Oildyne 108/118 and 165/175 Series
Hydraulic Power Units

Pressures to 241 bar (3500 psi)
Flow to 5.3 lpm (1.4 gpm)
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108 and 165 Series
Self-contained
Hydraulic Power Units

The Oildyne Division’s compact 108/165 Series power units let you put the power where you need it. They’re completely self-contained with an AC or DC motor, gear pump, reservoir, internal valving, load hold checks and relief valves. The 108/165 Series models are designed for intermittent service and come in six standard pump sizes which produce flows of .16, .31, .41, .52, .82 and 1.06 cc/rev (.0098, .0187, .0246, .0321, .050 and .065 cubic inches/rev). Locking check valves are available in all models. Performance will vary with the type of fluid used. Several hydraulic circuits are available.

108/165 Series units are available with single- or bi-directional rotation. Single direction units are commonly used to charge accumulators, power one-direction hydraulic motors and cylinders, provide pilot flow to servo valves, pressurize lube systems and supply multifunction circuits using external valving.

Bi-directional, reversible units operate double-acting cylinders and two-way motors. New are the 118 and 175 Series codes. Instead of the standard threaded ports, these new versions provide a four-bolt, flat manifoldable surface to accept the solenoid manifold circuit or your custom manifold.

We’d like to work with you on your hydraulic applications. Our people know small hydraulics. We know how to design them, how to make them and how to apply them. Therefore, we can offer you a practical, economical solution to your fluid power problems.

Oildyne has pioneered top quality, compact hydraulic components since 1955. We can provide standard products or tailor high pressure, space saving solutions to your specific needs.

Note: Parker Oildyne products are not to be applied in aviation applications.
## Standard Product Ordering Code

<table>
<thead>
<tr>
<th>PRODUCT TYPE</th>
<th>108</th>
<th>118</th>
<th>165</th>
<th>175</th>
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<tbody>
<tr>
<td>MOTOR CODE – 108/118</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>AE</td>
<td>12 VDC Perm. Mag.</td>
<td></td>
<td></td>
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<tr>
<td>AM</td>
<td>12 VDC Ser. Wnd.</td>
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<td></td>
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<tr>
<td>BE</td>
<td>24 VDC Perm. Mag.</td>
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<tr>
<td>BI</td>
<td>24 VDC Ser. Wnd.</td>
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<td></td>
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<tr>
<td>HA</td>
<td>115 VAC, 1 phase</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HD</td>
<td>230 VAC, 1 phase</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IC</td>
<td>36 VDC Perm. Mag.</td>
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</tbody>
</table>

| MOTOR CODE – 165/175 |
| AY | 12 VDC Perm. Mag. 1 HP |
| BY | 24 VDC Perm. Mag. 1 HP |

### Pump Sizes

#### Pump Size 108/118

<table>
<thead>
<tr>
<th>Size</th>
<th>cc</th>
<th>in³/rev</th>
</tr>
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<tbody>
<tr>
<td>10</td>
<td>10</td>
<td>0.16</td>
</tr>
<tr>
<td>19</td>
<td>19</td>
<td>0.31</td>
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<td>25</td>
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<td>0.41</td>
</tr>
<tr>
<td>32</td>
<td>32</td>
<td>0.52</td>
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</table>

#### Pump Size 165/175

<table>
<thead>
<tr>
<th>Size</th>
<th>cc</th>
<th>in³/rev</th>
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</thead>
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<tr>
<td>32</td>
<td>32</td>
<td>0.52</td>
</tr>
<tr>
<td>50</td>
<td>50</td>
<td>0.82</td>
</tr>
<tr>
<td>65</td>
<td>65</td>
<td>1.06</td>
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### Reservoirs

