



# Hydraulic Power Units 165 Series

Pressures to 240 bar

Flows to 5.4 l/min

Catalogue HY17-1304/UK

June 2003



<b>Innehåll</b>	<b>Page</b>
General information .....	3
Ordering information .....	4
Hydraulic fluids .....	4
Temperature range .....	4
Thermal relief valve .....	5
Back pressure circuit .....	6
Installation dimensions .....	7-8
Performance diagrams .....	9
Notes .....	10-11

**Conversion factors**

1 kg .....	2.20 lb
1 N .....	0.225 lbf
1 Nm .....	0.738 lbf ft
1 bar .....	14.5 psi
1 l .....	0.264 US gallon
1 cm <sup>3</sup> .....	0.061 cu in
1 mm .....	0.039 in
1 kW .....	1.34 hp
$\frac{9}{5} \text{ }^\circ\text{C} + 32$ .....	$^\circ\text{F}$

Parker Hannifin reserves the right to modify products without prior notice.

Even though the brochure is revised and updated continuously, there is always a possibility of errors.

For more detailed information about the products, please contact Parker Hannifin.

### General information

The new 165 Series power units let you put more power where you need it. As 'big brother' to our successful 108 Series, the 165 Series is completely self-contained with a DC motor, gear pump, reservoir, internal valving, load hold checks and relief valves.

The 165 Series units are designed for intermittent duty and are available in three standard pump sizes producing flows of 0.52, 0.82 and 1.06 cm<sup>3</sup>/rev. The units are designed for single or bi-directional application with a number of hydraulic circuit options similar to our 108 Series.

Single direction units are commonly used to charge accumulators, power single direction hydraulic motors and single acting cylinders, as well as multi-function circuits with external valving.

Bi-directional units are commonly used to operate double acting cylinders and reversible motors.

We look forward to work with you on your specific applications. As pioneers and specialists in the design and manufacture of high quality compact hydraulic systems, we are well qualified to offer practical and economical solutions to your fluid power problems.

Parker Hannifin offers assistance in specifying specific applications. Also, we can provide high quality, compact hydraulic systems and are qualified to offer practical and economical solutions to fluid power problems.

Please contact Parker Hannifin for further information.

