Parker P series
Direct Drive Rotary Motors
WARNING — USER RESPONSIBILITY

FAILURE OR IMPROPER SELECTION OR IMPROPER USE OF THE PRODUCTS DESCRIBED HEREIN OR RELATED ITEMS CAN CAUSE DEATH, PERSONAL INJURY AND PROPERTY DAMAGE.

- This document and other information from Parker-Hannifin Corporation, its subsidiaries and authorized distributors provide product or system options for further investigation by users having technical expertise.
- The user, through its own analysis and testing, is solely responsible for making the final selection of the system and components and ensuring that all performance, endurance, maintenance, safety and warning requirements of the application are met. The user must analyze all aspects of the application, follow applicable industry standards, and follow the information concerning the product in the current product catalog and in any other materials provided from Parker or its subsidiaries or authorized distributors.
- To the extent that Parker or its subsidiaries or authorized distributors provide component or system options based upon data or specifications provided by the user, the user is responsible for determining that such data and specifications are suitable and sufficient for all applications and reasonably foreseeable uses of the components or systems.
Powerful Direct Drive Motors

Easy configuration
• once the motor is connected to P series drive it will automatically recognize the motor

Various control option
• Predefined Profile mode provides ideal indexing feature for your machine
• EtherCAT gives high speed communication for multi-axis solutions

SERVO DRIVE
Ideal direct drive solution for P series drive
- 100~400W : PD-04P & 04C
- 400~1kW : PD-10P & 10C
- 1kW~3.5kW : PD-35P & 35C

BEARING
Low vibration and outstanding mechanical accuracy by improved bearing design

ENCODER
High resolution absolute feedback as standard (20 bit BiSS-C)

FRAME
5 frame size - 135mm/175mm/230mm/290mm/360mm various height is available as custom option
Rated speed : 200RPM / 150RPM

WINDING
Optimized winging structure

MAGNET
High torque density by using highest class rated Neodymium permanent magnet

