

Multi Disc Torque Limiters L331 VAR00 and VAR05

Service Manual

P-2073-WE
SM314gb - rev 01/08



 **Warner**[®]
Electric

An Altra Industrial Motion Company



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

and hereafter designated : **L331**

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

1.1 Features

Units are delivered with "Z" dimension (see chart) factory set, for catalogue nominal sliding torque : $C_n \pm 20\%$ (Except specific requests for torque adjustment)).

Size	Table 1	50	100	200	400	800	1600	3200	6400	12800
N max.	RPM	4800	3800	3200	2700	2200	1900	1600	1300	1000
«Z» dimension	mm	0.8	1.5	1.6	2.1	3	3.5	2.9	3.7	4
«Z max.» dimension	mm	4	4	4	5	6.5	6.5	6.5	8	11
VAR00 dimension	kg	4.2	5.8	7.3	10.1	16.2	28.4	37.4	75	162
VAR05 - E dimension	mm	26 ^{+2/0}	30 ^{+2.2/0}	30 ^{+2.2/0}	35 ^{+2.6/0}	40 ^{+3/0}	45 ^{+3/0}	45 ^{+3.4/0}	55 ^{+4.2/0}	75 ^{+5.7/0}
VAR05 Weight	kg	9.7	9.7	18.1	24.4	36.8	61.4	71.4	142	344

NB : data for catalogue equipment .



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



If maximum rotation speeds are exceeded, the guarantee is no longer valid.

2.2 Precautions in use and safety measures



During maintenance work, ensure that the mechanism to be driven by the units is at rest and that there is no risk of it being started accidentally. All intervention have to be made by qualified personnel, owning this manual.



Any modification made to the unit 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 delivered in standard packaging that will keep it intact for a period of 6 months during ground, air or sea transport towards neighbouring continents (without crossing the tropics).

3.2 Handling



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

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).

We recommend a tolerance h6 for the shaft. Slide the hub (515) on the shaft (after adjusting the keyway).



Never directly strike the hub (515), use a soft alloy part between these parts and the assembly device used. Fix then the hub with socket cap head screws or bolts.



After tightening to torque, do not forget to secure the bolts fixing the hub (508) with Loctite 243 or an equivalent type of product.

3.3 Setting up

The adjustment of the limiter to a given torque is obtained by displacement of the pressure flange (362), by action on the axial fixing screws (905), after having loosened the setting screws (902).

- higher torque : moving the flange toward the interior
- lower torque : moving the flange toward outside

Check that dimension “Z” between the pressure flange (362) and the face of the hub (508), is adjusted a tolerance of $\pm 0,1$ mm.

Ensure, by some manoeuvres, that the slip torque is in line with the requested value.



Going beyond the value of dimension “Z max.” (Table 1), could generate a blocking of the limiter and a risk of danger for the operator.



During maintenance work, ensure that the mechanism to be driven by the units is at rest and that there is no risk of it being started accidentally. All intervention have to be made by qualified personnel, owning this manual.

4 Maintenance

4.1 Maintenance

After some sliding (function of the use), the value of the transmitted torque decreases. Periodically check the transmitted torque, and the state of the stack of discs.

4.2 Dismantling / reassembling



During maintenance work, ensure that the mechanism to be driven by the units is at rest and that there is no risk of it being started accidentally. All intervention have to be made by qualified personnel, owning this manual.

Dismantling:

- Dismantle the driving part of the receiving part
- Reduce the spring pressure (740), unscrewing the fixing screws (905), then remove the pressure flange (362)
- Remove the cover (531), the bearing housing (533) and the bearing (803)
- Remove the worn disc set
- Fit a new disc set



Immerse the new stack of discs, in oil (see table 2), for about 12 hours.

- Inspect bearings (806) (803) and (801), replace if required

4.3 Important recommendations

The types of oil to be used for lubricating the discs should meet the following criteria:

- Good rust resistance
- No friction modifying additive
- No additive that might corrode the bronze friction surfaces (1a or 1b NF M 07-015)
- High viscosity index (>80)

The oils listed below (see table 2) meet these characteristics. The list is not exhaustive and other lines may be added to it. The viscosity of the oil to be selected varies depending on the running temperature and speed.