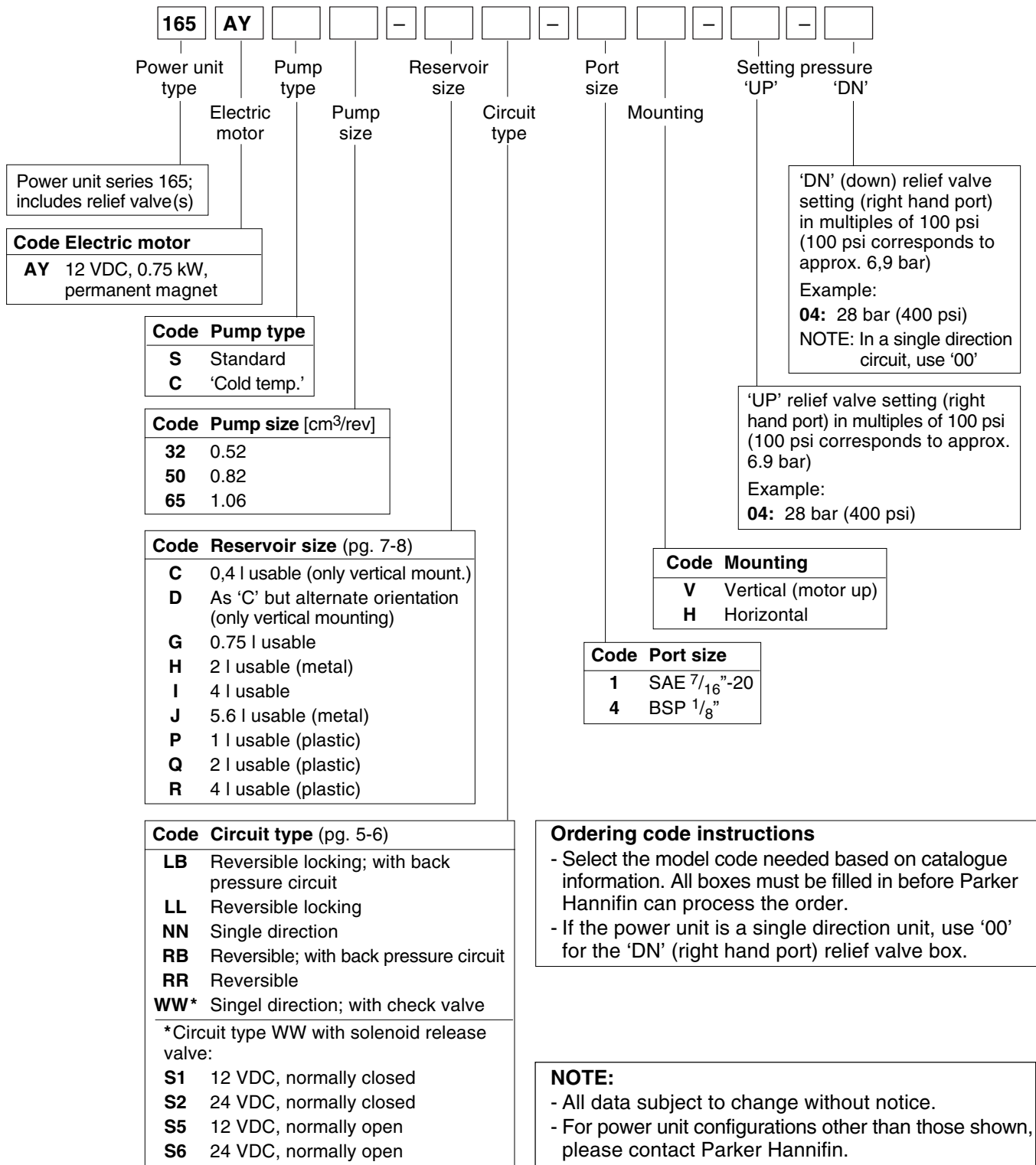
### Features

- 0,75 kW, 12 VDC electric motor
- 3 pump sizes (0.52, 0.82 and 1.06 cm<sup>3</sup>/rev)
- Variety of circuits
- Many reservoir choices
- Up to 240 bar operating pressure
- Soft-seat load-hold check valves
- Vertical or horizontal mounting



### Typical applications

- Wheelchair lifts
- Scissors lift tables
- Recreational vehicle levelers
- Recreational vehicle room slides
- Cab tilts
- Mobile sign lifts
- Boat lifts
- Pallet movers.



**Hydraulic fluids**

ATF (automatic transmission fluid) or other clean hydraulic fluid with a viscosity of 32 to 65 mm<sup>2</sup>/s (cSt) at 38 °C is acceptable. If another type of fluid is considered, please consult Parker Hannifin.

**Temperature range**

Normal operating temperature range is -7 °C to +60 °C. Please review your application with Parker Hannifin if use below -7 °C or above +60 °C is being considered.

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

The thermal relief valve is included in circuits using a check valve. The single direction units get one; the reversing units get two.

The valve is located between the check valve and the 165 series pump outlet port. It is a fixed relief valve with a pressure setting, approximately 100-140 bar above the system relief valve pressure setting.

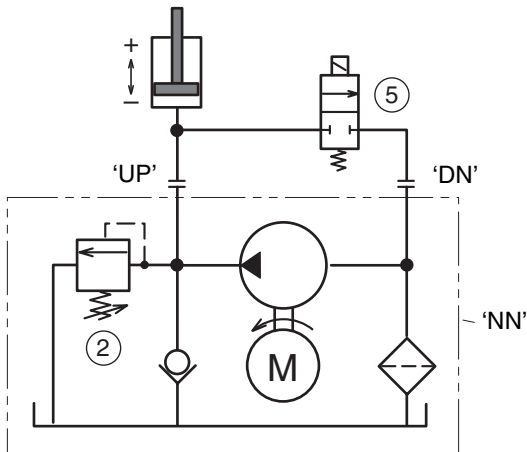


Fig. 1. 'NN' circuit (single direction pump).

**Legend** (valid for fig. 1-7):

1. Thermal (pressure) relief valve
2. Pressure relief valve (max pump pressure)
3. Pressure relief valve (max pump pressure)
4. Back pressure circuit (set at 10 bar)
5. Solenoid operated release valve
6. Check valve
7. Pilot operated check valve

**NOTE:** 'UP' (up) and 'DN' (down) is cast into the power unit aluminium connection adapter section, close to the corresponding port.

