# Micro-elettric pump

## Serie 3417000

# Manuale uso e manutenzione

Original text translation

**INDEX**




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Dropsa products can be purchased from Dropsa branches and authorized distributors, visit www.dropsa.com/contact or contact us sales@dropsa.com

## 1. INTRODUCTION

This user's and maintenance manual refers to a **micro-electric pump**, for use in mineral oil lubrication systems.
It is recommended that this manual is carefully kept in good condition and is always available to persons requiring to consult it.
To request further copies, updates or clarifications with respect to this manual contact the Engineering Department at Dropsa SpA.
The use of the pump referred to in this manual must be entrusted to qualified personnel with a knowledge of basic mechanics, hydraulics and electrical systems.
The manufacturer reserves the right to update the product and/or the user's manual without the obligation to revise previous versions. It is however, possible to contact the Engineering Department for the latest revision in use.
The pump, and any accessories mounted on it, should be carefully checked immediately on receipt and in the event of any discrepancy or complaint the Dropsa SpA Sales Department should be contacted without delay.

DROPSA S.p.A. declines to accept any responsibility for injuries to persons or damage to property in the event of the non-observance of the information presented in this manual.
Any modification to component parts of the system or the different destination of use of this system or its parts without prior written authorisation from DROPSA S.p.A. will absolve the latter from any responsibility for injury or damage to persons and/or property and will release them from all obligations arising from the guarantee.

## 2. IDENTIFICATION OF THE MACHINE

On the front part of the pump tank there is a plate which indicates the product code, the supply voltage and the basic characteristics.

## 3. GENERAL DESCRIPTION

This range of pumps is particularly suitable for use on lubrication systems, with a working pressure of 4 bar.
It is made up of:

- Base plate
- 1/1,7 lt plastic reservoir
- Minimum electric level, oil recharge plug with filter.

The pump can be provided with or without a tank.

| MOTOR VOLTAGE | Lubrication interval. (min.) | | 1 cc pump + 1.1 lt. tank | 5 cc Pump + 1.1 lt. tank | 1 cc pump + 1.7 lt. tank | 5 cc pump + 1.7 lt. tank | 1 cc pump | 5 cc pump |
|---|---|---|---|---|---|---|---|---|
| | 50 Hz | 60 Hz | | | | | | |
| 24V 50 – 60 Hz | 5 | 4,16 | 3417111 | 3417151 | 3417116 | 3417047 | 3417131 | 3417061 |
| | 10 | 8,3 | 3417112 | 3417152 | 3417117 | 3417048 | 3417132 | 3417062 |
| | 30 | 25 | 3417113 | 3417153 | 3417118 | 3417049 | 3417133 | 3417063 |
| | 60 | 50 | 3417114 | 3417154 | 3417119 | 3417050 | 3417134 | 3417064 |
| | 120 | 100 | 3417115 | 3417155 | 3417120 | 3417051 | 3417135 | 3417065 |
| 110V 50 – 60 Hz | 5 | 4,16 | 3417106 | 3417156 | 3417136 | 3417042 | 3417126 | 3417056 |
| | 10 | 8,3 | 3417107 | 3417157 | 3417137 | 3417043 | 3417127 | 3417057 |
| | 30 | 25 | 3417108 | 3417158 | 3417138 | 3417044 | 3417128 | 3417058 |
| | 60 | 50 | 3417109 | 3417159 | 3417139 | 3417045 | 3417129 | 3417059 |
| | 120 | 100 | 3417110 | 3417160 | 3417140 | 3417046 | 3417130 | 3417060 |
| | 12 sec. | 10 sec. | 3417173 | | | | 3417171 | |
| 220V 50 – 60 Hz | 5 | 4,16 | 3417101 | 3417161 | 3417141 | 3417036 | 3417121 | 3417035 |
| | 10 | 8,3 | 3417102 | 3417162 | 3417142 | 3417037 | 3417122 | 3417052 |
| | 30 | 25 | 3417103 | 3417163 | 3417143 | 3417038 | 3417123 | 3417053 |
| | 60 | 50 | 3417104 | 3417164 | 3417144 | 3417039 | 3417124 | 3417054 |
| | 120 | 100 | 3417105 | 3417165 | 3417145 | 3417041 | 3417125 | 3417055 |
| | 1 sec. | 50 sec. | | 3417178 | | | | 3417179 |