Pre-defined profile function with Parker Drive
• Available 64 profiles

- Rotary Absolute/Relative/Shortest move

- Absolute
- Relative
- Shortest
### Basic specification

<table>
<thead>
<tr>
<th>Motor</th>
<th>PM-DBD□□□□□□ □□□□□□□</th>
<th>PM-DDC□□□□□□ □□□□□□□</th>
<th>PM-DDD□□□□□□ □□□□□□□</th>
<th>PM-DDDE□□□□□□ □□□□□□□</th>
<th>PM-DDDF□□□□□□ □□□□□□□</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>PM-□□□□□□□□ □□□□□□□</td>
<td>PM-□□□□□□□□ □□□□□□□</td>
<td>PM-□□□□□□□□ □□□□□□□</td>
<td>PM-□□□□□□□□ □□□□□□□</td>
<td>PM-□□□□□□□□ □□□□□□□</td>
</tr>
<tr>
<td></td>
<td>03 06 09 06 12 18 12 22 34 40 60</td>
<td>03 06 09 06 12 18 12 22 34 40 60</td>
<td>03 06 09 06 12 18 12 22 34 40 60</td>
<td>03 06 09 06 12 18 12 22 34 40 60</td>
<td>03 06 09 06 12 18 12 22 34 40 60</td>
</tr>
<tr>
<td>Diameter mm</td>
<td>ø135</td>
<td>ø175</td>
<td>ø230</td>
<td>ø290</td>
<td>ø360</td>
</tr>
<tr>
<td>Rated Power W</td>
<td>63 126 188 126 251 377</td>
<td>251 461 712</td>
<td>838 1,257 1,728 2,513</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rated Torque N-m</td>
<td>3 6 9</td>
<td>6 12 18</td>
<td>12 22 34</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Peak Torque N-m</td>
<td>9 18 27</td>
<td>18 36 54</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rated Current Arms</td>
<td>1.12 1.46 2.63</td>
<td>1.48 2.41 3</td>
<td>2.58 3.33 5.72</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Peak Current Arms</td>
<td>3.36 4.38 7.89</td>
<td>4.44 7.23 9</td>
<td>7.74 9.99 17.16</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rated Velocity rpm</td>
<td>200</td>
<td>200</td>
<td>200</td>
<td>200</td>
<td></td>
</tr>
<tr>
<td>Max. Velocity rpm</td>
<td>500</td>
<td>500</td>
<td>500</td>
<td>500</td>
<td></td>
</tr>
<tr>
<td>Torque Constant N-m/Arms</td>
<td>2.76 4.25 3.57</td>
<td>4.18 5.13 6.12</td>
<td>4.8 6.81 6.13</td>
<td>7.77 7.42 11.95</td>
<td></td>
</tr>
<tr>
<td>Moment of Inertia kg m²×10⁻⁴</td>
<td>5.74 8.67 11.5</td>
<td>27.32 38.9 50.48</td>
<td>54.14 68.15 82.16</td>
<td>311.55 371.71 1410.2</td>
<td></td>
</tr>
<tr>
<td>Power Rate kW/s</td>
<td>15.68 42.35 70.43</td>
<td>13.18 52.71 118.59</td>
<td>26.6 71.02 140.7</td>
<td>51.36 96.68 85.9</td>
<td></td>
</tr>
<tr>
<td>Angular Accel rad/s²</td>
<td>191.2 141.6 127.7</td>
<td>455.03 323.9 280.3</td>
<td>450.9 309.6 241.5</td>
<td>778.35 619.1 1281.13</td>
<td></td>
</tr>
<tr>
<td>Accuracy for ABS Position arc-sec</td>
<td>±30</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Accuracy for Repeatability arc-sec</td>
<td>±1.3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Axial run-out mm</td>
<td>0.015</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Radial run-out mm</td>
<td>0.03</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Allow. thrust load N</td>
<td>1500</td>
<td>3300</td>
<td>4000</td>
<td>11000</td>
<td></td>
</tr>
<tr>
<td>Allow. moment load N-m</td>
<td>40</td>
<td>70</td>
<td>93</td>
<td>250</td>
<td></td>
</tr>
<tr>
<td>Encoder</td>
<td>20-bit single turn serial encoder (BiSS-C / Absolute)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weight(Approx.) kg</td>
<td>6.3 7.2 9.2 8.7 10.6 12.6 17.3 19.6 21.9 28.2 35 54 70.3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## Dimensions

### Size B

<table>
<thead>
<tr>
<th>Product</th>
<th>Length (mm) ‘L’</th>
<th>Weight (Kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PM-DDB03D</td>
<td>78</td>
<td>6.3</td>
</tr>
<tr>
<td>PM-DDB06D</td>
<td>100</td>
<td>7.2</td>
</tr>
<tr>
<td>PM-DDB09D</td>
<td>124</td>
<td>9.2</td>
</tr>
</tbody>
</table>

### Size C

<table>
<thead>
<tr>
<th>Product</th>
<th>Length (mm) ‘L’</th>
<th>Weight (Kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PM-DDC06D</td>
<td>77</td>
<td>8.7</td>
</tr>
<tr>
<td>PM-DDC12D</td>
<td>95</td>
<td>10.6</td>
</tr>
<tr>
<td>PM-DDC18D</td>
<td>113</td>
<td>12.6</td>
</tr>
</tbody>
</table>
Parker P series Direct Drive Rotary Motors
Technical data

**Dimensions**

### Size D

<table>
<thead>
<tr>
<th>Product</th>
<th>Length (mm) ‘L’</th>
<th>Weight (Kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PM-DD12D</td>
<td>82.5</td>
<td>17.3</td>
</tr>
<tr>
<td>PM-DD22D</td>
<td>100.5</td>
<td>19.6</td>
</tr>
<tr>
<td>PM-DD34D</td>
<td>118.5</td>
<td>21.9</td>
</tr>
</tbody>
</table>

### Size E

<table>
<thead>
<tr>
<th>Product</th>
<th>Length (mm) ‘L’</th>
<th>Weight (Kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PM-DDE40D</td>
<td>95.4</td>
<td>28.2</td>
</tr>
<tr>
<td>PM-DDE60D</td>
<td>113.4</td>
<td>35</td>
</tr>
</tbody>
</table>
**Dimensions**