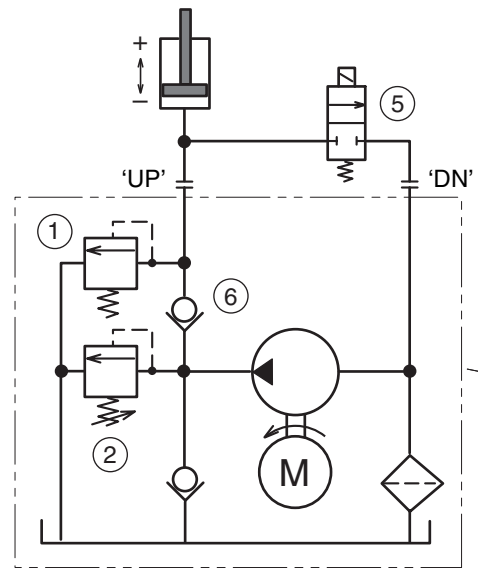


Fig. 2. 'WW' circuit (single direction pump with check valve).

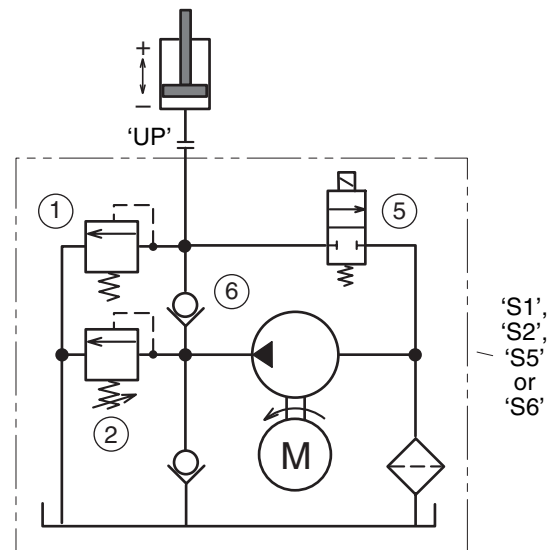


Fig. 3. 'S1' through 'S6' circuit (single direction pump with check valve and solenoid operated release valve).

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 'down side' relief valve (3) 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 that 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 at a relatively low pressure, 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.

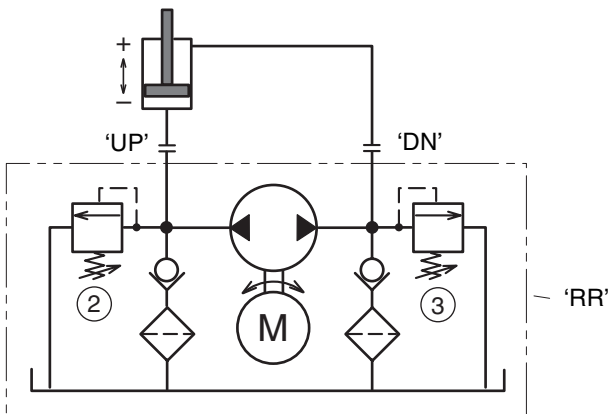


Fig.4. 'RR' circuit (reversible pump).

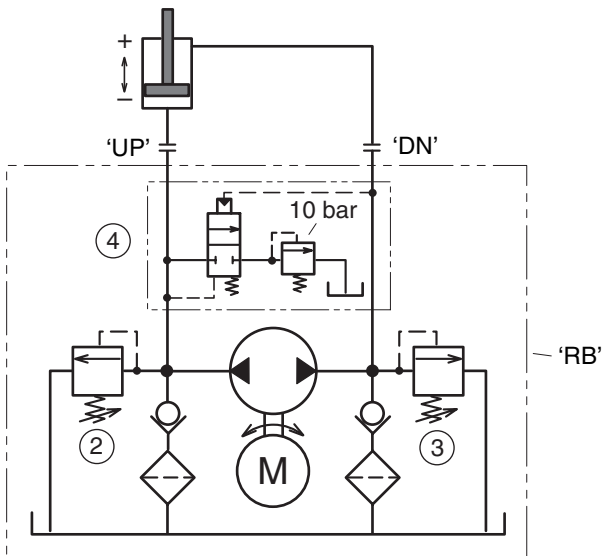


Fig.5. 'RB' circuit (reversible pump; back pressure circuit).

