

# Pneumatic Single Disc and Dual Disc Brakes P250 and P620

Service Manual

P-2085-WE  
SM318-gb-02/09



 **Warner**<sup>®</sup>  
Electric

An Altra Industrial Motion Company

We, **WARNER ELECTRIC EUROPE**, 7, rue Champfleury, B.P. 20095, F-49182 St Barthélemy d'Anjou Cedex  
declare that the brakes made in our factories from St Barthélemy d'Anjou,

and hereafter designated : **P520 and P620**

are exclusively designed for incorporation into a machine and to be assembled with other equipments to create a machine. The operation of the product is submitted to the conformity of the complete equipment, following the provisions of the machinery directive 98/37/EC.

Drawn up in St Barthélemy d'Anjou, July 2002  
E. PRAT, General Managing Director

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### 1 Technical specifications

<b>P520 VAR00 - single disc brakes</b>	<b>10</b>	<b>20</b>	<b>50</b>	<b>100</b>	<b>200</b>	<b>400</b>	<b>800</b>	<b>1600</b>
Size	10	20	50	100	200	400	800	1600
Max. Speed	min -1 6800	5000	4150	3200	2600	2200	1700	1500
P brake release	bar 6	6	6	6	6	5	5	5
P max.	bar 7	7	7	7	7	6	6	6
Nominal travel "T"	mm 0,2	0,2	0,3	0,3	0,3	0,4	0,4	0,5
Tolerance on travel	mm +0,1/0	+0,1/0	+0,1/0	+0,1/0	+0,1/0	+0,2/0	+0,2/0	+0,2/0
Max. Travel	mm 0,8	1,2	1,2	1,5	1,5	1,8	1,8	2
Tightening Torque (909) (±10%)	Nm 6	6	13	13	26	48	76	189
Weight	kg 2,1	4,2	8,5	15,5	22,5	36,0	58	110

<b>P620 VAR00 - dual disc brakes</b>	<b>50</b>	<b>100</b>	<b>200</b>	<b>400</b>	<b>800</b>	<b>1600</b>	<b>3200</b>
Size	50	100	200	400	800	1600	3200
Max. Speed	min -1 5000	4150	3200	2600	2200	1700	1500
P brake release	bar 6	6	6	6	5	5	5
P max.	bar 7	7	7	7	6	6	6
Nominal travel "T"	mm 0,3	0,4	0,4	0,4	0,5	0,5	0,6
Tolerance on travel	mm +0,2/0	+0,2/0	+0,2/0	+0,2/0	+0,2/0	+0,3/0	+0,3/0
Max. Travel	mm 1,2	1,2	1,5	1,5	1,8	1,8	2
Tightening Torque (909) (±10%)	Nm 6	13	13	26	48	76	189
Weight	kg 4,9	9,7	17,5	26,0	41,0	68,0	130,0

**Table 1**

**NB:** Data for catalogue equipment.

### 2 Precautions and restrictions on use

#### 2.1 Restrictions on use



The equipment is designed to operate dry. Any oily material will alter its performance.



Exceeding the maximum rotation speeds stated in the catalogue invalidates the warranty.



These brakes are designed solely for horizontal axis operation..



**Symbol designating an action that might damage the apparatus**



**Symbol designating an action that might be dangerous to human safety**

## 2.2 Precautions in use and safety measures



During maintenance, ensure that the machine's moving parts are stationary and that there is no risk of accidental start-up. All intervention have to be made by qualified personnel, owning this manual.



Any modification made to the brake without the express authorisation of a representative of Warner Electric, in the same way than any use out of the contractual specifications accepted by "Warner Electric", will result in the warranty being invalidated and Warner Electric will no longer be liable in any way with regard to conformity.

## 3 Installation

### 3.1 Transport / storage

Our brakes are supplied in packaging guaranteeing a preservation period of 6 months with land or air transport, or after transport by ship to neighbouring continents (without crossing the tropics).

### 3.2 Handling



Avoid any impacts on the equipment so as not to alter their performance.



Never carry the equipment by the electrical supply cable.

### 3.3 Installing



For installation on the support or frame, it is essential to proceed as follows, (see appendix).

- Compress the springs by putting the chamber under pressure (see chapter 5), the moving armature (330) should be in contact with the cylinder (401)
- Remove the fixing bolts (909), the friction plate (348), the friction disc(s) (312) and the intermediate disc (320) in the case of dual disc brakes
- Slide the hub (515) onto the shaft to be braked, adjust the drive key and stop it axially by the means provided

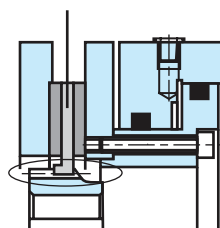


Do not oil the guide splines (friction disc / hub) or performance will be affected.