Size F

<table>
<thead>
<tr>
<th>Product</th>
<th>Length (mm) 'L'</th>
<th>Weight (Kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PM-DDFA1G</td>
<td>131</td>
<td>54</td>
</tr>
<tr>
<td>PM-DDFA6G</td>
<td>167</td>
<td>70.3</td>
</tr>
</tbody>
</table>

**N-T curve**

Size B

<table>
<thead>
<tr>
<th>Torque [Nm]</th>
<th>PM-DB03D</th>
<th>Torque [Nm]</th>
<th>PM-DB06D</th>
<th>Torque [Nm]</th>
<th>PM-DB09D</th>
</tr>
</thead>
<tbody>
<tr>
<td>9.0</td>
<td>6.0</td>
<td>9.0</td>
<td>6.0</td>
<td>9.0</td>
<td>6.0</td>
</tr>
<tr>
<td>6.0</td>
<td>4.0</td>
<td>6.0</td>
<td>4.0</td>
<td>6.0</td>
<td>4.0</td>
</tr>
<tr>
<td>3.0</td>
<td>2.0</td>
<td>3.0</td>
<td>2.0</td>
<td>3.0</td>
<td>2.0</td>
</tr>
<tr>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
</tr>
</tbody>
</table>

Size C

<table>
<thead>
<tr>
<th>Torque [Nm]</th>
<th>PM-DDC06D</th>
<th>Torque [Nm]</th>
<th>PM-DDC12D</th>
<th>Torque [Nm]</th>
<th>PM-DDC18D</th>
</tr>
</thead>
<tbody>
<tr>
<td>20.0</td>
<td>10.0</td>
<td>20.0</td>
<td>10.0</td>
<td>20.0</td>
<td>10.0</td>
</tr>
<tr>
<td>15.0</td>
<td>7.5</td>
<td>15.0</td>
<td>7.5</td>
<td>15.0</td>
<td>7.5</td>
</tr>
<tr>
<td>10.0</td>
<td>5.0</td>
<td>10.0</td>
<td>5.0</td>
<td>10.0</td>
<td>5.0</td>
</tr>
<tr>
<td>5.0</td>
<td>2.5</td>
<td>5.0</td>
<td>2.5</td>
<td>5.0</td>
<td>2.5</td>
</tr>
<tr>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
</tr>
</tbody>
</table>
Parker P series Direct Drive Rotary Motors
Technical data

**Size D**

- PM-DDD12D
- PM-DDD22D
- PM-DDD34D

**Size E**

- PM-DDE40D
- PM-DDE60D

**Size F**

- PM-DDFA1G
- PM-DDFA6G
## Ordering Code

### Motor

<table>
<thead>
<tr>
<th>Code</th>
<th>Type</th>
<th>Diameter size</th>
<th>Torque</th>
<th>Encoder</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>DD</td>
<td>DD Motor</td>
<td>External Diameter 135mm</td>
<td>03 3Nm</td>
<td>NO 20Bit</td>
<td>200rpm Standard, ø135–ø290 : 200rpm</td>
</tr>
<tr>
<td></td>
<td></td>
<td>External Diameter 175mm</td>
<td>06 6Nm</td>
<td>20Bit</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>External Diameter 230mm</td>
<td>09 9Nm</td>
<td>20Bit</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>External Diameter 290mm</td>
<td>60 60Nm</td>
<td>20Bit</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>External Diameter 360mm</td>
<td>60 60Nm</td>
<td>20Bit</td>
<td></td>
</tr>
</tbody>
</table>