<table>
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<tr>
<th>Vertical Usable</th>
<th>CODE</th>
<th>Horizontal Usable</th>
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</thead>
<tbody>
<tr>
<td>340 cc</td>
<td>A</td>
<td>410 cc 25 in³</td>
</tr>
<tr>
<td>600 cc</td>
<td>B</td>
<td>640 cc 37 in³</td>
</tr>
<tr>
<td>410 cc</td>
<td>C</td>
<td>N/A</td>
</tr>
<tr>
<td>410 cc</td>
<td>D</td>
<td>N/A</td>
</tr>
<tr>
<td>1500 cc</td>
<td>F</td>
<td>1500 cc 92 in³</td>
</tr>
<tr>
<td>750 cc</td>
<td>G</td>
<td>910 cc 55 in³</td>
</tr>
<tr>
<td>1700 cc</td>
<td>H</td>
<td>2400 cc 150 in³</td>
</tr>
<tr>
<td>3700 cc</td>
<td>I</td>
<td>4200 cc 254 in³</td>
</tr>
<tr>
<td>5300 cc</td>
<td>J</td>
<td>5600 cc 347 in³</td>
</tr>
<tr>
<td>950 cc</td>
<td>P</td>
<td>940 cc 58 in³</td>
</tr>
<tr>
<td>1900 cc</td>
<td>Q</td>
<td>1500 cc 95 in³</td>
</tr>
<tr>
<td>4500 cc</td>
<td>R</td>
<td>3000 cc 185 in³</td>
</tr>
<tr>
<td>3200 cc</td>
<td>S</td>
<td>2300 cc 141 in³</td>
</tr>
</tbody>
</table>

### Notes:

- Reservoir A with .32 pump cannot be horizontal mount.

### Ordering Code Instructions

Select the model code needed based on catalog information. All boxes above must be filled in before Oildyne can process the order. If the power unit is a single direction unit use '00' for the DN (Right Hand) relief valve box. For circuits LL and LB, the two relief valve settings should be within a 5:1 ratio.

### Relief Valve Tolerances

<table>
<thead>
<tr>
<th>Pressure Range Bar</th>
<th>14 to 34.4</th>
<th>35 to 68.9</th>
<th>70 to 137.9</th>
<th>138+</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pressure Range PSI</td>
<td>200 to 499</td>
<td>500 to 999</td>
<td>1000 to 1999</td>
<td>2000+</td>
</tr>
<tr>
<td>Tolerance +/- (bar/psi)</td>
<td>5.2/75</td>
<td>6.9/100</td>
<td>10.3/150</td>
<td>13.8/200</td>
</tr>
</tbody>
</table>

### Hydraulic Fluid

Acceptable fluids for 108/118/165/175 Series Power Units:
- Standard Automatic Transmission Fluid (ATF)
- Most mineral based hydraulic fluids

Viscosity range: 32-64 cSt (150-300 SSU) at 38°C (100°F).

### Temperature Range

Temperature Ranges for 108/118/165/175 Series:
- Operating: -7 to +60°C (+20 to +140°F)
- Storage: -7 to +60°C (+20 to +140°F)

Please contact Parker Oildyne for usage outside of this range.
Performance Data

108/118 Series: Permanent Magnet Motors - AE/BE

Note: IA motor (36 VDC) flow will be equivalent to the AE/BE curves: current draw will be about 1/3 of the AE motor values.

DC Motor Duty Cycle Characteristics

108/118 Perm. Magnet Motors – AE/BE (for intermittent duty cycles only)

Current Draw vs On Time General Guidelines at 21°C (70°F)

Performance data for reference only. Based on ATF at 21°C (70°F)
Performance Data

108/118 Series: Series Wound Motors - AM/BI

Note: IC motor (36 VDC) flow will be equivalent to the AM/BI curves:
current draw will be about 1/3 of the AM motor values

Performance data for reference only. Based on ATF at 21°C (70°F)
Performance Data

108/118 Series: AC Motors - HA/HD

NOTES:
- S2 = 5  Maximum recommended ON time for the HA/HD motors is 5 minutes, after which the motors must be OFF until cooled to ambient temperature
- 50 Hz performance is about 83% of curves shown

108/118 Series HA Motors (115 VAC)
1) For Single Direction only, and Reversible with UP port pressure:

108/118 Series HD Motors (230 VAC)
1) For Single Direction only, and Reversible with UP port pressure:

For electrical controls suggestions, see page 36.
To reverse rotation, interchange the Black and Red wires.
Performance data for reference only. Based on ATF at 21°C (70°F)
Performance Data

165/175 Series: Permanent Magnet Motors - AY

Note: BY motor (24 VDC) flow will be equivalent to the AY curves; current draw will be about 1/2 of the AY motor values.

