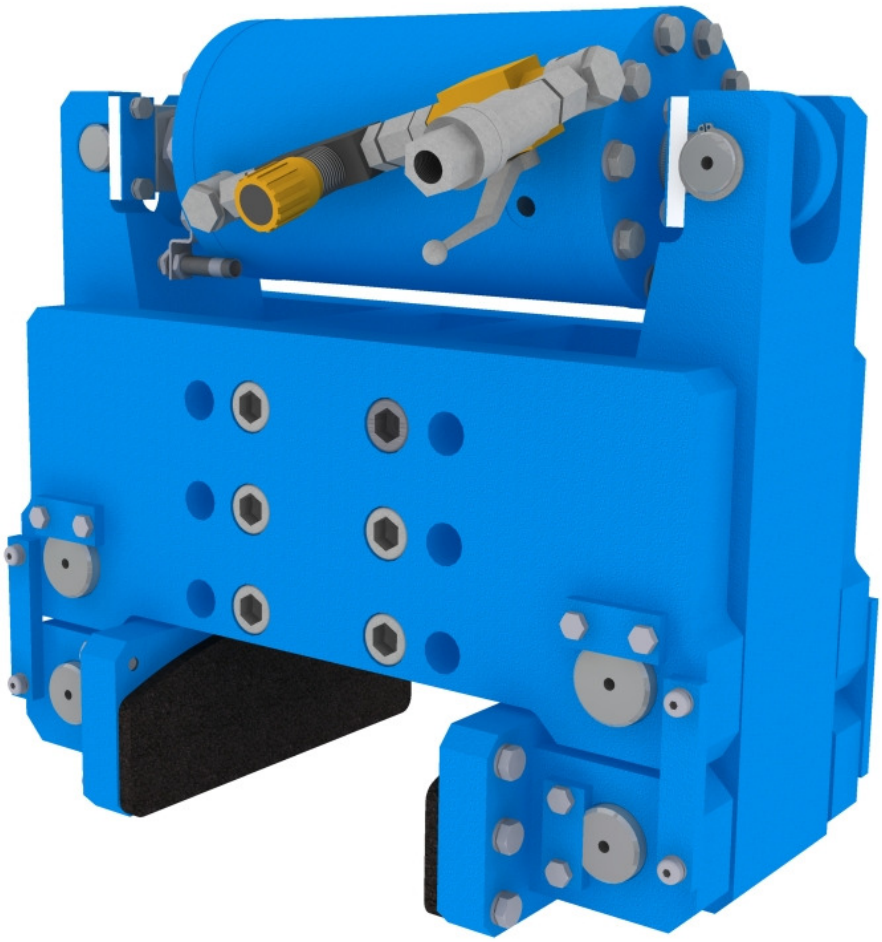
WHEEL BRAKE

FEBRUARY 2013

Certificato qualità
N° 50 100 10922

CATALOGUE "FR"



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Function

These brakes are devoted to parking utilization, securing the crane, in stowed condition, against the wind force, therefore, in their normal utilization they have to be closed when the crane is completely stopped. In emergency condition they can be operated also as dynamic brakes to stop the crane.
The braking shoes, pressing on the two sides of a wheel, are actuated by springs and released by hydraulic power.
In the standard execution, the brakes are designed for a few opening cycles per day, and a heavy duty execution is available under request, for particular applications where a high number opening cycles per day is needed.

Main data

Design braking force :
- FR8000 = 80 kN
- FR6000 = 60 kN

Friction coefficient = 0,4
Wheel diameter = min 500 mm ÷ MAX 1000 mm
Wheel width Wmin=170 mm ÷ WMAX=225 mm
Tolerances: ± 1 mm
Machined wheel surfaces: roughness = 3,2 µm
Opening time = 2 s (from the opening command to signal of brakes opened)
Closing time = 0,25 s

The above opening/closing times are calculated with 1 hydraulic unit feeding 4 brakes.
The braking force is calculated with a wear of the braking shoes of one mm respect to the thickness of new shoes.
This coefficient is depending upon the surface condition of the wheel, in presence of grease, lubricants, coal dust or similar, etc. the coefficient may decrease.

Installation

In most of cases it is foreseen the installation of a wheel brake on each idle wheel.
An hydraulic unit each four brakes is usually foreseen.

