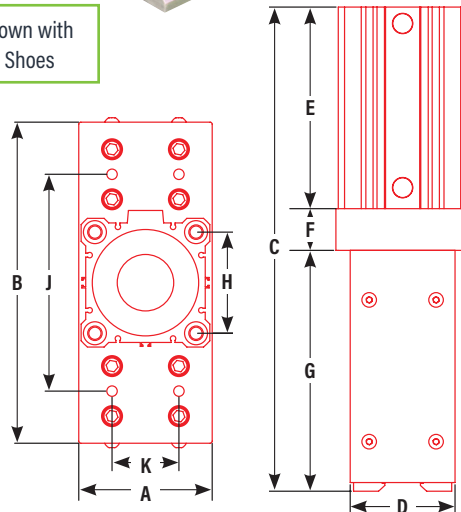
**TPCA800EM:**

- » Pneumatic Cylinder
- » 3/8" Ports
- » 80mm Bore
- » 100mm Stroke

Note: IMI does not provide on-site plumbing; Air Supply Must Be Clean, Dry, Compressed Air Regulated To 75-90 PSI



TPCA800CM Shown with Optional Pole Shoes



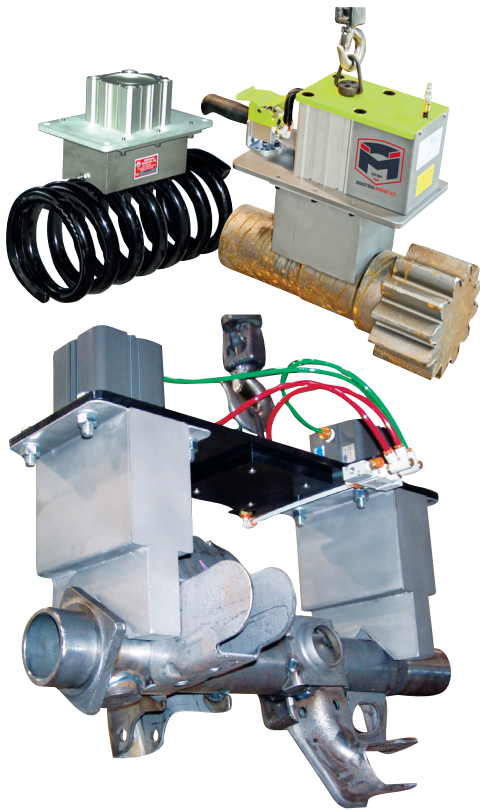
| Part Number                | TPCA600EM  | TPCA700EM                                       | TPCA800EM   |             |
|----------------------------|------------|---|-------------|-------------|
| <b>PIPE SPECIFICATIONS</b> |            |   |             |             |
| O.D. (IN.)                 | WALL (IN.) | LIFTING CAPACITY LBS. (KG)<br>3:1 DESIGN FACTOR |             |             |
|                            |            | TPCA600EM                                       | TPCA700EM   | TPCA800EM   |
| 1.50                       | Solid      | 75 (34)   | 78 (35.3)   | 190 (86.2)  |
|                            | 0.25       | 72 (32.7)                                       | 49 (22.2)   | 190 (86.2)  |
|                            | 0.063      | 60 (27.2)                                       | 50 (22.7)   | 64 (29)     |
| 2.00                       | Solid      | 88 (39.9)                                       | 120 (54.4)  | 240 (108.9) |
|                            | 0.50       | 88 (39.9)                                       | 120 (54.4)  | 234 (106)   |
|                            | 0.250      | 87 (39.4)                                       | 114 (51.7)  | 227 (103)   |
|                            | 0.125      | 85 (38.6)                                       | 115 (52.2)  | 161 (73)    |
| 3.00                       | Solid      | 104 (47.2)                                      | 273 (123.8) | 451 (204.6) |
|                            | 0.50       | 104 (47.2)                                      | 273 (123.8) | 451 (204.6) |
|                            | 0.250      | 103 (46.7)                                      | 252 (114.3) | 429 (194.6) |
|                            | 0.125      | 102 (46.3)                                      | 200 (90.7)  | 262 (118.8) |
| 4.00                       | Solid      | N/A   | 349 (158.3) | 466 (211.4) |
|                            | 0.50       | N/A   | 349 (158.3) | 465 (210.9) |
|                            | 0.250      | N/A   | 303 (137.4) | 440 (199.6) |
|                            | 0.125      | N/A   | 201 (91.2)  | 255 (115.7) |
| 5.00                       | Solid      | N/A   | 295 (133.8) | 480 (217.7) |
|                            | 0.50       | N/A   | 295 (133.8) | 480 (217.7) |
|                            | 0.250      | N/A   | 281 (127.5) | 448 (203.2) |
|                            | 0.125      | N/A   | 192 (87.1)  | 250 (113.4) |
| 6.00                       | Solid      | N/A   | 267 (121.1) | 494 (224.1) |
|                            | 0.50       | N/A   | 257 (116.6) | 491 (222.7) |
|                            | 0.250      | N/A   | 257 (116.6) | 459 (208.2) |
|                            | 0.125      | N/A   | 197 (89.4)  | 282 (127.9) |