## 4. COMPONENTS

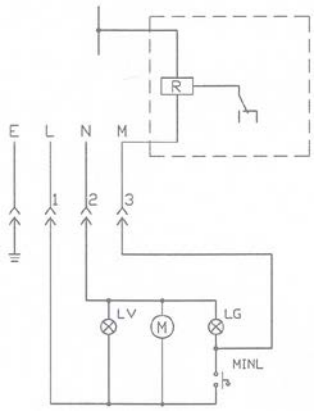
**Micro-electric pump***:* The pump is cam actuated and the piston is spring controlled. The cycle time is fixed and is determined by the type of reducer fitted to the electric motor. The flow rate varies between 0,2÷1cm³ e da 1÷5cm³. The operating pressure is 4 bar. It is suitable for oil with a viscosity of 32÷250 cSt at a fluid working temperature between +5 °C and +40 °C.
Should it be required to use a different specification product, prior authorisation should be obtained from Dropsa S.p.A.
**Electric Motor:** Single phase motor 50-60 Hz, 24, 110 or 220 V. the absorbed power is 2.5 W – 3.5 VA at 50 Hz and 2 W – 2.5 VA at 60 Hz. Admissible voltage variation is ±10%.

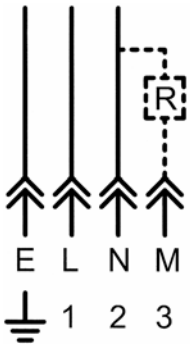
| | | |
|---|---|---|
| Protection grade IP 54 | insulation class - F | continuous service - YES |

***Reservoir:*** *made of transparent plastic material in 1 L version and white plastic in 1.7 L version*.
***Minimum level indicator***
*Magnetic type*
Reversible float with contact normally open at rest. To convert to normally open contact turn the float upside down. The maximum power is 50 W ÷ 50 VA; the maximum voltage is 220 V ac – 150 V dc.
***Suction filter:*** Filtration grade 260 micron

## 5. TECHNICAL CHARACTERISTICS

| CHARACTERISTICS | |
|---|---|
| **Electrical power supply:** | 24, 110, 220, Vac 50 – 60 Hz Single phase |
| **Absorbed power** | Max 2.5 W |
| **Working temperature** | - 15 ÷ + 60 °C |
| **Operating humidity** | 90 % rel. humidity |
| **Grade of mechanical protection** | IP 54 |
| **Lubricants** | 32÷250 cSt Mineral oil lubrucat |
| **Preservation temperature** | -30 ÷ +90 °C |
| **Level of continuous sound pressure** | < 70 dB(A) |




E = EARTH
L = PHASE
N = NEUTRAL
M = MINIMUM LEVEL
R = EXTERNAL ALARM

***ATTENTION:*** do not use the machine with different voltage that shown on the nameplate.

## 6. HANDLING AND TRANSPORTATION

Prior to shipping, the equipment is carefully packed in cardboard package. During transportation and storage, always maintain the pump the right way up as indicated on the box. On receipt check that package has not been damaged. Then, store the machine in a dry location.

## 7. PRECAUTIONS

It is necessary to carefully read the warnings and risks associated with using a lubricant pump. The operator must understand how it works and must clearly understand the dangers by studying the user manual.

***Power supply***
Any type of intervention must not be carried out before unplugging the machine from power supply. Make sure that no one can start it up again during the intervention.
All the installed electric and electronic equipment, reservoirs and basic components must be grounded.

***Flammability***
The lubricant generally used in lubrication systems is not flammable. However, it is advised to avoid contact with extremely hot substances or naked flames.