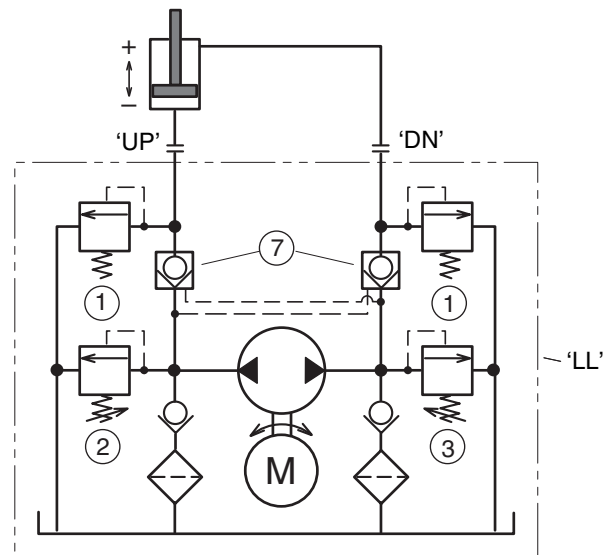


Fig.6. 'LL' circuit (reversible pump; reversible locking).

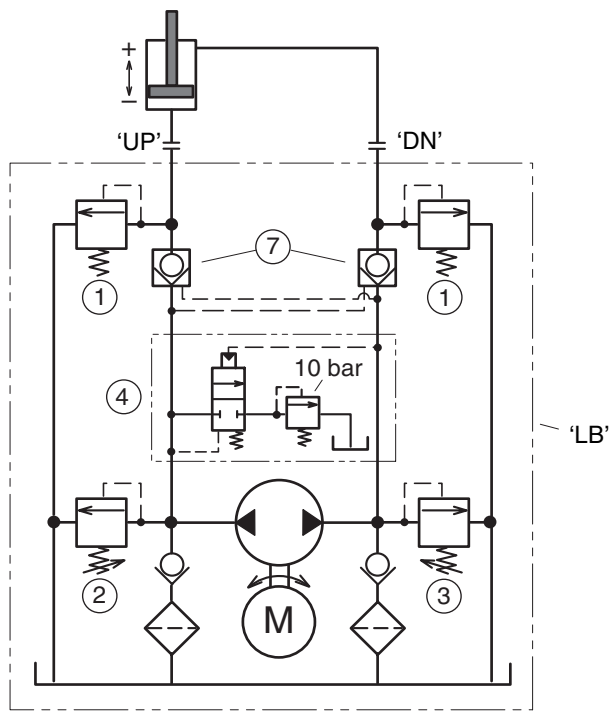
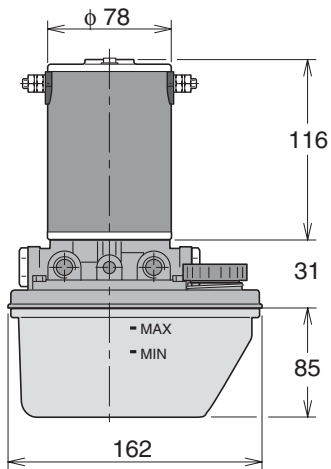
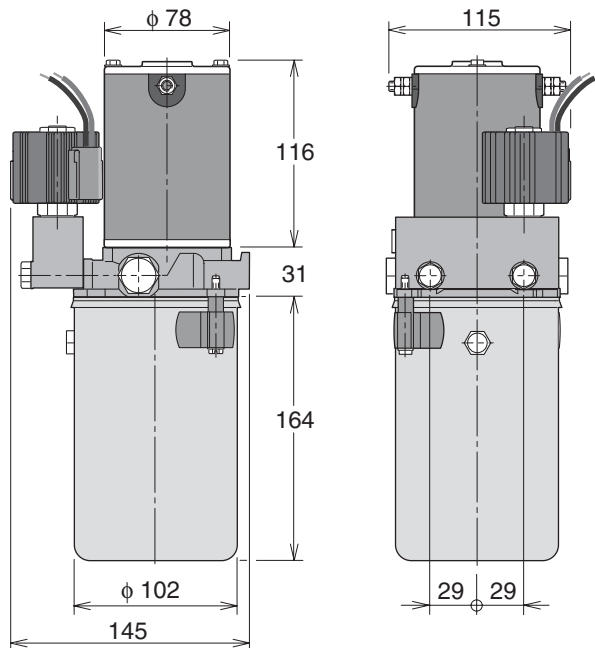