| <b>FLAT PLATE SPECIFICATIONS</b> |                  |  |             |             |
|----------------------------------|------------------|--|-------------|-------------|
| SHEET THICKNESS                  | MAX SHEET LENGTH | LIFTING CAPACITY LBS. (KG) - 3:1 DESIGN FACTOR |             |             |
|                                  |                  | TPCA600EM                                      | TPCA700EM   | TPCA800EM   |
| 3 Inches                         | 8'               | 330 (149)                                      | 385 (174.6) | 915 (415)   |
| 1" Inches                        | 8'               | 310 (140)                                      | 367 (166.5) | 900 (408.2) |
| 3/4" Inches                      | 8'               | 260 (117)                                      | 361 (163.7) | 875 (396.9) |
| 1/2" Inches                      | 8'               | 260 (117)                                      | 356 (161.5) | 850 (385.6) |
| 3/8" Inches                      | 8'               | 240 (108)                                      | 264 (119.7) | 785 (356)   |
| 1/4" Inches                      | 6'               | 176 (80)                                       | 231 (104.8) | 520 (235.9) |

|  |                       |
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| Double Blanks<br>(DO NOT USE FOR DESTACKING) | Does Not Double Blank |
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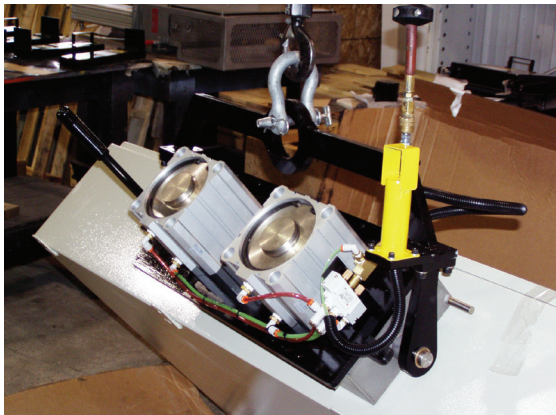
| Part No.  | <b>DIMENSIONS</b>    |                       |                        |                      |                       |                      |                       |                      |                       |                      | Approx. Weight      |
|-----------|----------------------|-----------------------|------------------------|----------------------|-----------------------|----------------------|-----------------------|----------------------|-----------------------|----------------------|---------------------|
|           | A                    | B                     | C                      | D                    | E                     | F                    | G                     | H                    | J                     | K                    |                     |
| TPCA600EM | 2.25 in.<br>57.15 mm | 8.88 in.<br>225.6 mm  | 8.12 in.<br>206.3 mm   | 1.29 in.<br>32.8 mm  | 3.52 in.<br>89.4 mm   | 0.50 in.<br>12.7 mm  | 4.09 in.<br>103.9 mm  | 1.56 in.<br>39.62 mm | 5.88 in.<br>114.3 mm  | 0.88 in.<br>22.4 mm  | 12 lbs. (5.44 kg)   |
| TPCA700EM | 4.00 in.<br>101.6 mm | 9.25 in.<br>234.95 mm | 8.65 in.<br>219.71 mm  | 2.39 in.<br>60.71 mm | 3.78 in.<br>96.01 mm  | 0.75 in.<br>19.05 mm | 4.12 in.<br>104.65 mm | 2.36 in.<br>59.94 mm | 6.75 in.<br>171.45 mm | 1.63 in.<br>41.40 mm | 27 lbs. (12.247 kg) |
| TPCA800EM | 4.00 in.<br>101.6 mm | 9.63 in.<br>244.60 mm | 14.51 in.<br>368.55 mm | 3.14 in.<br>79.76 mm | 6.04 in.<br>153.42 mm | 1.25 in.<br>31.75 mm | 7.22 in.<br>183.39 mm | 3.03 in.<br>76.96 mm | 6.50 in.<br>165.1 mm  | 2.01 in.<br>51.05 mm | 66 lbs. (29.937 kg) |

