

# Pneumatic Multidisc Clutch

## P 130 VAR00 / VAR02

Service Manual

P-2081-WE  
SM302gb - rev 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 clutches made in our factory from St Barthélemy d'Anjou,

and hereafter designated : **P 130 VAR00/VAR02**

are designed to be incorporated into an  
installation or assembled with other equipment  
in order to form a machine that is covered by  
directive 98/37/EC.

St Barthélemy d'Anjou, July 2002

Eric Prat, General Managing Director

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### 1 Technical Specifications

Size		100	200	400	800	1600
N max.	min <sup>-1</sup>	4800	3900	3500	2700	2400
P nominal	bar	5	5	5	5	5
P max	bar	6	6	6	6	6
Weight	kg	6	9,5	13	25	39
Length "L ±0,5"	mm	81	89	96	118	135

Size		3200	6400	12800	25600	51200
N max.	min <sup>-1</sup>	2000	1500	1200	1000	800
P nominal	bar	5	5	5	5	5
P max	bar	6	6	6	6	6
Weight	kg	55	87	125	260	480
Length "L ±0,5"	mm	155	170	190	-	-

**NB :** Data for catalogue equipment.

**Table 1**



Symbol designating an action that might damage the brake



Symbol designating an action that might be dangerous to human safety



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

## 2 Precautions and restrictions on use

### 2.1 Restrictions on use



These clutches are designed to run dry. Any oily material alters their performance.



These clutches are designed solely to run on a horizontal shaft. Ask our technical department about other positions.



Exceeding the maximum rotation speed given in the catalogue invalidates the warranty.

## 2.2 **Precautions and safety measures**



During the maintenance period make sure that the moving parts of the machine are stationary and that there is no risk of 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**

These units are supplied as standard in packaging guaranteeing protection for a period of 6 months by land or air transport, or after transport by ship to neighbouring continents (without crossing the tropics).

### 3.2 **Handling**



The clutch is supplied pre-assembled with the driving flange not fixed.



Avoid any impact on the units so not to alter their performance.

### 3.3 **Mise en place**

The hub (515) is normally supplied at tolerances H7 for the bore and P9 for the width of the keyway (In accordance with NF E 22-175/DIN 6885/BS 4235/ISO R773).

The drive flange (529) is generally supplied at a bore H7 but without fixing holes.

We recommend a tolerance h6 for the shaft and an adjustment H7/f7 for the drive flange (529).

- Centre the flange (529) on the receiving part, then fix it with bolts and lock them
- Slide the hub (515) onto the shaft (after adjusting the keyways) by positioning the teeth of the outer discs (302) or (305), opposite of the hollows of the driving flange (529).



In cases where two coaxial shafts are fitted, the maximum authorised setover is 0,05 mm. The angular misalignment should not exceed 0,1 mm over a length of 100 mm. If these values cannot be attained, we recommend that an elastic coupling is fitted between the drive and receiving parts.



Do not forget to secure the bolts fixing the driving flange (529) with Loctite 243 or an equivalent type of product and tighten them to torque.



Never directly strike the cylinder (401), closing flange (408), or hub (515), use a soft alloy block or drift between these parts and the fitting device provided.



It is essential to comply with the length dimension " $L \pm 0,5$ " (see table 1) in order to prevent any risk of contact between the drive flange (529) and the hub (515).

## 4 **Maintenance**

### 4.1 **Maintenance**

P130, VAR00/02 series clutches only require low maintenance because wear in the disc set is automatically compensated for by movement in the piston, within the limits of its travel.

It is however necessary to:

- Regularly check the seal of the pressure chamber and in the event of leakage, or after 5 years use, change the seals (701, 702)
- Check the wear on the disc set, by measuring the travel of the piston (402), using table 2, below and the diagrams on annex

Size	100	200	400	800	1600	3200	6400	12800	25600	51200
Initial travel (mm)	1,7	2,2	2,6	2,9	2,4	5	5	5	5	5
Travel, clutch worn max. (mm)	5	4,5	4	6,5	7,5	10	11,5	12,5	12,5	12,5

**Table 2**

#### 4.2 Spare Parts

All orders for spare parts must state the size of the unit with its code number, the reference number of the part (see appendice 1), and the quantity of each component wanted.

#### 4.3 Dismantling / Reassembling

During maintenance work, ensure that the mechanism to be driven by the clutch is at rest and that there is no risk of it being started accidentally. Also ensure that the compressed air is turned off.

##### Dismantling:

- Remove the fixing screws from the cylinder (401) or closing flange (408)
- Remove the cylinder (401) or closing flange (408)
- Take out the piston (402)
- Remove the worn disc set
- Fit a new disc set



Start with an outer disc (302 or 305), then an inner disc (308), and then alternate, ending of necessity with an outer disc.

- Change the seals (701, 702)
- Refit the piston (402)
- Refit the cylinder (401) or closing flange (408)



Take care not to damage the seals while reassembling

- Replace the cylinder (401) or closing flange (408) fixing screws, tighten them to the torque shown in table 3, below and secure them with Loctite 243 or an equivalent type of product

Size	100	200	400	800	1600	3200	6400	12800	25600	51200
Screw	M4	M5	M6	M8	M10	M10	M14	M16	M16	M20
Tightening torque (Nm)	2,6	5,2	9,1	22	44	44	121	189	189	370

**Table 3**

## 5 Pneumatic Connections

### 5.1 Important Recommendations



Ensure that working pressures are complied with, to get the nominal performance from the equipment.