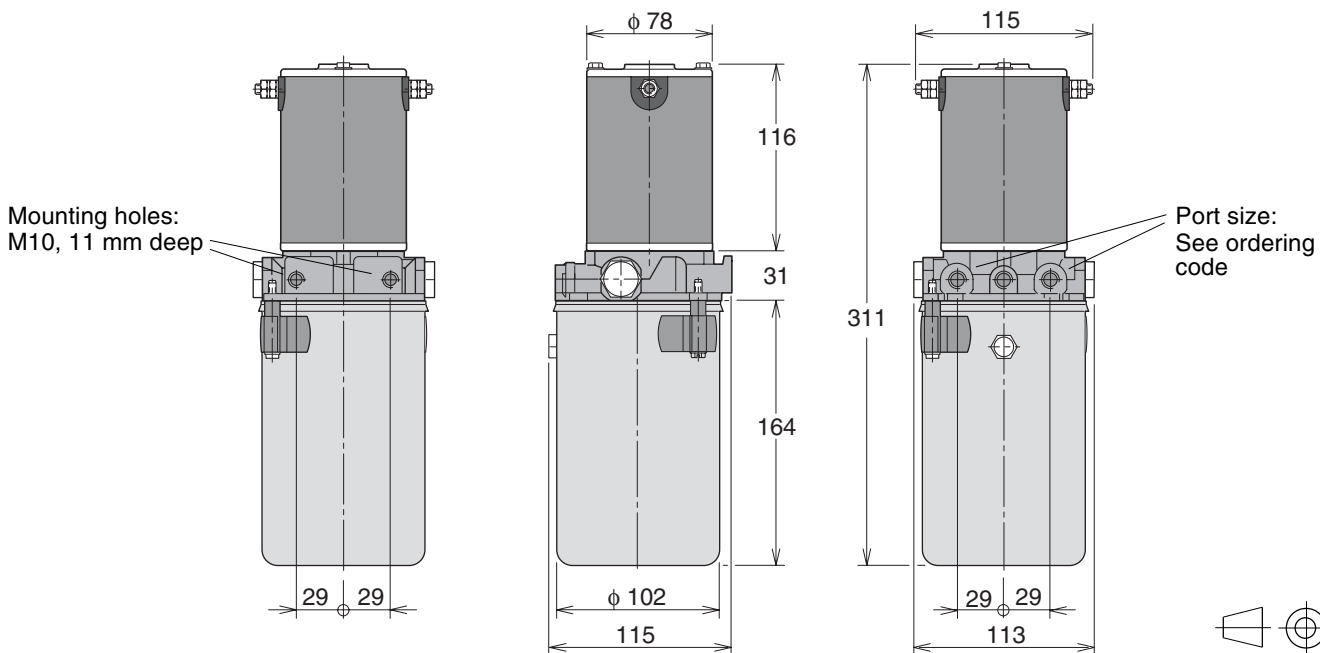
Fig.7. 'LB' circuit (reversible pump; reversible locking; back pressure circuit).



165 series power unit with type 'C' reservoir.