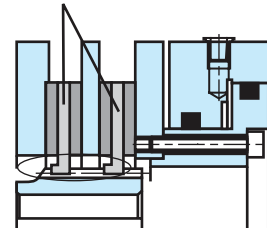
**WARNING:** It is essential that the hub is assembled in the right way round (See fig 1 above)

Disc with collar  
(Size 400)



P520

Disc with collar  
(Size 800)



P620

Fig. 1

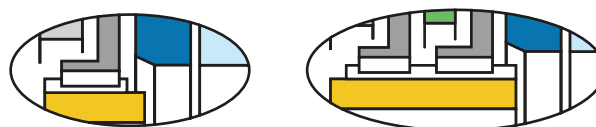


Fig. 2

The hub is normally supplied to tolerance H7 on the bore and P9 on the width of the key-way (In accordance with NF E 22-175/ DIN6885/BS 4235/ISO R773).

- Locate the friction plate (348) on the support. Then fit the friction disc (312) and in the case of a dual disc brake (P620), the intermediate disc (320) then the second friction disc (312)

**NB:** The collar on friction discs must face the friction plate (See figure 1).

- Put the moving armature assembly (330) / cylinder / piston (401/402) between the lugs of the friction plate (312) then fix the assembly by means of the bolts (909) and washers carefully tightening to the correct torque (see table1)
- Put the equipment under pressure (see chapter 5) and check that the disc rotates freely
- Make several movements, motor stopped, and check the value of the nominal airgap (see table 1) near the friction plate lugs (348)
- In the event of insufficient travel, refer to chapter 4 (maintenance)

## 4 Maintenance

### 4.1 Adjusting travel

To modify the travel "T" (see appendix), undo the fixing bolt (909) about one turn, then set the adjustment bolt (902) to the value necessary. Lock the fixing bolts (909) to the correct torque (see table 1). Check the value of the travel at several points near the friction plate legs (348).

### 4.2 Maintenance

Wear in the linings causes an increase in the travel. Before reaching maximum value (see table 1), it is necessary to make an adjustment (See above). Make several movements, motor stopped, check the new value for the travel at several points as described above.

### 4.3 Spare parts

After a number of adjustments, variable depending on the size of the machinery and its use, replacement of the friction disc or discs is necessary when the value "Y" for the interval between the friction plate lugs (312) and the cylinder (401) reaches the value in the table below. To replace them, refer to paragraph 3-3. A new adjustment of the travel is necessary (see paragraph 4.1).

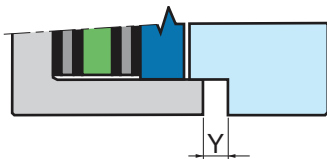



Fig. 3

P520	10	20	50	100	200	400	800	1600
Y min. mm	0	0	0	0	0	2		


P620	50	100	200	400	800	1600	3200
Y min. mm	0	0	0	0	3		


**Important:** Before refitting the cylinder onto the piston, lightly lubricate the seals and contact surfaces with a film of Molykote 55M or equivalent grease.

 Take care not to damage the seals while re-assembling.

## 5 Pneumatic connection

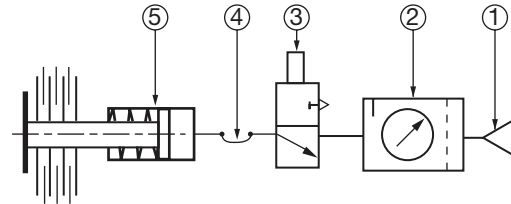
### 5.1 Recommendations

 The equipment must be supplied with filtered, oiled compressed air.

 Comply with the specified control pressure (table 1) so as to ensure correct brake release on the equipment.