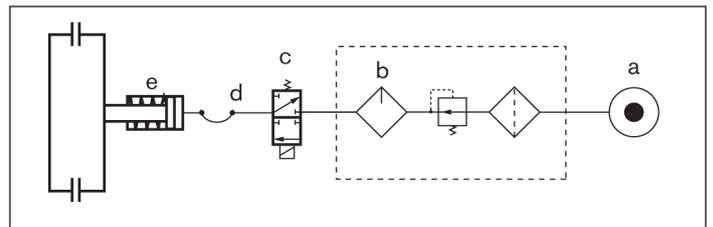
Do not exceed the maximum pressures (see table 1).



These clutches should be supplied with filtered, oiled air.

### 5.1 Connection Diagram

The diagrams are only given as an indication.



**Fig 1: Basic circuit for circuit under pressure**

a: source of pressure

b: air treatment unit

c: distributor

d: flexi pipe and rotating seal

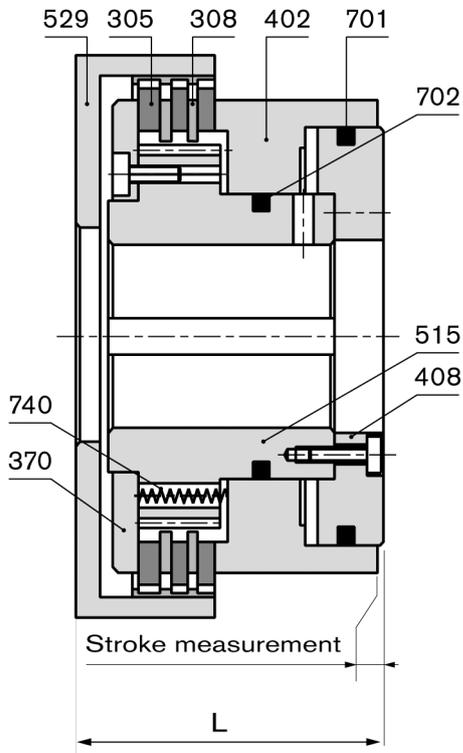
e: clutch engagement by application of pressure

6 **Appendix**

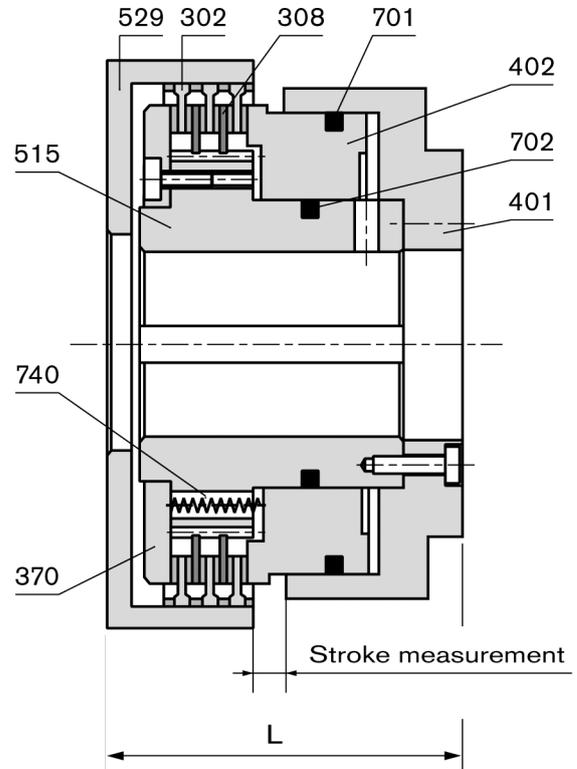
6.1 **Drawings / Description**

**VAR 00 / 02**

**Sizes 100 - 1600**



**Sizes 3200 - 12800**



Ref. Nr	Description
302	Double faced outer disc
305	One piece disc
308	Steel inner disc
370	Pressure ring
401	Cylinder
402	Piston
408	Closing flange

Ref. Nr	Description
515	Hub
529	Driving flange
701	Cylinder 'O' ring seal
702	Piston 'O' ring seal
703	Cylinder quad ring seal (size 12800)
704	Piston quad ring seal (size 12800)
740	Spring

7 **Troubleshooting**

Problem	Possible reason	Action
<b>The clutch slips</b>	<ul style="list-style-type: none"> <li>• Pneumatic pressure too low</li> <li>• Fault in the pneumatic circuit</li> <li>• Faulty pressure chamber seals</li> <li>• Discs worn or damaged - Oily material present</li> </ul>	<ul style="list-style-type: none"> <li>• Check that nominal pressure is complied with (see table 1)</li> <li>• Check it</li> <li>• Check the condition of the contact surface (scratches, foreign particles, etc.) clean, change the seals</li> <li>• Change the discs - Check the condition of the receiving parts' teeth (hub, flange)</li> </ul>

# 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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## Changes in Dimensions and Specifications

All dimensions and specifications shown in Warner Electric catalogs are subject to change without notice. Weights do not include weight of boxing for shipment. Certified prints will be furnished without charge on request to Warner Electric.



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