***Pressure***
Prior to any intervention, check the absence of residual pressure in any branch of the lubricant circuit as it may cause oil sprays when disassembling components or fittings.

***Noise***
Pump produces noise, not more than 70 dB(A).

## 8. OPERATING HAZARDS

The micro pump has no particular contraindications except for the following points:

- Contact with fluid for breaking / opening of adduction piping. -> The operator must be equipped appropriate individual protective devices DPI.
- Unsuitable postures. -> See paragraph **9.2.**
- contact with oil -> see instructions for using appropriate individual protective devices DPI;
- Use of an inappropriate lubricant -> fluid characteristics indicated both on the pump and in the manual (if in doubt consult our Technical Office);

| UNACCEPTABLE FLUIDS | |
|---|---|
| **Fluids** | **Dangers** |
| Lubricant with abrasive additives | High consumption of contaminated parts |
| Lubricant with silicon additives | Jamming of the pump |
| Benzine – solvents – inflammable liquids | Fire – explosion – damage to gaskets |
| Corrosive products | Corrosion of the pump – injuries to persons |
| Water | Pump oxidation |
| Food substances | Contamination of these substances |

## 9. UNPACKING AND INSTALLING

### 9.1 UNPACKING

Once a suitable installation position has been identified, unpack the pump and prepare for installation. It is important to inspect the pump to ensure that there has been no damage during transportation. The packaging material used does not require any special disposal procedures. You should refer to you regional requirements.

### 9.2 PUMP INSTALLATION

There are no installation operations of pump.
Allow sufficient space for install with 100mm clear space around the perimeter of the pump.
Mount the pump at “eye level” to avoid any risk of postural problems. There are two fixing holes on the plate, with different distances depending on the 1 Lt and 1.7 Lt version.
Afterwards is necessary connect he pump to the machine with hydraulic connection, refill the reservoir and connect to the control panel.
Empty the reservoir during the disassembly phase.
Disconnect electrical and hydraulic parts.

### 9.3 HYDRAULIC CONNECTIONS

Only connection is to be made from the pump to the lubrication point or the metering valves.

### 9.4 ELECTRICAL CONNECTIONS

Before carrying out any wiring, ensure that the correct power supply is available. Refer to the identification label on the Pump. In order to avoid dangers of electric shock it is important to remove all power before installation or maintenance. All electrical components and control devices must be grounded. Make sure that the ground wire is correctly connected. For safety reasons, the earth conductor should be approximately 100 mm longer than the phase conductors. In case of accidental cable detachment, the ground terminal must be the last to come off.
In order to prevent dangers of electric shocks due to direct or indirect contact with the energized parts, electrical power supply line must be protected by a suitable magneto-thermal circuit breaker with an intervention threshold of 30mA and 1 millisecond minimum operating time.

**Circuit breaker power must be = 10 kV and nominal power in In = 6 A.**

**N.B.: after all connections make sure that pipes and cables are appropriately fixed and protected from impacts.**

## 10. INSTRUCTIONS FOR USE

### 10.1 START UP

Damage to the power supply cable and housing can lead to contact with high voltage parts and present a danger to life:

- Check the integrity of the power supply cable and the unit prior to use.
- Where the cable or the unit is damaged do not operate the equipment!
- Replace the power supply cable with a new one.
- The unit should be opened and repaired ONLY by qualified personnel.
- The pump MUST NOT be submersed in fluids or utilised in environments which are particularly aggressive or explosive/inflammable if not prepared for this purpose beforehand by the supplier.
- For correct fixing verify the distance between centres.
- Use gloves and safety glasses as required in the lubrication oil safety chart.
- DO NOT use aggressive lubricants with NBR gaskets and seals; if in doubt consult the Engineering Department of Dropsa SpA, who will provide a chart with the details of recommended oils.
- DO NOT ignore dangers to health and observe all hygiene standards.