4.4 Spare Parts

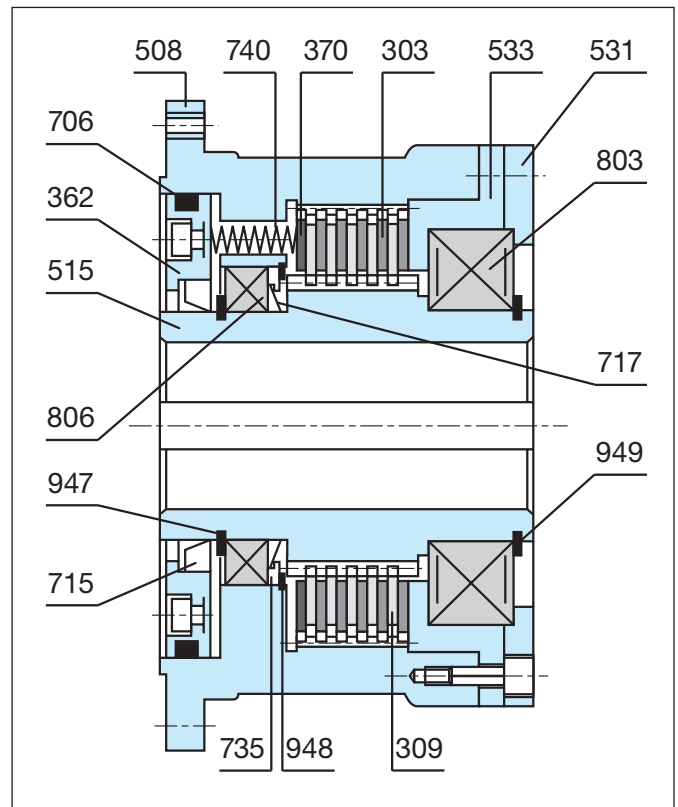
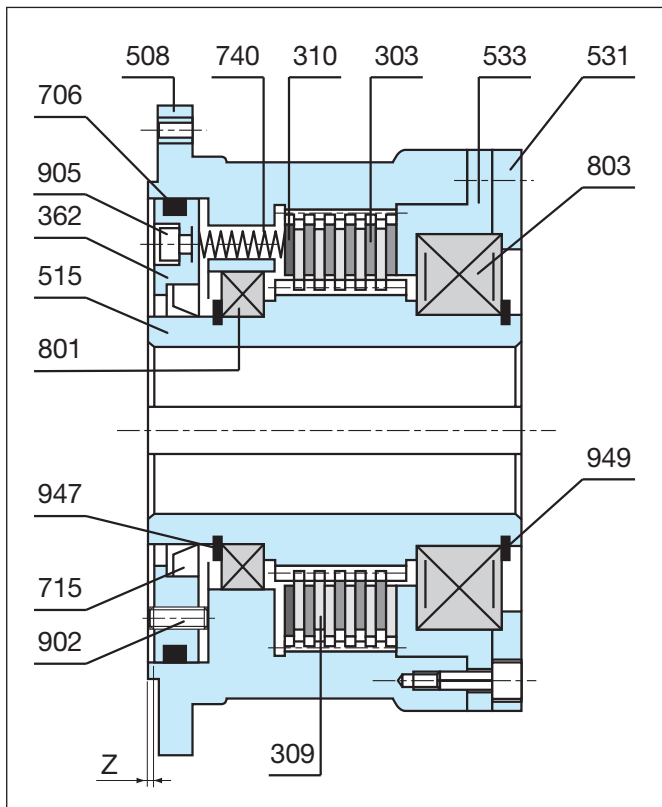
All orders for spare parts must state the size of the unit with its code number, the reference number of the part (see appendice), and the quantity of each component wanted.