Execution

The force exercised by brake on the two sides of wheel is given by disc springs.
The braking surfaces of the wheels must be machined with tolerances and roughness according to the above indications.
Braking shoes in friction material are hinged and easy replaceable.
The brake is opened by hydraulic cylinder positioned inside the brake by suitable hydraulic unit.

Piston rod of cylinder is in AISI 420 quenched and tempered and large-thickness chrome–plated.
Levers are in St 50
The brake is provided with side flange.

A limit-switch to signal the “brake open “ is foreseen.
A 3/8 “ connection hole (brake opening side brake) is foreseen, at this connection is also installed:

Ball valve necessary to keep the brake open (in pressure) even without hydraulic unit. More over it is necessary to open the quick coupling in pressure.

Quick coupling, necessary to connect the brake to hand pomp. In this way it is possible, in emergency, to open the brake even if the hydraulic unit can not work.

The opposite hydraulic connection is also a 3/8 “ hole that is used to keep the springs in oil-bath guaranteeing their efficiency and life.

Friction coefficient

The design braking force is calculated with a friction coefficient of 0,4
This coefficient is depending upon the surface condition of the wheel, in presence of grease, lubricants, coal dust or similar, etc. the coefficient may decrease.

Hydraulic unit

It is suitable for sea-environment, completely assembled and wired to a keyboard.
The unit is including:

- 1,5 kW electric motor according to CEE rules, protection IP 55, tropical execution, V = 400 V ; 50 Hz. With anticondensation heater and thermistor protection.
- Gear pump 5 l/min.
- Electro-valve with coil easy replaceable, voltage according to client request.
- Filter and control valves
- 1 Pressure switches for pressure control
- Pressure gauge complete with cock
- Manometer with cock
- Hand-pump for emergency opening with cock.

Environment data

- Temperature : 0 °C to + 40 °C
- Humidity : 100%
- Sea environment

Painting

- Total thickness : 240 micron.
- Surfaces preparation: Sandblasting SA 2 ½.
- 1° Coat: Moist curing inorganic two-component zinc primer. Consists on complex ethyle silicate and zinc dust in high rate (>86% in dry film). Thickness = 80 micron
- 2° Coat: Two-component epoxy-polyamide primer and undercoat with zinc phosphate and micaceous iron oxide.Thickness = 90 micron
- 3° Coat: Two-component aliphatic acryl-urethane based paint no yellowing. Reacoatable for long time. Thickness = 70 micron
- Final colour: Standard RIMA RAL 5019.

Electrical equipment

It is usually foreseen by the customer with the electrical equipment of all the crane. We supply an electrical indicative diagram.

Documentation

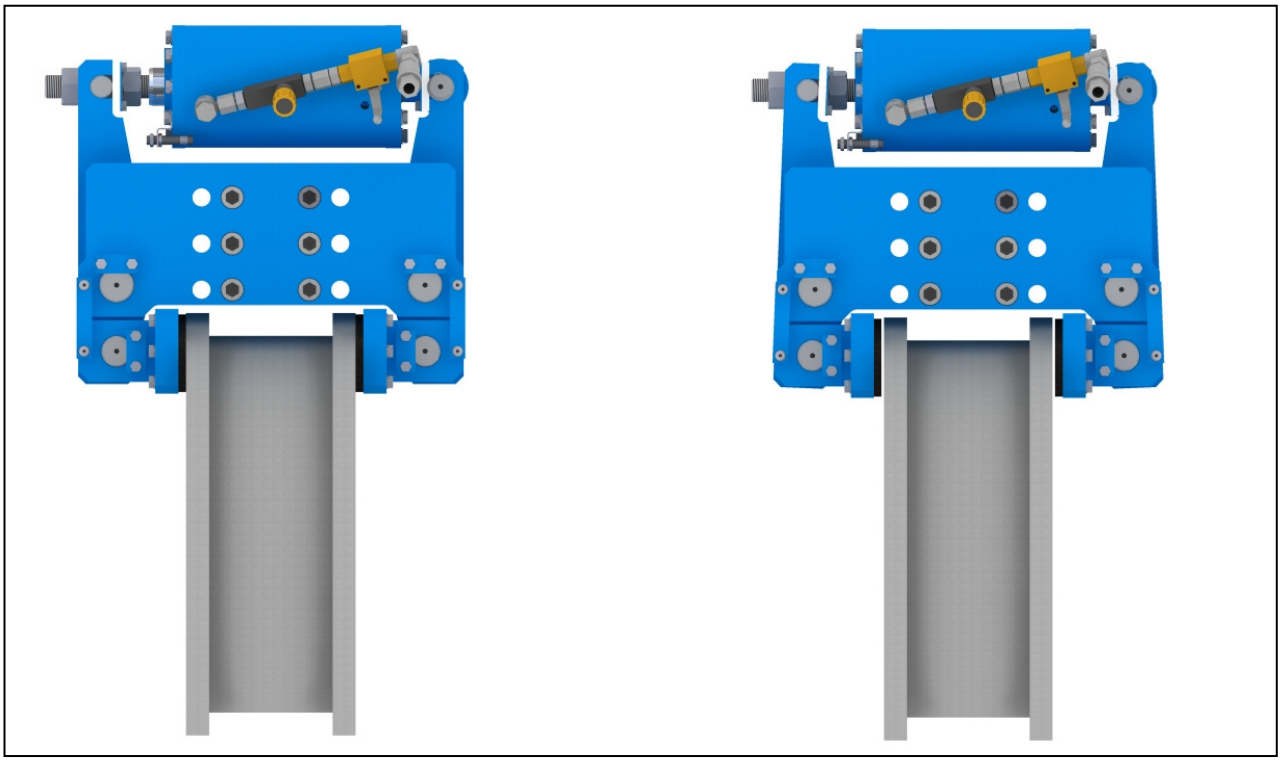
The documentation is worded according to EG (89/392/EWG) and Euro- EN 292-1/2; 1991 D rules.