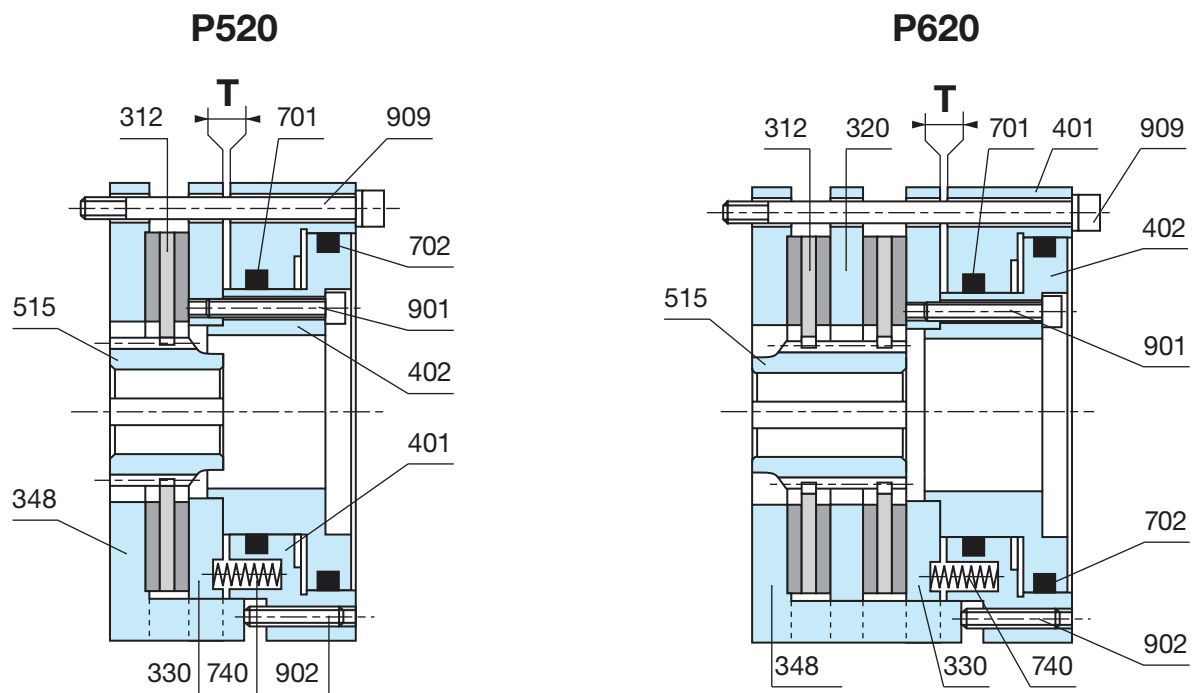
### 5.2 Connection diagram

This functional diagram is given as an indication:



#### Key:

1. Pressure source
2. Treatment unit consisting of: filter, pressure relief and oiler (simplified symbol)
3. Manual, mechanical, electrical or pneumatic control 3/2 distributor
4. Flexi pipe
5. Equipment to be controlled



Nr	Appendix
312	Friction disc
320	Intermediate disc
330	Moving armature
348	Friction plate
401	Cylinder
402	Piston
515	Hub
701	Piston O-ring
702	Cylinder O-ring
740	Spring
901	Screw
902	Adjustment screw
909	Fixating screw

# Warranty

Warner Electric LLC warrants that it will repair or replace (whichever it deems advisable) any product manufactured and sold by it which proves to be defective in material or workmanship within a period of one (1) year from the date of original purchase for consumer, commercial or industrial use.

This warranty extends only to the original purchaser and is not transferable or assignable without Warner Electric LLC's prior consent.

Warranty service can be obtained in the U.S.A. by returning any defective product, transportation charges prepaid, to the appropriate Warner Electric LLC factory. Additional warranty information may be obtained by writing the Customer Satisfaction Department, Warner Electric LLC, 449 Gardner Street, South Beloit, Illinois 61080, or by calling 815-389-3771.

A purchase receipt or other proof of original purchase will be required before warranty service is rendered. If found defective under the terms of this warranty, repair or replacement will be made, without charge, together with a refund for transportation costs. If found not to be defective, you will be notified and, with your consent, the item will be repaired or replaced and returned to you at your expense.

This warranty covers normal use and does not cover damage or defect which results from alteration, accident, neglect, or improper installation, operation, or maintenance.

Some states do not allow limitation on how long an implied warranty lasts, so the above limitation may not apply to you.

Warner Electric LLC's obligation under this warranty is limited to the repair or replacement of the defective product and in no event shall Warner Electric LLC be liable for consequential, indirect, or incidental damages of any kind incurred by reason of the manufacture, sale or use of any defective product. Warner Electric LLC neither assumes nor authorizes any other person to give any other warranty or to assume any other obligation or liability on its behalf.

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**Warner Electric Europe**  
7 rue Champfleu, B.P. 20095, St Barthelemy d'Anjou - France  
+33 (0)2 41 21 24 24 • Fax: +33 (0)2 41 21 24 70  
[www.warnerelectric.com](http://www.warnerelectric.com)