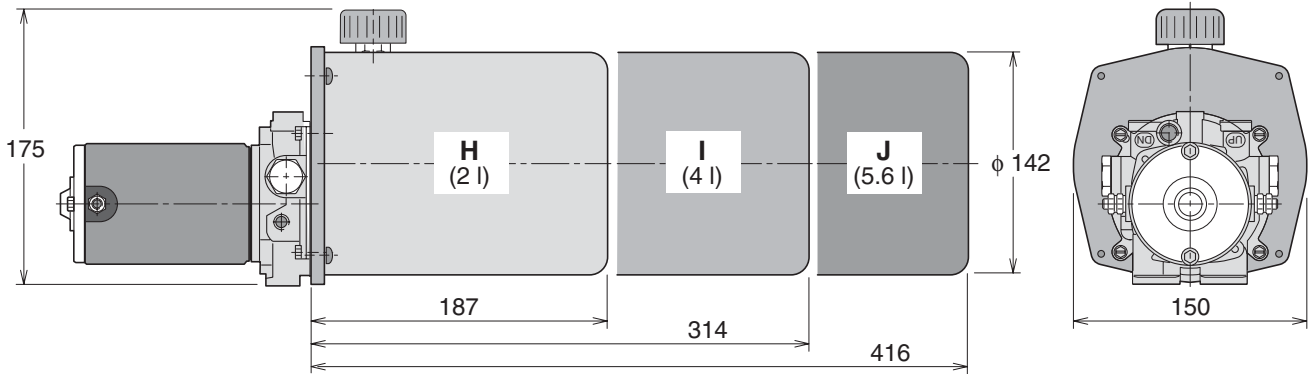


165 series power unit with type 'G' reservoir and solenoid release valve.

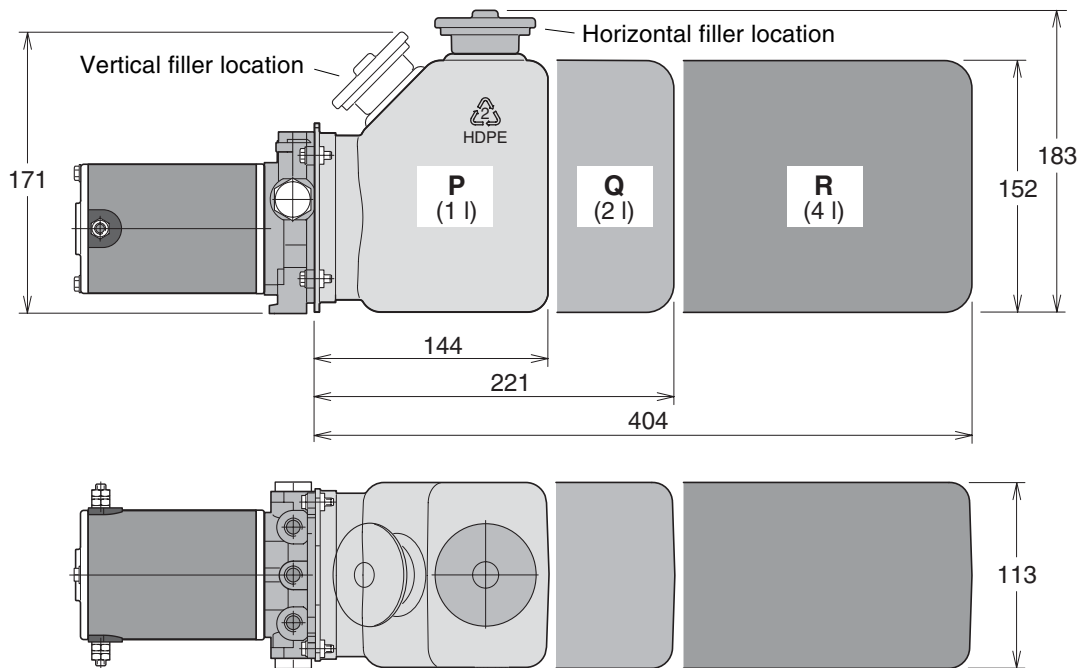


165 series power unit with type 'G' reservoir.

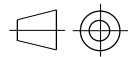
(continued ....)