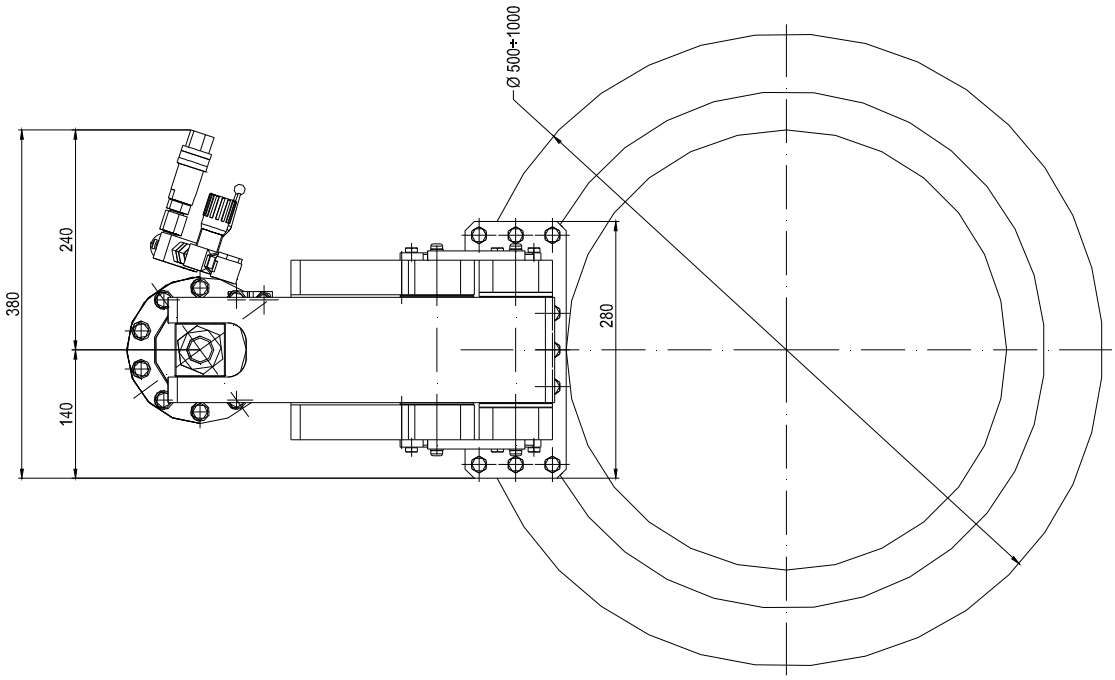
- Use and Maintenance Manual
- Execution according to rules
- Over all dimension drawings
- Hydraulic and electric schemes
- Suggested spare part list
- Test Certificate
- Material certificated (EN 10204-2.1) for all main parts.