### Cable

<table>
<thead>
<tr>
<th>Code</th>
<th>Option</th>
<th>Encoder</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>APCS</td>
<td>Standard Feedback Cable</td>
<td>Standard Power Cable (PM-DDF series)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Standard Power Cable (PM-DDB–E series)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
At Parker, we’re guided by a relentless drive to help our customers become more productive and achieve higher levels of profitability by engineering the best systems for their requirements. It means looking at customer applications from many angles to find new ways to create value. Whatever the motion and control technology need, Parker has the experience, breadth of technology need, Parker has the motion and control to create value. Whatever angles to find new ways applications from many looking at customer requirements. It means the best systems for their profitability by engineering achieve higher levels of more productive and our customers become a relentless drive to help At Parker, we’re guided by

**Aerospace**
- Aftermarket services
- Commercial transports
- Engines
- General & business aviation
- Helicopters
- Launch vehicle
- Military aircraft
- Missiles
- Power generation
- Regional transports
- Unmanned aerial vehicles

**Climate Control**
- Air conditioning
- Construction Machinery
- Food & beverage
- Industrial machinery
- Life sciences
- Oil & gas
- Precision cooling
- Process
- Refrigeration
- Transportation

**Electromechanical**
- Aerospace
- Factory automation
- Life science & medical
- Machine tools
- Packaging machinery
- Paper machinery
- Plastic machinery & converting
- Primary mills
- Semiconductor & electronics
- Textile
- Wire & cable

**Filtration**
- Aerospace
- Food & beverage
- Industrial plant & equipment
- Life sciences
- Marine
- Mobile equipment
- Oil & gas
- Power generation & renewable energy
- Process
- Transportation
- Water Purification

**Sealing & Shielding**
- Aerospace
- Chemical processing
- Consumer
- Fluid power
- General industrial
- Information technology
- Life sciences
- Microelectronics
- Military
- Oil & gas
- Power generation
- Renewable energy
- Telecommunications
- Transportation

**Fluid & Gas Handling**
- Aerial lift
- Agriculture
- Bulk chemical handling
- Construction machinery
- Food & beverage
- Fuel & gas delivery
- Industrial machinery
- Life sciences
- Marine
- Mining
- Mobile
- Oil & gas
- Renewable energy
- Transportation

**Hydraulics**
- Aerial lift
- Agriculture
- Alternative energy
- Construction machinery
- Forestry
- Industrial machinery
- Machine tools
- Marine
- Material handling
- Mining
- Oil & gas
- Power generation
- Refuse vehicles
- Renewable energy
- Truck hydraulics
- Trench equipment

**Pneumatics**
- Air compressors
- Brass fittings & valves
- Manifolds
- Pneumatic accessories
- Pneumatic actuators & grippers
- Pneumatic valves & controls
- Quick disconnects
- Rotary actuators
- Rubber & thermoplastic hose & couplings
- Structural connections
- Thermoplastic tubing & fittings
- Vacuum generators, cups & sensors
OFFER OF SALE

The items described in this document and other documents and descriptions provided by Parker Hannifin Corporation, its subsidiaries and its authorized distributors ("Seller") are hereby offered for sale at prices to be established by Seller. This offer and its acceptance by any customer ("Buyer") shall be governed by the terms and conditions found on-line at www.parker.com/saleterms.

1. Terms and Conditions. Seller's willingness to offer Products, or accept an order for Products, is subject to these terms and conditions. If any document, agreement, conversation or presentation contains terms and conditions different from or inconsistent with the provisions of this agreement, such different or inconsistent terms and conditions are hereby rejected. This offer of sale supersedes any prior offers, solicitations or negotiations with respect to the subject matter herewith.

2. Price Adjustments; Payments. Prices stated on Seller's offer or other quotations are valid for 30 days, and do not include any sales, use, or other taxes unless specifically stated. Unless otherwise specified by Seller, all prices are F.C.A. Seller's factory (INCOTERMS 2010). Payment is subject to credit approval and is to be made before delivery. Failure to pay any invoice within 30 days from the date of invoice or upon any other terms not agreed to in writing by Seller shall result in an interest charge of 1% per month or the maximum allowable rate under applicable law.