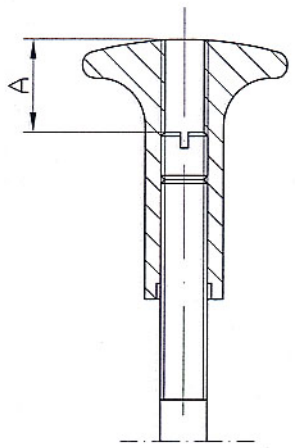
### 10.2 ACTION TO BE TAKEN PRIOR TO START UP

- Verify the integrity of the pump;
- Fill the reservoir with suitable lubricant (min/max indication on the reservoir);
- Ensure the pump is at working temperature and the tubing is free of air pockets;
- Ensure that any electrical connections have been effected correctly (CEI 64/8, IEC 364);

### 10.3 REGULATION

The only parameter which can be modified is the flow rate; turn adjustment knob clockwise (decrease) or unclockwise (increase).

FLOW RATE ADJUSTMENT




FOR 1 CC PUMP

| A mm. | 0 | 3 | 6 | 9 | 12 |
|---|---|---|---|---|---|
| c.c. | 0,2 | 0,4 | 0,6 | 0,8 | 1 |

FOR 5 CC PUMP

| A mm. | 0 | 3 | 6 | 9 | 12 |
|---|---|---|---|---|---|
| c.c. | 1 | 2 | 3 | 4 | 5 |

## 11. TROUBLESHOOTING

Below is a diagnostic table showing the main faults, the probable causes and the possible solutions.
**In the event of doubts and/or problems which cannot be solved, do not proceed to look for the fault by dismantling parts of the machine, but contact the Dropsa Technical Office.**

| DIAGNOSTIC TABLE | | |
|---|---|---|
| **FAULT** | **CAUSE** | **SOLUTION** |
| The pump does not deliver grease or does not deliver the correct amount of grease | Drawing air because the tank is empty | • Refill the tank and vent the air from the system |
| | The intake filter is dirty or blocked | • Wash the filter with kerosene and blow through with compressed air |
| | The internal connections have loosened | • Tighten all the connections ensuring there are no leaks |
| | sealing valve damaged | • Replace Pump |
| | Faulty motor | • Replace Pump |
| The pump fails to deliver oil at the prescribed pressure | unclean or broken check valve | • Change valve |
| | broken or damaged pipes and discharge fittings | • Change discharge pipe or tighten fittings |

## 12. MAINTENANCE PROCEDURES

Ensure the pump is positing so that it can be verified easily.
Ensure you have necessary personal protective equipment to avoid any contact with the grease.
The pump undergoes severe factory testing therefore no maintenance is forecasted with the pump.
DropsA recommends the use of lubricants that are free of any impurities as well as a regular cleaning of the pump's components.
Periodically check that the pump is intact and does not present leaks. As required, or at least once a year, clean or substitute the refilling cod.: 3130101.
**Periodically it is necessary to check:**

| VERIFICATION | WORK CYCLES |
|---|---|
| The oil level | Check the oil level in the reservoir |
| The state of lubrication | 1000 |
| Cleanliness of the loading and suction filters | 2000 |
| The cleaning of the bottom of the tank if deposits are present | 6000 |