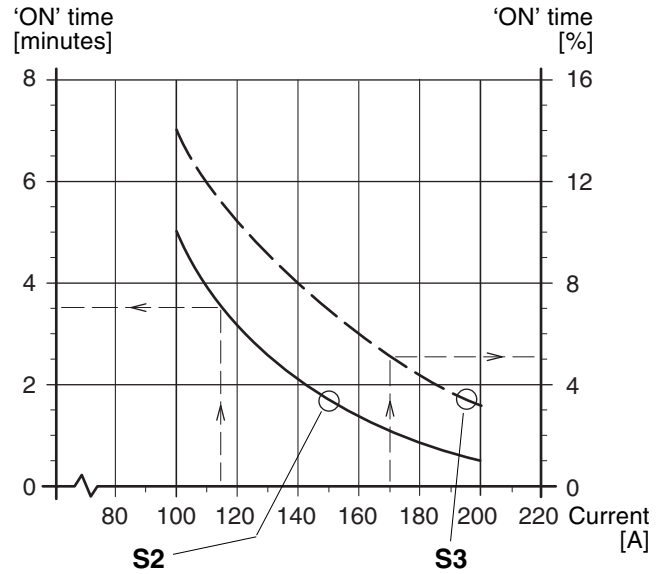
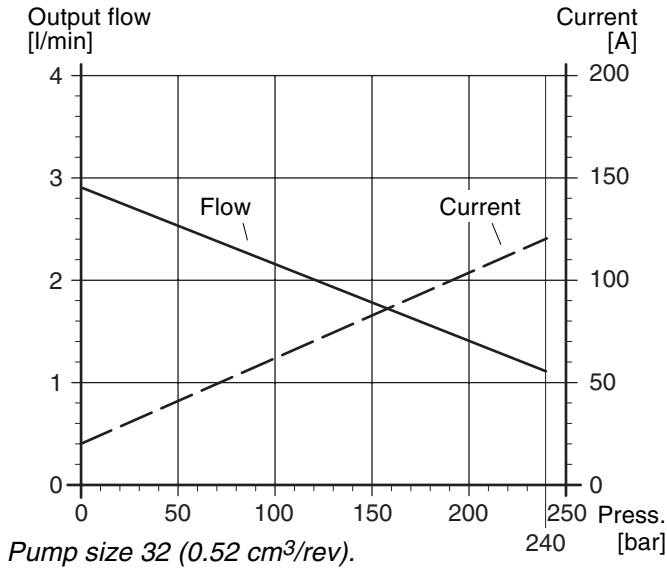
165 series power unit shown with steel reservoir.



165 series power unit shown with plastic reservoir.







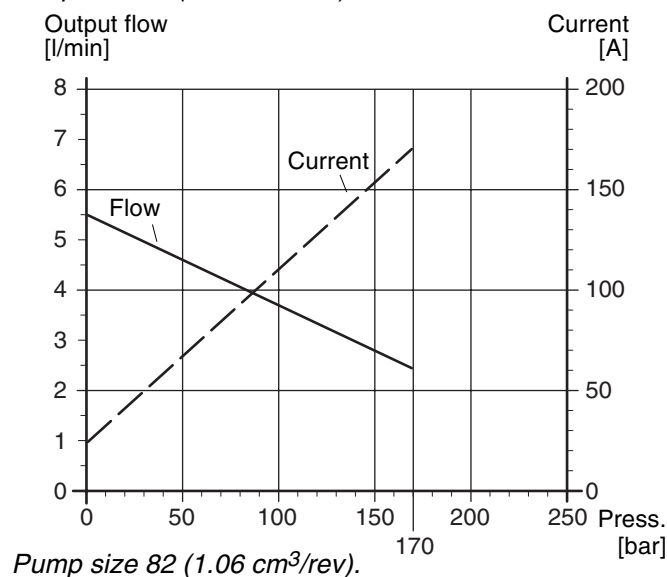
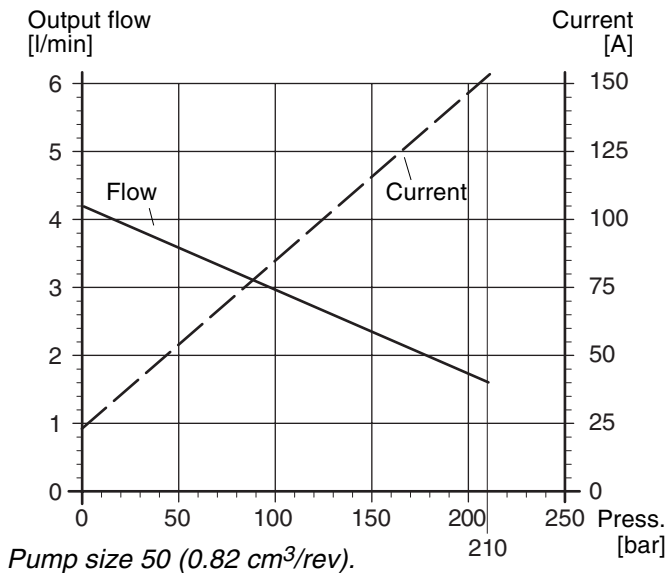
Max 'ON' time [minutes] at constant load [A]; must be followed by 'Off' time to allow the motor to cool to ambient temperature.  
 Example: 115 A – 3.5 min.

'ON' time [%] in a repetitive 10 minute cycle.  
 Example: 170 A – 5 min.

Type 'AY' motor 'ON' time versus current draw.