3. Delivery Dates; Title and Risk; Shipment. All delivery dates are approximate and Seller shall not be responsible for any damages resulting from any delay. Regardless of the manner of shipment, title to any products and risk of loss or damage shall pass to Buyer upon placement of the products with the shipment carrier at Seller's facility. Unless otherwise stated, Seller may exercise its judgment in choosing the carrier and means of delivery. No detriment of shipment at Buyers' request beyond the respective dates indicated will be made except on terms that will indemnify, defend and hold harmless Seller against any additional costs or liabilities required by Seller's Credit Department, after which Buyer shall pay interest on any unpaid invoices at the rate of 1.5% per month or the maximum allowable rate under applicable law.

4. Warranty. Seller warrants that the Products sold hereunder shall be free from defects in material and workmanship for a period of two months from the date of delivery to Buyer or 2,000 hours of normal use, whichever occurs first. The prices charged for Seller's products are based upon the exclusive limited warranty stated above, and upon the following disclaimer: DISCLAIMER OF IMPLIED WARRANTY. THIS DISCLAIMER OF IMPLIED WARRANTY APPLIES TO PRODUCTS PRODUCED HEREUNDER. SELLER DISCLAIMS ALL OTHER WARRANTIES, EXPRESS AND IMPLIED, INCLUDING DESIGN, MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

5. Claims: Commencement of Actions. Buyer shall promptly inspect all Products upon delivery. No claims for shortages will be allowed unless reported to the Seller within 10 days of delivery. No other claims against Seller shall be allowed unless asserted in writing by Buyer within 30 days after discovery of any alleged breach of warranty within 30 days after the date the defect is or should have been discovered by Buyer. Any action based upon breach of this agreement or upon any other claim arising out of this sale (other than an action by Seller for an unpaid invoice) must be commenced on or before the earlier of the following: (a) 10 days from the date of delivery; or (b) 12 months from the date of the agreement or of the alleged breach.

6. LIMITATION OF LIABILITY. UPON NOTIFICATION, SELLER WILL, AT ITS OPTION, REPAIR OR REPLACE A DEFECTIVE PRODUCT, OR REFUND THE PURCHASE PRICE. IN NO EVENT SHALL SELLER BE LIABLE TO BUYER FOR ANY SPECIAL, INDIRECT, INCIDENTAL, CONSEQUENTIAL DAMAGES ARISING OUT OF OR AS THE RESULT OF, THE SALE, DELIVERY, NON-DELIVERY, SERVICING, USE OR LOSS OF USE OF THE PRODUCTS OR ANY PART THEREOF, OR FOR ANY OTHER LOSS OR DAMAGES RESULTING FROM ANY NATURAL CAUSE INCURRED WITHOUT SELLER'S WRITTEN CONSENT, EVEN IF SELLER HAS BEEN NEGLIGENT, WHETHER IN CONTRACT, TORT OR OTHER LEGAL THEORY. IN NO EVENT SHALL SELLER'S LIABILITY UNDER ANY CLAIM MADE BY BUYER EXCEED THE PURCHASE價格 PAID FOR THE DEFECTIVE PRODUCT.

7. User Responsibility. The user, through its own analysis and testing, is solely responsible for making the final selection of the system and Product and assuring that all performance, endurance, maintenance, safety and warning requirements of the application are met. The user must analyze all aspects of the application and follow applicable industry standards and Product information. If Seller provides Product or system options, the user is responsible for determining that such data and specifications are suitable and sufficient for all applications and reasonably foreseeable uses of the Products or systems.

8. Loss to Buyer's Property. Any designs, tools, patterns, materials, drawings, confidential information or equipment furnished by Buyer or any other items which become Seller's property shall be considered as being held by Seller after two consecutive years have elapsed without Buyer ordering the items manufactured using such property. Seller shall not be responsible for any loss or damage to such property while it is in Seller's possession or control.

9. Special Tools. A tooling charge may be imposed for any special tooling, including without limitation, dies, fixtures, molds and patterns, acquired to manufacture Products. Such special tooling shall be and remain Seller's property notwithstanding payment of any charges by Buyer. In no event will Buyer acquire any interest in, or ownership of, any special tooling belonging to Seller, including any tooling used in the manufacture of the Products, even if such apparatus has been specially converted or adapted for such manufacture and notwithstanding any charges paid by Buyer. Unless otherwise agreed to, Buyer shall not make, use or dispose of any special tooling or other property in its sole discretion at any time.