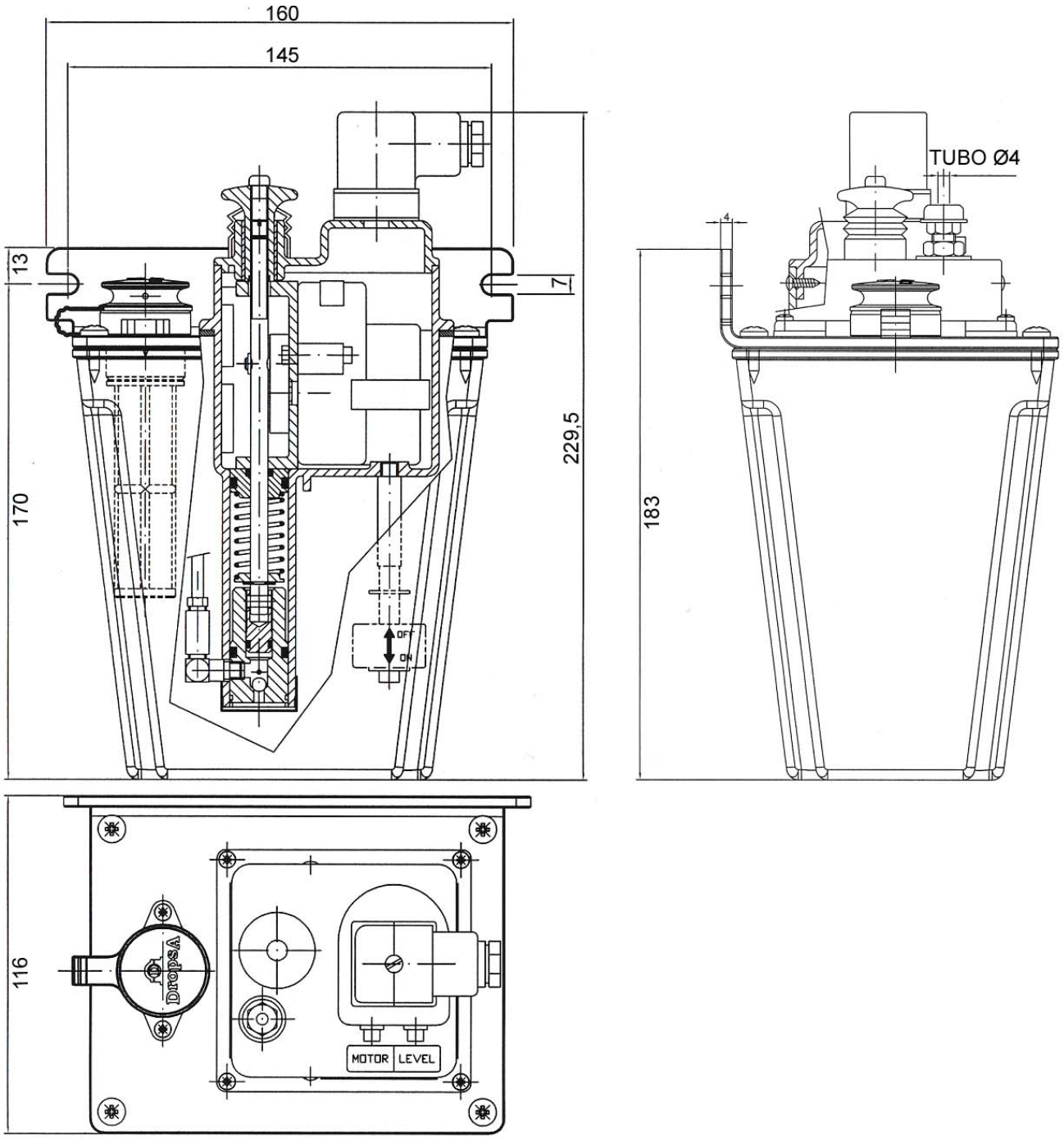
The machine does not require any special equipment for any checking and/or maintenance activity, however the recommendation is to use suitable equipment which is in a good condition (according to current regulation) in order to avoid causing damage to persons or machine parts.

**Make sure that the electric and hydraulic supply has been disconnected before carrying out any maintenance intervention.**