165/175 Series AY Motor
1) For Single Direction only, and Reversible with UP port pressure:
   Terminal 1: Ground
   Terminal 2: +12 VDC
2) Reversible with DN port pressure:
   Terminal 1: Ground
   Terminal 2: +12 VDC

165/175 Series BY Motor
1) For Single Direction only, and Reversible with UP port pressure:
   Terminal 1: Ground
   Terminal 2: +24 VDC
2) Reversible with DN port pressure:
   Terminal 1: +24 VDC
   Terminal 2: Ground

AY and BY motor electrical connections. For electrical controls suggestions, see page 36

DC Motor Duty Cycle Characteristics
165/175 Series Motors AY/BY (for intermittent duty cycles only)
Current Draw vs On Time General Guidelines at 21°C (70°F)

Performance data for reference only. Based on ATF at 21°C (70°F)
Thermal Relief Valves — Why?

The thermal relief valve's (TRV) purpose is to allow a bleed off of built up pressure due to thermal expansion of the fluid or to act as a (very limited) shock load protection, should a cylinder in the system get bumped.

The thermal relief valve is included in circuits using a pilot operated check valve. The single direction units get one; the reversing units get two. It is located between the check valve and the 108 Series pump outlet port. It is a fixed relief valve with a pressure setting approximately 100-140 bar (1500-2000 psi) above the system relief valve pressure.
Back Pressure Circuits — Why?
The basic reversible circuit is essentially a closed loop. The oil returning from the system is fed back into the pump inlet. When a cylinder is being retracted more oil is being returned to the power unit than is leaving it due to the rod volume. This results in the DN side relief valve cracking open allowing the rod volume of oil to go back to the tank. The larger the rod volume the more open the relief valve will be. In many applications this is not a problem. However, if work is being done on the retract stroke, or if a pressure switch is used to signal the cylinder is fully retracted, the back pressure circuit is required. This circuit allows the rod volume of oil to return to the reservoir through a special shuttle spool, before it reaches the pump. Full relief valve pressure is then available to retract the cylinder, also preventing a pressure switch from tripping before the full retract position is achieved. 

Recommended uses:
- In systems where work is being done on the retract stroke
- Where a pressure switch is used to signal the full retract position
- In systems requiring a faster retract than extend speed

Note: Back Pressure circuits (RB and LB) require the UP ports to be connected to the extend ports of cylinders.
Reservoir Dimensions

Note: refer to page 16 for information on the H, I, J, P, Q, R and S reservoirs.

Note: Aside from the electric motors, 108 Series and 165 Series Power Units have the same dimensions.

165 Series shown with “G” reservoir

Note: All dimensions in mm (inches).
108 Series shown with Series Wound motor and “A” reservoir

118/175 Series with solenoid manifold and “D” reservoir (motor shown is 108/118 Series Permanent Magnet)

Please contact Oildyne for detailed 118/175 adapter dimensions.

Note: All dimensions in mm (inches).
165 Series with H, I, and J reservoirs

108 Series with HA/HD Motor and P, Q, R, and S reservoirs

Note: All dimensions in mm (inches).
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2. **Price; Payment.** Prices stated on Seller’s Quote are valid for thirty (30) days, except as explicitly otherwise stated therein, and do not include any sales, use, or other taxes or duties unless specifically listed as “taxable.” Buyer shall be responsible for all taxes and duties levied for the sale of the Products and all other costs and expenses associated with the sale, delivery, and performance of the Products. Buyer shall be responsible for any additional shipping charges incurred by Seller due to Buyer’s acts or omissions. Buyer shall pay all amounts incurred under this agreement, including all taxes and duties, to Seller in the manner specified. At Seller’s discretion, a surcharge of 1.5% per month or the maximum allowable rate under applicable law, shall be added to any late payment for all purchases is due thirty (30) days from the date of invoice (or such date as may be specified by Seller’s Credit Department). Unpaid invoices beyond the specified payment date incur interest at the rate of 1.5% per month or the maximum allowable rate under applicable law.