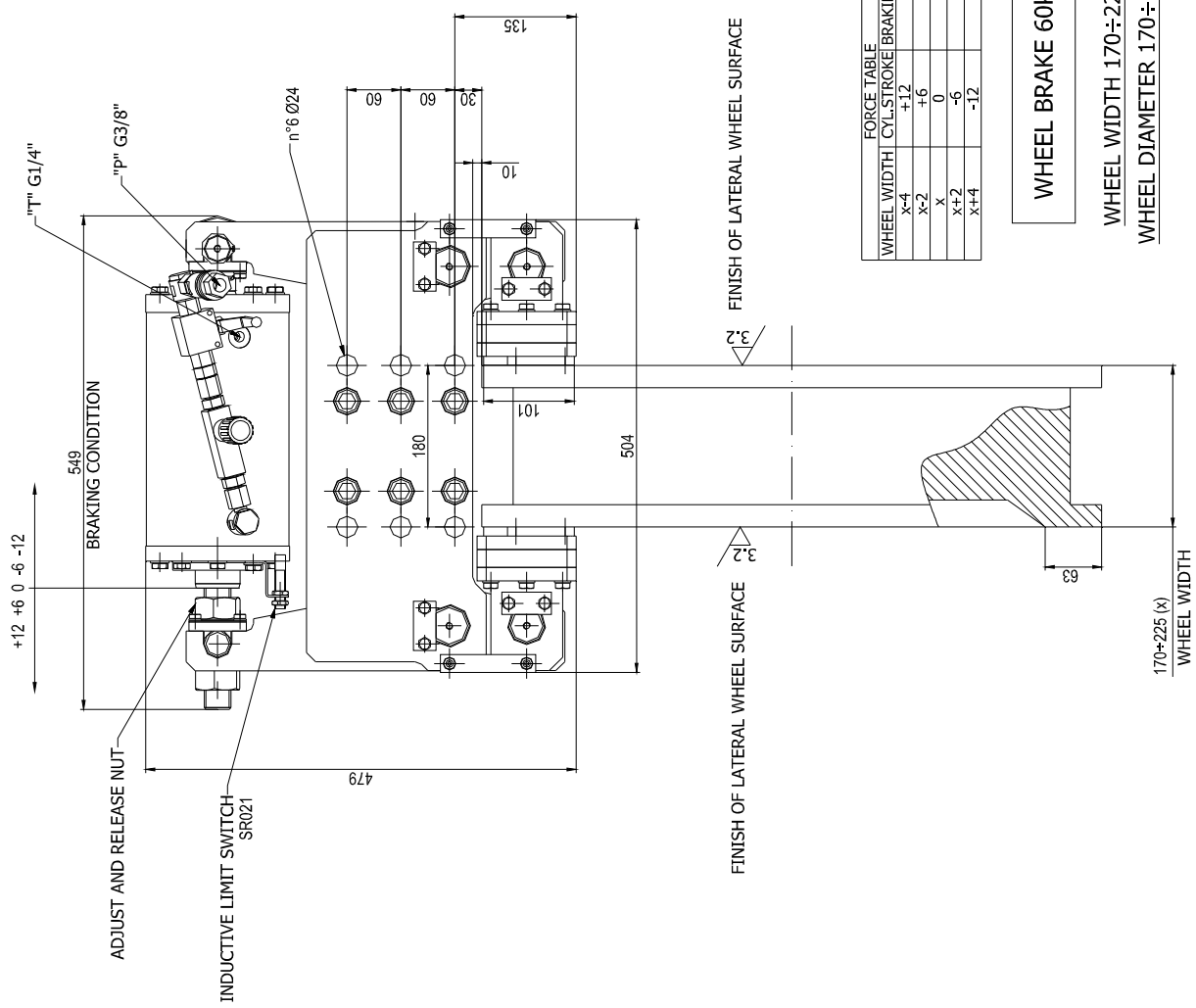
Documentation in Italian or English.

Warranty

12/18 months
Warranty is subject to the following conditions:
A) The electric diagram is made accordingly to the scheme we suggest (SCE-FR-01) or is made accordingly to a scheme designed by client but in any case approved by us.
B) All maintenance procedures described in the manual provided with the supply are observed. In particular must be strictly observed the rules relevant to cleanliness and filters replacement.
In case one or more of above conditions should not be respected, the guarantee will be considered not valid.