10. Buyer's Obligation; Rights of Seller. To secure payment of all sums due or otherwise, Seller shall retain a security interest in the goods delivered and this agreement, and all other rights of security in any property of Seller. Buyer agrees to comply with these terms and conditions. Seller shall not indemnify Buyer under any circumstance except as otherwise provided.

11. Improper use and Indemnity. Buyer shall indemnify, defend, and hold Seller harmless from any claim, liability, damages, lawsuits, and costs (including attorney fees), whether for personal injury, property damage, patent, trademark or copyright infringement or any other claim, brought by or incurred by Buyer, Buyer’s employees, or any other party, or arising from improper use, mishandling or alteration of the Products, or any other misuse of Products purchased by Buyer from Seller; (b) any act or omission, negligent or otherwise, of Buyer; (c) Seller’s use of patterns, plans, drawings, or specifications furnished by Buyer to manufacture Product; or (d) Buyer’s failure to comply with these terms and conditions. Seller shall not indemnify Buyer under any circumstance except as otherwise provided.

12. Cancellations and Changes. Orders shall not be subject to cancellation or change by Buyer for any reason, except with Seller's written consent and upon terms that will indemnify, defend and hold Seller harmless from any additional charges or such cancellation or change will be at the option of Seller at a price not to exceed any consequential loss or damage. Seller may change product features, specifications, designs and availability with notice to Buyer.

13. Limitation on Assignment. Buyer shall not assign its rights or obligations under this agreement without the prior written consent of Seller.

14. Force Majeure. Buyer does not assume the risk and shall not be liable for delay or failure to perform any of Seller's obligations by reason of circumstances beyond the reasonable control of Seller (hereinafter "Events of Force Majeure"). Events of Force Majeure shall include without limitation: accidents, strikes or labor disputes, acts of any government or government agency, acts of nature, delays or failures in delivery from carriers or suppliers, shortages of materials, or any other cause beyond Seller's reasonable control.

15. Waiver and Severability. Failure to enforce any provision of this agreement will not waive that provision nor will any such failure prejudice Seller's right to enforce that provision in the future. Invalidation of any provision of this agreement by legislation or other rule of law shall not invalidate any other provision herein. The remaining provisions of this agreement will remain in full force and effect.

16. Termination. Seller may terminate this agreement for any reason and at any time by giving Buyer thirty (30) days written notice of termination. Seller may immediately terminate this agreement if Buyer (a) makes an assignment for the benefit of creditors, or (b) dissolves or is liquidated or merged with or into another entity or a majority of the stock or other equity interest of Buyer is acquired by or for a person, for the purpose of influencing such person to purchase products or services from Seller; (c) does not pay amounts owed to Seller when due; (d) fails to make timely payments; or (e) breaches any provision of this agreement by legislation or other rule of law shall not invalidate any other provision herein. The remaining provisions of this agreement will remain in full force and effect.

17. Governing Law. This agreement and the sale and delivery of all Products hereunder shall be deemed to have taken place in and shall be governed and construed in accordance with the laws of the State of Ohio, the United States of America, and applicable law.

18. Indemnity for Infringement of Intellectual Property Rights. Seller shall have no liability for infringement of any patents, trademarks, copyrights, trade dress, trade secrets or similar rights except as provided in this Section. Seller will defend and indemnify Buyer against allegations of infringement of U.S. patents, trademarks, copyrights, trade dress and trade secrets ("Intellectual Property Rights"). Seller will defend at its expense and will pay the cost of any infringement actions brought by Buyer based on an allegation that a Product sold pursuant to this agreement infringes the Intellectual Property Rights of a third party. Seller's obligation to defend and indemnify Buyer is contingent on Buyer notifying Seller within ten (10) days after Buyer becomes aware of such allegations of infringement, and Seller having sole control over the defense of any allegations or actions initiated by Buyer. Seller's obligation to defend and indemnify Buyer is subject to a claim that it infringes the Intellectual Property Rights of a third party, Seller may, at its sole expense and option, procure for Buyer the right to continue using the Product, replace or modify the Product so as to make it noninfringing, or offer to accept return of the Product and return the purchase price less a reasonable allowance for depreciation. Notwithstanding the foregoing, Seller shall have no liability for claims of infringement based on information provided by Buyer, or directed to Products delivered hereunder for which the designs are specified in whole or part by Buyer, or infringements resulting from the modification, combination or use in a system of any Product sold hereunder. The foregoing provisions of this Section shall constitute Seller's sole and exclusive liability and Buyer's sole and exclusive remedy for any breach of this Section and may otherwise be unenforceable.