**NOTE:**

- Data based on operation with ATF at 21 °C.
- Data is for reference only.
- S2 (ON time versus load) and S3 (ON time in percent of a 10 minute cycle) are internationally recognized designations.







# Hydraulics Group Sales Offices

## Europe

**Austria**  
**Wiener Neustadt**  
Tel: +43 (0)2622 23501  
Fax: +43 (0)2622 66212

**Belgium**  
**Nivelles**  
Parc Industriel Sud-Zone II  
Tel: +32 (0)67 280 900  
Fax: +32 (0)67 280 999

**Czech Republic**  
**Prague**  
Tel: +420 2 830 85 221  
Fax: +420 2 830 85 360

**Denmark**  
**Ishøj**  
Tel: +45 4356 0400  
Fax: +45 4373 8431

**Finland**  
**Vantaa**  
Tel: +358 (0)9 4767 31  
Fax: +358 (0)9 4767 3200

**France**  
**Contamine-sur-Arve**  
Tel: +33 (0)450 25 80 25  
Fax: +33 (0)450 03 67 37

**Germany**  
**Kaarst**  
Tel: +49 (0)2131 4016 0  
Fax: +49 (0)2131 4016 9199

**Hungary**  
**Budapest**  
Tel: +36 (06)1 220 4155  
Fax: +36 (06)1 422 1525

**Ireland**  
**Clonee**  
Tel: +353 (0)1 801 4010  
Fax: +353 (0)1 801 4132

**Italy**  
**Corsico (MI)**  
Tel: +39 02 45 19 21  
Fax: +39 02 4 47 93 40

**The Netherlands**  
**Oldenzaal**  
Tel: +31 (0)541 585000  
Fax: +31 (0)541 585459

**Norway**  
**Ski**  
Tel: +47 64 91 10 00  
Fax: +47 64 91 10 90

**Poland**  
**Warsaw**  
Tel: +48 (0)22 863 49 42  
Fax: +48 (0)22 863 49 44

**Portugal**  
**Leca da Palmeira**  
Tel: +351 22 9997 360  
Fax: +351 22 9961 527

**Slovakia**  
*Ref. Czech Republic*

**Spain**  
**Madrid**  
Tel: +34 91 675 73 00  
Fax: +34 91 675 77 11

**Sweden**  
**Spånga**  
Tel: +46 (0)8 597 950 00  
Fax: +46 (0)8 597 951 10

**United Kingdom**  
**Watford (industrial)**  
Tel: +44 (0)1923 492 000  
Fax: +44 (0)1923 256 059  
**Ossett (mobile)**  
Tel: +44 (0)1924 282 200  
Fax: +44 (0)1924 282 299

## International

**Australia**  
**Castle Hill**  
Tel: +61 (0)2-9634 7777  
Fax: +61 (0)2-9899 6184

**Canada**  
**Milton, Ontario**  
Tel: +1 905-693-3000  
Fax: +1 905-876-0788

**China**  
**Beijing**  
Tel: +86 10 6561 0520  
Fax: +86 10 6561 0526

**Asia Pacific Group**  
**Hong Kong, Kowloon**  
Tel: +852 2428 8008  
Fax: +852 2425 6896

**India**  
**Mumbai**  
Tel: +91 22 7907081  
Fax: +91 22 7907080

**Japan**  
**Tokyo**  
Tel: +(81) 3 6408 3900  
Fax: +(81) 3 5449 7201

**Latin America Group**  
**Brazil**  
Tel: +55 12 3954-5100  
Fax: +55 12 3954-5266

**South Africa**  
**Kempton Park**  
Tel: +27 (0)11-392 7280  
Fax: +27 (0)11-392 7213

**USA**  
**Cleveland (industrial)**  
Tel: +1 216-896-3000  
Fax: +1 216-896-4031  
**Lincolnshire (mobile)**  
Tel: +1 847-821-1500  
Fax: +1 847-821-7600

**Parker Hannifin is the world's premier supplier of motion and control systems and solutions, with sales and manufacturing facilities throughout the world. For product information and details of your nearest Parker sales office, visit us at [www.parker.com](http://www.parker.com) or call free on 00800 2727 5374.**



Catalogue HY17-1304/UK  
3M 06/03 RT

© Copyright 2003  
Parker Hannifin Corporation  
All rights reserved.