## 13. DISPOSAL

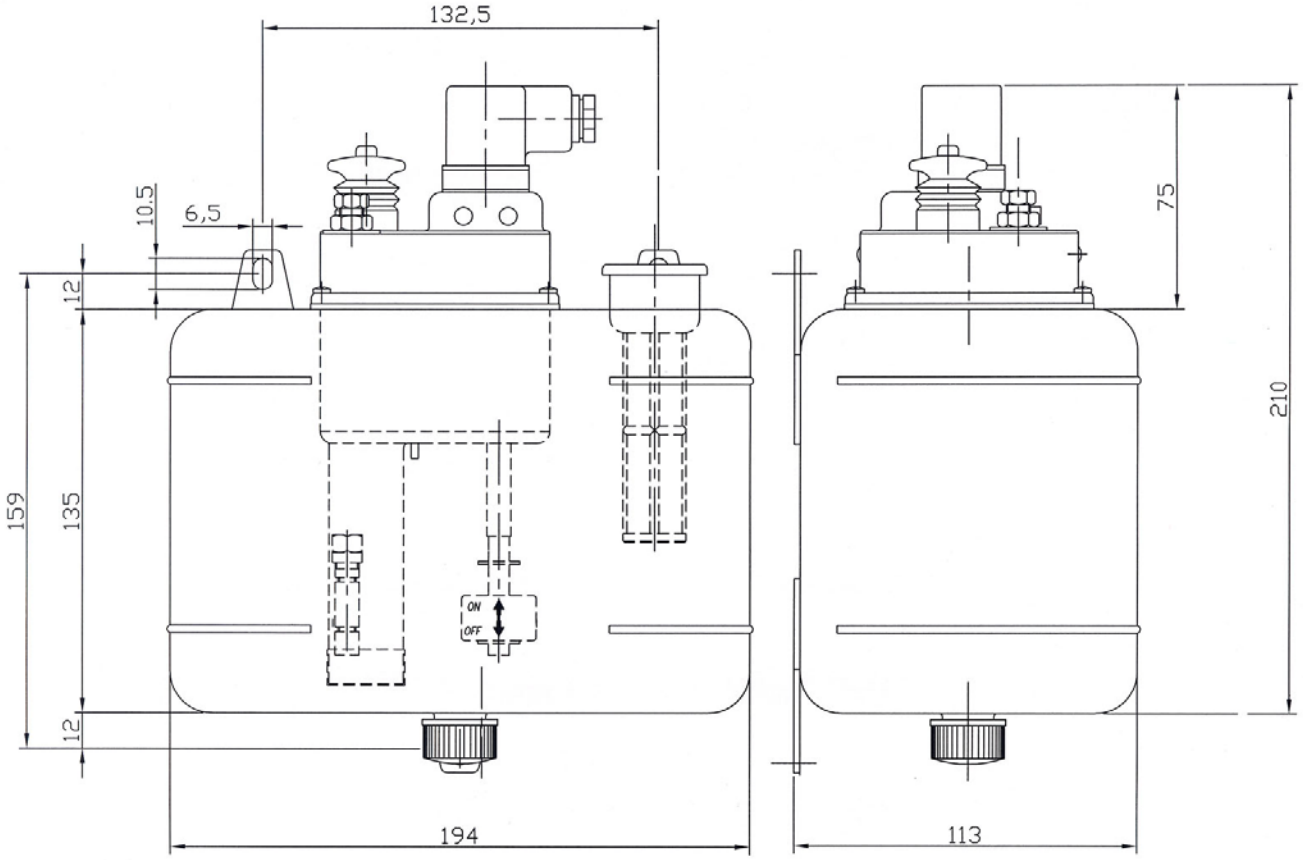
In the course of machine maintenance, or if the machine is scrapped, do not dispose of polluting parts into the environment. Refer to local regulations with regard to their correct disposal. When scrapping the machine the identification plate and any other documents must be destroyed.

## 14. DIMENSIONS - 1 Lt RESRVOIR




| MODEL | PART NUMBER | DIMENSIONS | WHEIGHT Kg |
|---|---|---|---|
| 1 LT - made in transparent plastic material | 3044150 | 160x116x183 | 0,685 |

## 15. DIMENSIONS - 1,7 Lt RESRVOIR




| MODEL | PART NUMBER | DIMENSIONS | WHEIGHT Kg |
|---|---|---|---|
| 1,7 lt - made in white plastic | 3044071 | 194x115x234 | 0,315 |