Size	Mineraloil			ATF
Viscosity Running Speed	ISO VG 22 > 12 m/s	ISO VG 32 > 12 m/s	ISO VG 46 > 12 m/s	> 12 m/s
BP ESSO MOBIL SHELL ELF	Nuto H22 DTE 22 Tellus 22	Energol HLP-D32 Nuto h 32 DTE Oil Light Tellus 32 Polytelis 32	Energol HLP-D46 Nuto H 46 DTE Oil Medium Tellus 46 Polytelis 46	Autran MBX AT Dexron II ATF 220 Donax TM Elfmatic G2"

Table 2

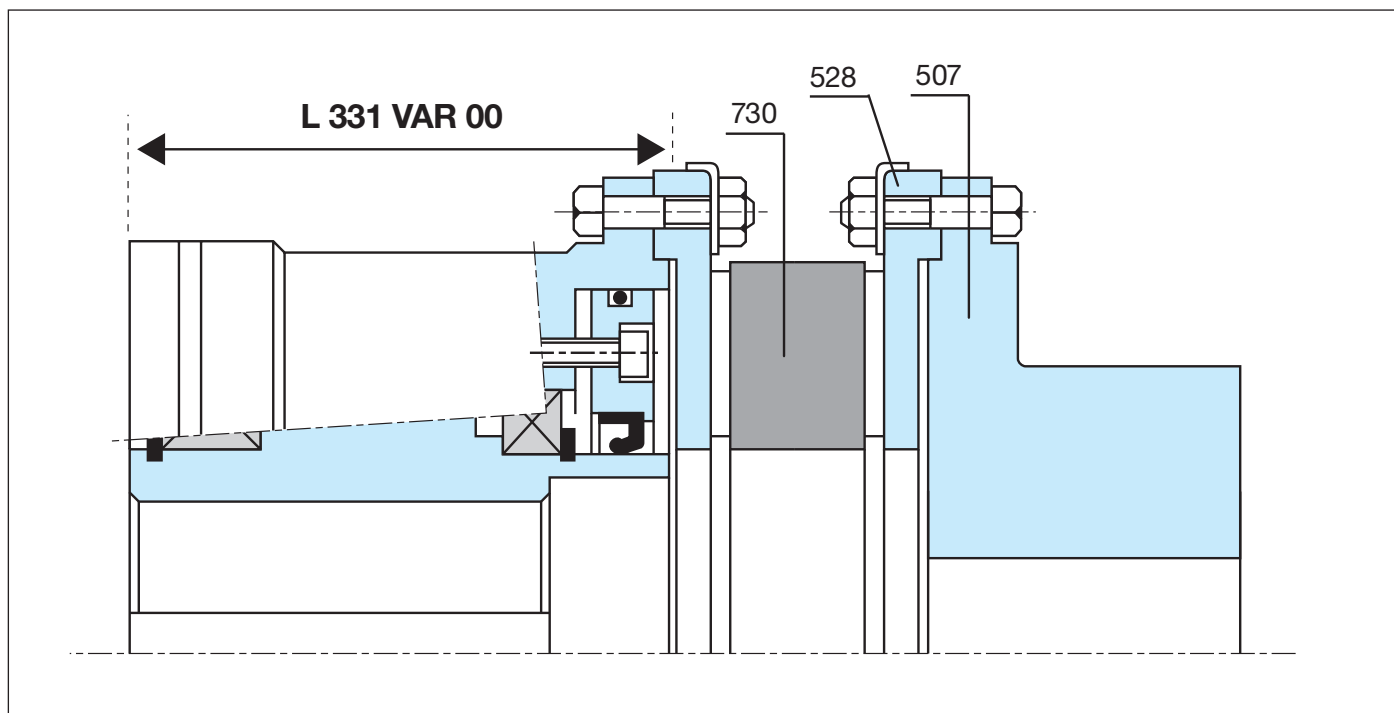
5 Appendix

5.1 Drawings / Description VAR00



Ref. Nr	Description	Remarks
303	Steel outer disc	
309	Steel inner disc	
310	Thrust disc	Size 100-200-400-800
362	Pressure flange	
370	Pressure ring	Size 1600-3200-6400-12800
508	Hub	
515	Hub	
531	Cover	
533	Bearing housing	
706	O-ring seal	
715	Radial oil seal	
717	V-ring	Sizes 6400-12800
735	Deflector	Sizes 6400-12800
740	Spring	
801	Ball bearing	Sizes 50-100-200-400-800
803	Centering ball bearing	
806	"Needle bearing	Sizes 1600-3200-6400-12800
902	Setting screw	
905	Axial fixing screw	
947	Outside circlips	
948	Inside retainer	Sizes 6400-12800
949	Outside retainer	

5.2 Drawings / Description VAR05



Ref. Nr	Description
507	Coupling Hub
528	Coupling Flange
730	Spider

Subject to alteration without prior notice

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.

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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.

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