3. **Shipments; Delivery; Title and Risk of Loss.** All delivery dates are approximate. Seller is not responsible for damages resulting from any delay. Regardless of the manner of shipment, delivery occurs and title risk of loss or damage pass to Buyer upon placement of the Products with the shipment carrier at Seller’s facility. Unless otherwise agreed, Buyer shall promptly inspect all Products upon receipt. No claims for shortages will be allowed unless reported to Seller within ten (10) days of delivery. No other claims against Seller will be allowed unless asserted in writing within thirty (30) days after delivery. Buyer shall notify Seller of any alleged breach of warranty within thirty (30) days after the date the defect is or should have been discovered by Buyer. Any claim or action against Seller based upon breach of contract or upon any other theory, including tort, negligence, or otherwise shall be commenced within twelve (12) months from the date of the alleged breach or other alleged event, without regard to the date of discovery.

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5. **Claims; Commencement of Actions.** Buyer shall promptly inspect all Products upon receipt. No claims for shortages will be allowed unless reported to Seller within ten (10) days of delivery. No other claims against Seller will be allowed unless asserted in writing within thirty (30) days after delivery. Buyer shall notify Seller of any alleged breach of warranty within thirty (30) days after the date the defect is or should have been discovered by Buyer. Any claim or action against Seller based upon breach of contract or upon any other theory, including tort, negligence, or otherwise shall be commenced within twelve (12) months from the date of the alleged breach or other alleged event, without regard to the date of discovery.

6. **LIMITATION OF LIABILITY.** IN THE EVENT OF A BREACH OF WARRANTY, SELLER IS NOT LIABLE FOR DAMAGE TO PERSONS OR PROPERTY OR LOSS OF DATA, LOSS TO THIRD PARTY'S BUSINESS OR GOODWILL, LOSS TO PROPERTY OWNED BY A THIRD PARTY, OR LOSS OF INCOME FOR ANY APPLICATION OR USE OF THE PRODUCTS OR ANY PART THEREOF, OR FOR ANY CHARGES OR EXPENSES OF ANY NATURE; SELLER IS NOT RESPONSIBLE FOR ANY INTERFERENCE WITH BUSINESS RELATIONS, LOSS OF USE, INTERMITTENT USE, OR RECLAMATION OR RECOVERY OF ORIGINAL BIOLOGICAL MATERIALS OR REPRODUCTIVE MATERIALS; OR ANY OTHER LOSS WHATSOEVER, INCLUDING ANY LOSS TO BUSINESS, GOODWILL, REPUTATION, OR OTHER INTANGIBLE LOSS, WHETHER SELLER IS ADVISED OF THE POSSIBILITY OR LIKELIHOOD OF SUCH LOSS. IN NO EVENT WILL SELLER BE LIABLE FOR ANY SPECIAL, INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF, OR AS THE RESULT OF, THEossip of the Products or any part thereof, or for any charges or expenses of any nature; Seller is not responsible for any interference with business relations, loss of use, intermittent use, or reclamation or recovery of original biological materials or reproductive materials; or any other loss whatsoever, including any loss to business, goodwill, reputation, or other intangible loss, whether Seller is advised of the possibility or likelihood of such loss.

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 ensuring 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 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 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 Buyer’s property, will be considered obsolete and may be destroyed by Seller, Buyer’s Obligation; Rights of Seller. To secure payment of all sums due or otherwise, Seller retains a security interest in all Products delivered to Buyer and this agreement is deemed to be a Security Agreement under the Uniform Commercial Code. Buyer authorizes Seller as its attorney to execute and file on Buyer’s behalf all documents Seller deems necessary to perfect such security interest.

10. **Buyer’s Obligation: Rights of Seller.** Buyer shall warrant the Products and accept Buyer’s offer by any customer (“Buyer”) is contingent upon, and will be governed by all the terms and conditions of this Offer of Sale. Buyer’s obligations to Seller in connection with this purchase document or Seller’s offer, proposal or quote (“Quote”) attached to the purchase order, when communicated to Seller verbally, shall constitute acceptance of this offer.