FORCE TABLE		
WHEEL WIDTH	CYL.STROKE	BRAKING FORCE
x-4	+12	51.5
x-2	+6	61.3
x	0	70.6
x+2	-6	79.6
x+4	-12	88.4

WHEEL BRAKE 60kN

WHEEL WIDTH 170÷225 mm

WHEEL DIAMETER 170÷225 mm

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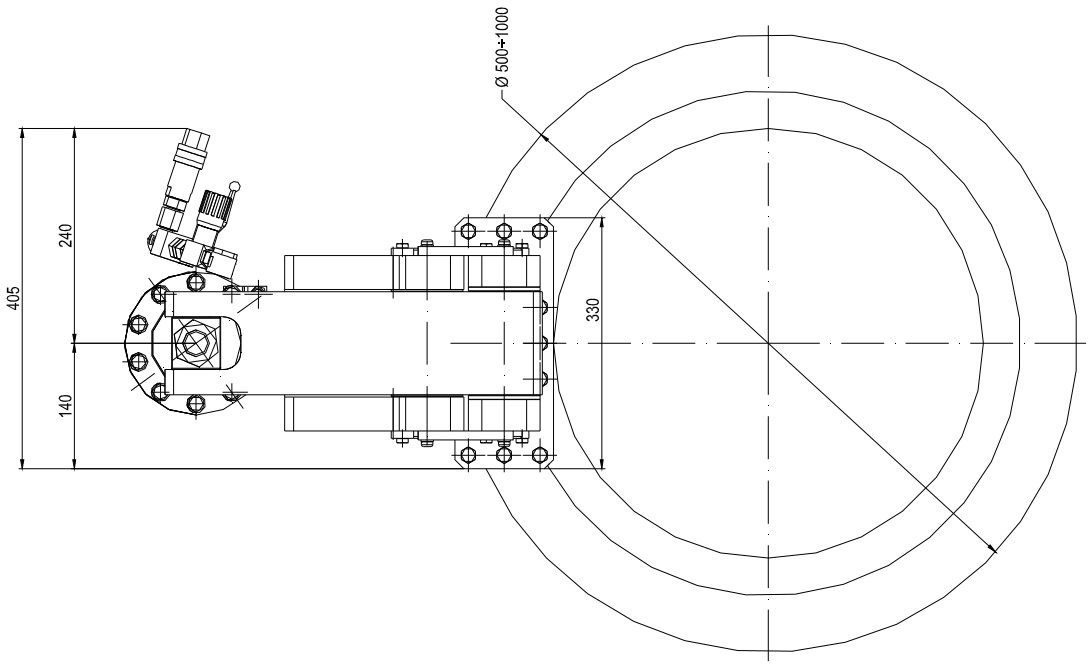