**TOLL FREE 1.888.582.0823 imi@magnetics.com**



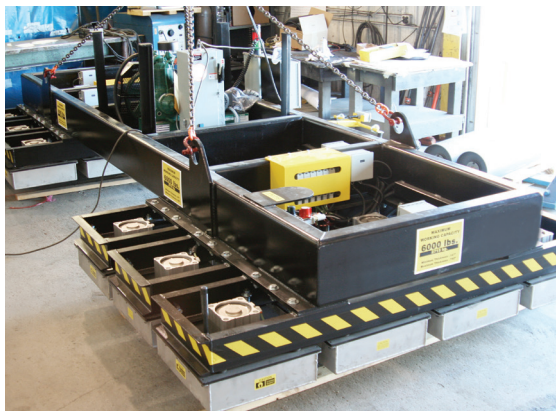
**TPCA Magnets Customized For Lifting And Moving Steel Parts**

Pictured left are Transporter® Cylinder Actuated magnets designed to pickup odd shaped parts such as a large truck spring and a solid steel gear used in large machinery. Not typical applications you would think a magnet would work on due to the round shapes and various steel thickness, however the Transporter® technology combined with custom curved and angled faces can solve these material handling needs. Pictured lower left is a Transporter® Cylinder Actuated magnet assembly that is designed to move weldments out of a robotic weld cell. The magnets were required to be same profile as the weldments to fit narrow gaps between welding components. The lifter is suspended from a customer supplied air balancer. The parts weigh over 40 pounds, have multiple sharp edges and very few handholds - making the use of a magnetic solution ideal.



**Pivot Mounted Transporter® Cylinder Actuated Magnet Solution for Thin Steel Enclosures**

Using an overhead crane, the pivot-mounted magnet engages the top panel of enclosures presented "doors up". The crane and magnet then lift the enclosure to a vertical attitude and place it on hangers in a paint line. After painting, the non-marring magnet face allows the same magnet to be used to remove the enclosures from the paint line and place them back on a table in the "doors up" attitude. Enclosure weights are 150 to 200 pounds. Prior to using the IMI solution, the end-user was utilizing two operators to manually lift the enclosures onto paint rack hooks that are several feet off the floor.



**Cylinder Actuated Magnets for Large Plate Lifting**

The plates being lifted are 24' long x 8' wide with thicknesses ranging from 0.147" to 0.75". The plates are lifted from a stack onto a cutting table one at a time. Designed to not double blank the thin plates and still have the capacity for the heaviest plates. The magnet featured two clusters of heads spread out to lift every other quarter of the sheet from the table after the they are cut. The magnet system provides enough coverage to clear the skeleton and all parts as small as 6" long. Parts smaller than 6" long had tabs left to ensure that they were lifted with the skeleton. For More Information on Large Plate Lifting Magnets see tech sheet **AG-03A**.

**Key Markets**

Automotive Tier 1 & 2, Stamping

**Related Products**

Sheet Lifters, Tube Lifters, Transporter® LP, Permatrol® Family, Perm-Electro Lifts, PowerLift®, Creative Lift®