11. **Improper Use and Indemnity.** Buyer shall indemnify, defend, and hold Seller harmless from any losses, claims, liabilities, damages, lawsuits, judgments and costs (including attorney fees and defense costs), whether for personal injury, property damage, or death resulting from or in connection with any copyright infringement or any other claim, brought by or incurred by Buyer, Buyer’s employees, or any other person to purchase Products or otherwise benefit the business of Seller. Buyer will promptly report to Seller any infringement or any other claim, brought by or incurred by Buyer, Buyer’s employees, or any other person to purchase Products or otherwise benefit the business of Seller.

12. **Cancellations and Changes.** Buyer may not cancel or modify or cancel any order for Products after receipt of the order or at any time thereafter. Buyer 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 less valuable parts of the Product. Seller will not be liable to Buyer for any special, indirect, incidental or consequential damages arising out of, or as the result of, the Seller’s failure to comply with these terms and conditions. Seller shall not indemnify Buyer under any circumstance except as otherwise provided.

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

14. **Force Majeure.** Seller does not assume the risk and is not liable for delay or failure to perform any of Seller’s obligations by reason of events or circumstances beyond its reasonable control (hereinafter “Events of Force Majeure”). Events of Force Majeure shall include without limitation: accidents, strikes or labor disputes, acts of any government or government agencies of nature, delays or failure in delivery from suppliers 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 invalidate 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 prior written notice. Seller may immediately terminate this agreement in the event of Buyer’s bankruptcy, receivership or other proceeding under any federal, state or local law relating to insolvency, receivership, reorganization, composition, readjustment, arrangement, or other similar proceeding. Seller may also terminate this agreement if Buyer, Buyer’s employees, or any other person, arising out of performance of this agreement or otherwise, breaches any of its obligations hereunder.

17. **Governing Law.** This agreement and the sale and delivery of all Products are deemed to have taken place in, and shall be governed and construed in accordance with, the laws of the State of Ohio, as applicable to contracts executed and wholly performed therein and not governed by the laws of any other state or country.

18. **Indemnity for Infringement of Intellectual Property Rights.** Seller is not liable 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, U.S. trademarks, copyrights, trade dress and trade secrets (“Intellectual Property Rights”). Seller will defend at its expense and will pay all costs and expenses of any action brought by Buyer based upon 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 conditioned upon Buyer notifying Seller of the infringement promptly and in writing. Buyer must cooperate in all investigations and actions including all negotiations for settlement or compromise. If a Product is subject to a claim that it infringes the Intellectual Property Rights of a third party, Seller may at its option and expense: (a) procure for Buyer a license to use the Product; (b) replace or modify the Product so as to make it noninfringing; or (c) refund the purchase price less a reasonable allowance for depreciation.

19. **Entire Agreement.** This agreement contains the entire agreement between the Buyer and Seller and constitutes the final, complete and exclusive expression of the terms of sale. All agreements, communications and negotiations relating to the subject matter are herein merged. The terms contained herein may not be modified unless in writing and signed by an authorized representative of Seller.

20. **Compliance with Laws.** Buyer agrees to comply with all applicable laws, regulations, and orders of federal, state, and local governments, departments and agencies and such other laws, regulations, and orders of the United States of America, and the country or countries in which Buyer may operate, including without limitation the U. K. Bribery Act, the U.S. Foreign Corrupt Practices Act (“FCPA”), the U.S. Anti-Kickback Act (“Anti-Kickback Act”) and the U.S. Food Drug and Cosmetic Act (“FDCA”), each as amended from time to time, and all regulations promulgated by the U.S. Food and Drug Administration (“FDA”), and agrees to indemnify and hold harmless Seller from the consequences of any violation of such provisions by Buyer, its employees or agents. Buyer acknowledges that it is familiar with the provisions of the U. K. Bribery Act, the FCPA, the FDA, and the Anti-Kickback Act, and certifies that Buyer will adhere to the requirements thereof. In particular, Buyer represents and agrees that Buyer will not make any payment or give anything of value, directly or indirectly to any government official or foreign government official, or any 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.