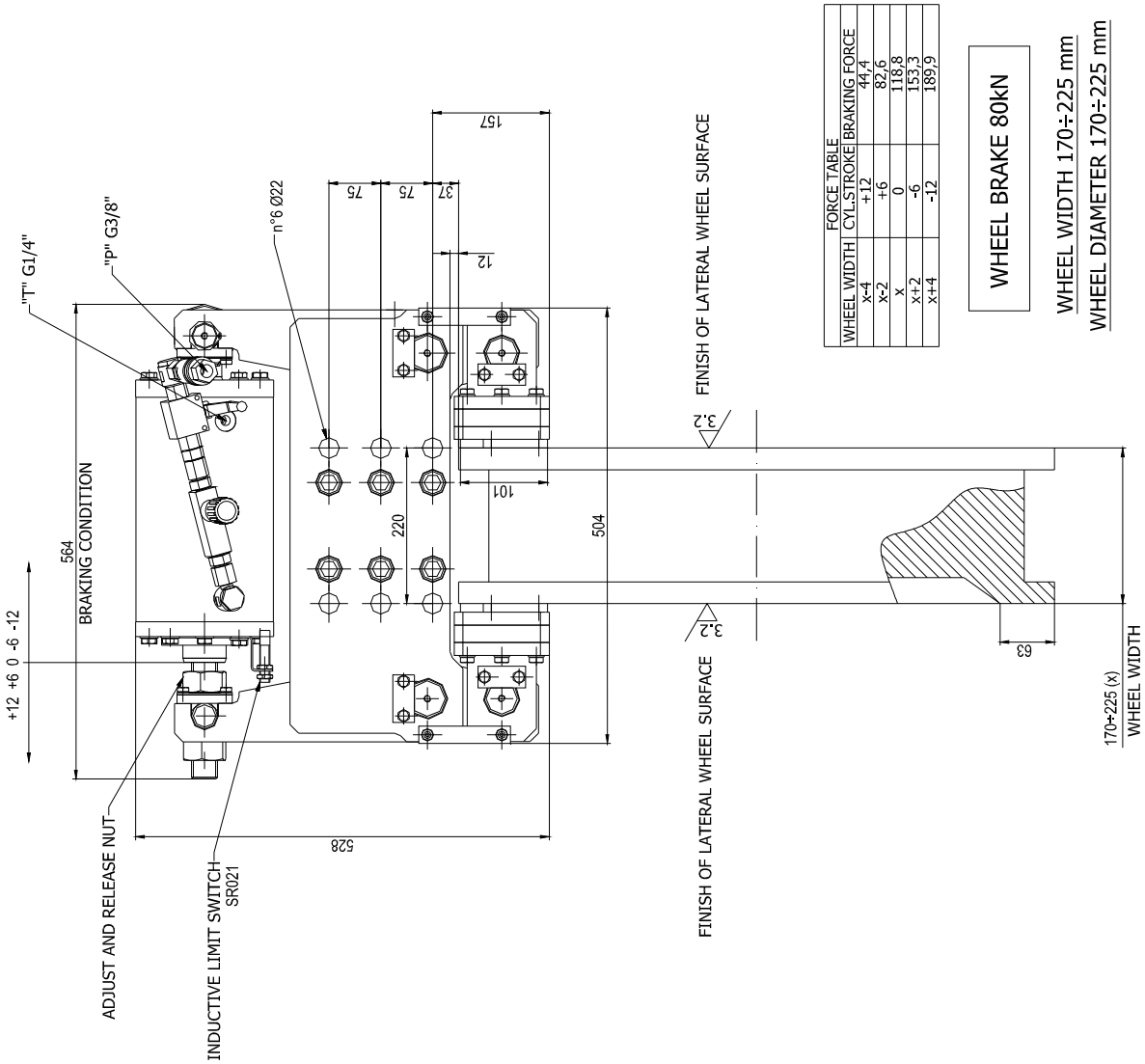

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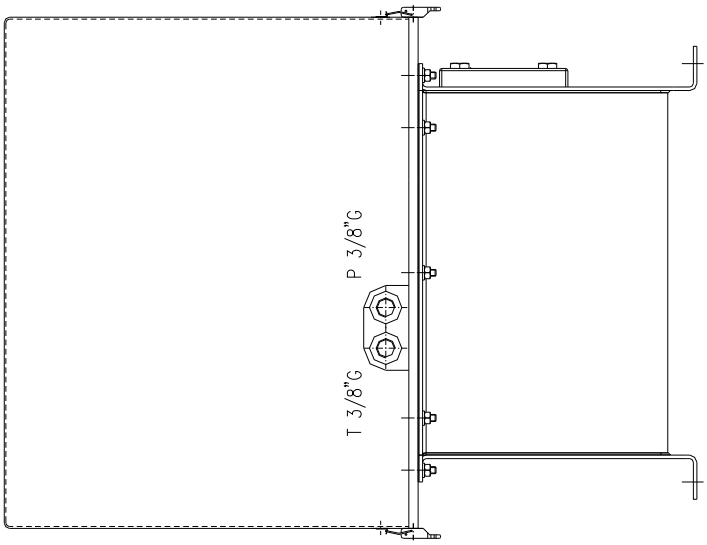
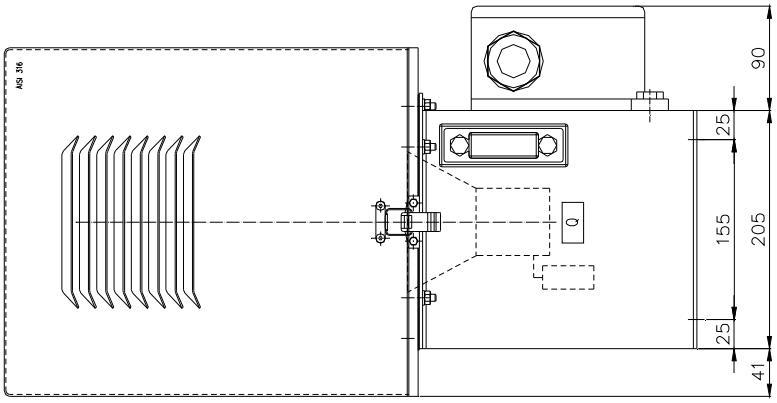
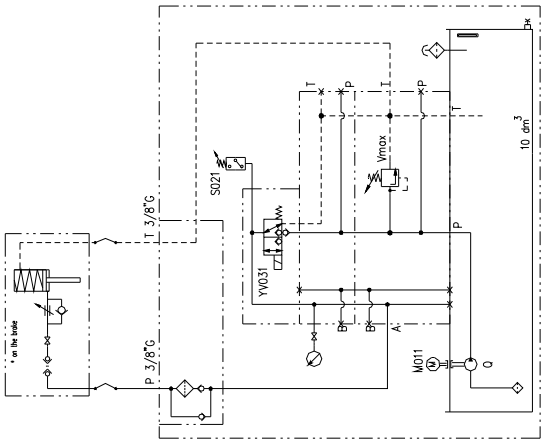
HYDRAULIC UNIT TYPE SCI-FR-01 FOR ALL TYPE OF WHEEL BRAKES