19. Entire Agreement. This agreement contains the entire agreement between the Buyer and Seller and constitutes the full, complete and exclusive expression of the terms of sale. All prior or contemporaneous written or oral agreements or negotiations with respect to the subject matter herewith are hereby terminated.

20. Compliance with Law, U. K. Bribery Act and U.S. Foreign Corrupt Practices Act. Buyer agrees to comply with all applicable laws and regulations, including both those of the United Kingdom and the United States of America, and of the countries in which Buyer resides or in which Business is conducted in connection with this agreement, including the U. K. Bribery Act, the U.S. Foreign Corrupt Practices Act ("FCPA") and the U.S. Anti-Kickback Act (the "Anti-Kickback Act"). In addition, Buyer agrees to comply with all applicable laws and regulations of any city, state, country or jurisdiction in which Business is conducted. Buyer represents and agrees that Buyer shall not make any payment or give anything of value, directly or indirectly to any governmental official, any foreign political party or official thereof, any candidate for foreign political office, or any commercial entity or person, for the purpose of influencing such person to purchase products or otherwise benefit the business of Seller.
This catalogue is offered to you by:

**China**
- **Sales Office**
  - Shanghai office, 86-21-28995000
  - Parker Hannifin Motion&Control Co. Ltd.
  - 280 Yunqiao Road, Jin Qiao Export Processing Zone, Shanghai 201206, China

**Taiwan**
- **Sales Office**
  - Taipei Office, 886-2-22988987
  - Parker Hannifin Taiwan Co., Ltd.
  - No.19, Wu Chiuang 2nd Road, Wuku Industrial Park, New Taipei City, Taiwan 248

**Thailand**
- **Sales Office**
  - Bangkok Office, 66-2-186-7000
  - Parker Hannifin (Thailand) Co., Ltd.
  - 1265 Rama9 Road, Suanluang, Bangkok 10250

**Singapore**
- **Sales Office**
  - 66-6887-6300
  - Parker Hannifin Singapore Pte Ltd.
  - No.11, Fourth Chin Bee Road, Singapore 619702

**Japan**
- **Sales Office**
  - Totsuka Office, 81-45-870-1510
  - Parker Hannifin Japan Ltd.
  - 626 Totsuka-cho, Totsuka-ku, Yokohama-shi, Kanagawa, 244-0003 Japan

**Malaysia**
- **Sales Office**
  - 603-7849-0800
  - Parker Hannifin Industrial (M) Sdn Bhd
  - No. 11, Persiaran Pasak bumi, Seksyen U8, Bukit Jelutong Industrial Park, 40150 Shah Alam, Selangor

**Indonesia**
- **Sales Office**
  - 62-21-7588-1906
  - Parker Hannifin (Indonesia Rep Office)
  - Techno Park Block G3/16 BSD (Bumi Serpong Damai)
  - Tangerang, 15314 Indonesia

**Vietnam**
- **Sales Office**
  - 84 8 377 546 51
  - Parker Hannifin Vietnam Co., Ltd.
  - 7-9 Road 65, Tan Quy Dong Residential Area, Tan Phong Ward, District 7, Ho Chi Minh City, Vietnam

**Australia**
- **Sales Office**
  - 61-(0)2-9634-7777
  - Parker Hannifin (Australia) Pty Limited
  - 9 Carrington Road, Castle Hill, NSW 2154