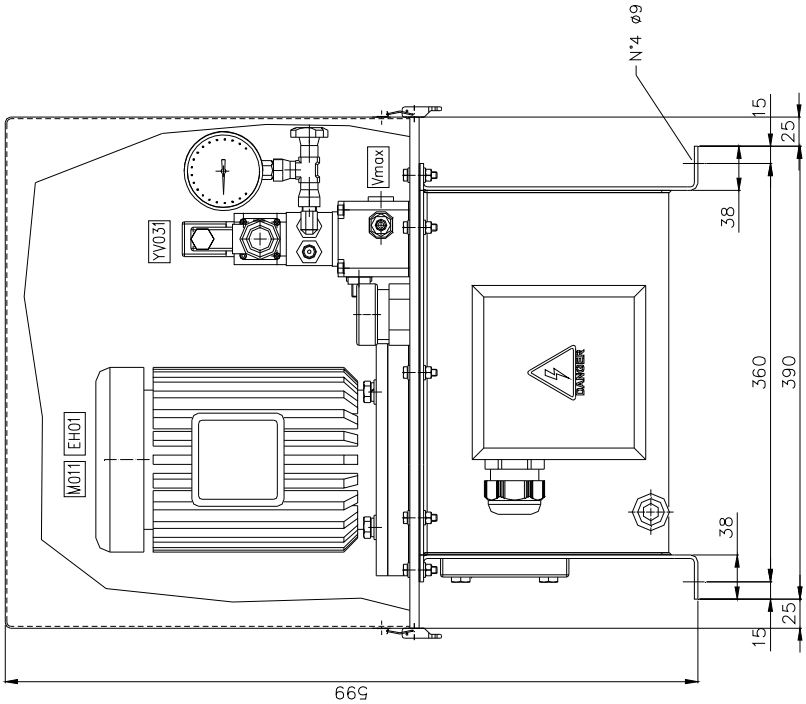
OIL TYPE : HLP ISO VG 15

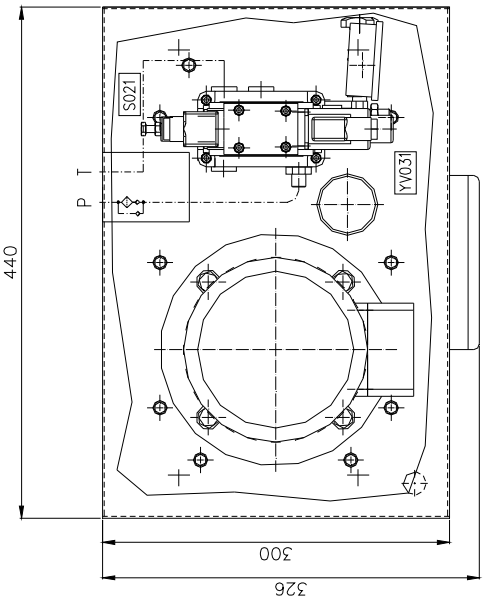
ELECTRIC MOTOR	1.5 kW, 400V-50Hz
GEAR PUMP	5 l/min
ELECTROVALVE	24 V DC
PRESSURE RELIEF VALVE	20 MPa











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