INSTRUCTION MANUAL

MECHANIC VARIATOR OF THE E50 UNIT

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Manual : 574.078.112 - 1111

Date : 16/11/11 - Supersede : 21/02/06

Modif. : Update

TRANSLATION OF THE ORIGINAL MANUAL

IMPORTANT : **Before assembly and start-up, please read and clearly understand all the documents relating to this equipment (professional use only).**

THE PICTURES AND DRAWINGS ARE NON CONTRACTUAL. WE RESERVE THE RIGHT TO MAKE CHANGES WITHOUT PRIOR NOTICE.

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INSTRUCTION MANUAL

VARIATOR OF THE E50 UNIT

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01. SAFETY INSTRUCTIONS

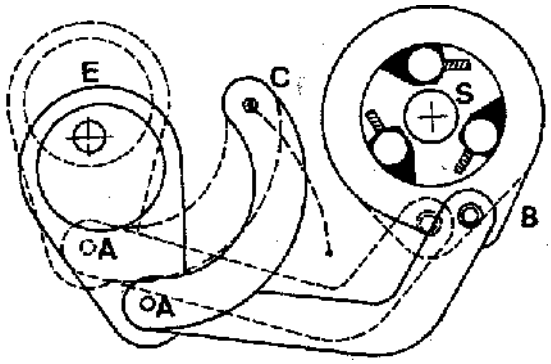
Refer to safety instructions of the E 50 unit.

02. CONSTRUCTION

The variator consist of a solid and tight carter. Inside of it, there are four free wheels, cams and rods which transform the linear motions of the input shaft in rotary motion. The adjustment of the output velocity is precise and easy and obtained by means of a control lever and its handle with a locking system.

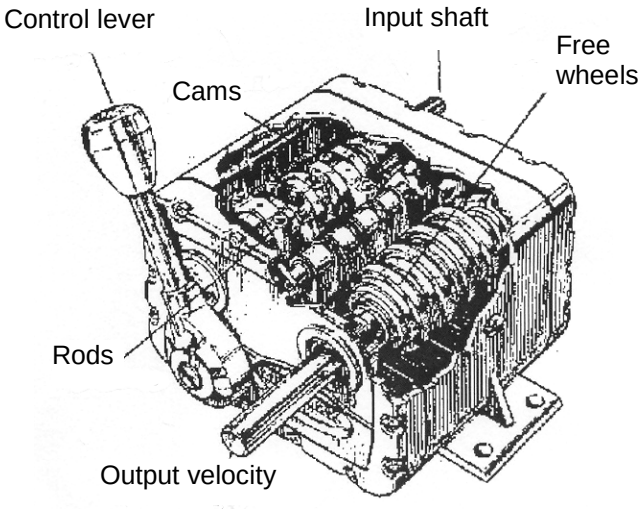
03. OPERATING

- The "E" shaft consists of cams which draw in, through free wheels, rods firmly attached to the "S" output shaft.
- The constant stroke of the "A" point gives to the "B" point a variable amplitude oscillation depending upon the position of "C".
- The variable oscillations are transformed in variable rotations of "S" by the free wheels.
- The "C" point is firmly attached to the control lever.
- The rotation direction of the output shaft depends on the version of the free wheels.
- The output shaft can be drawn in by the charge; the free wheels only operate in one direction.



04. ADVANTAGE

- Variable outlet speed for a fixe input velocity,
- Synchronized output velocity for a variable input velocity,
- Continuous or intermittent driving by all the rotating parts,
- Precise speed for the complete range (1 %),
- Quick speed change,
- Adjustment of the speed during start or stop,
- Constant torque for all the input velocities,
- Operating with oil, without maintenance,
- Combinaison with economic reducers,
- Assembly possible in all positions.
- Tight block, reduced dimensions.



05. INPUT VELOCITY

You can use input velocities from 0 to 2000 tr/mn without taking particular precautions (consult us for higher velocities). Slight pulsations appear when the input velocities are near to 0. We advice you to use elevated input velocities and reduce at the output using for example a reducer.

06. ROTATION DIRECTION

The rotation direction at the output is independent from the one of the input. The rotation direction is indicated by means of an arrow on the equipment; a driving in the other direction makes the equipment noisy and can lead to vibration when the velocity is high. The rotation direction of the output shaft is given in the part number of ZERO - MAX : 2 = hour directions. Observe the direction of the arrows to get the rotation direction.

07. OUTPUT VELOCITY

The output velocity varies between zero and 1/4 of the input velocity without reduction. On position 0, the variator still can operate under a low charge but stops under a normal charge. The drive is positive for the resistant charges, but the output shaft will be in free wheel if the charge becomes important. The output velocities are stables and repetitive with a precision of 1% for the velocities between the upper 90% of the range and with a constant torque. If the adjustment is near to 0, the velocity variations are not caused by the slide but by the deflection of the metallic parts. The precision is the same whatever the input velocity is.

08. PROTECTION AGAINST THE OVERLOADS

The overloads on the little equipments often are very important and the ZERO MAX has an internal torque limiter preset in the factory. The limit varies with the velocity and the tripping torque is more important than the re-tripping torque. At low velocity, the protection is less effective. The torque limiter does not have to operate continuously.

09. PNEUMATIC MOTORS

6 AM	4 CV
4 AM	1 1/2 CV
1 AM	1/3 CV
Option : electric motor	

10. OUTPUT TORQUE

The torque is constant in the complete range of velocity in continuous running, fixe speed or when variating continuously even with very quick cycles.

You must examinate the maximum value of the torque that will be applied on the variator output shaft (generally value of the start torque according to the inertia of the parts and the speed the start is carried out) and choose the variator according to that value, considering the use coefficient indicated on the chart below :

Charge version	**Kind of work**	
	from 8 to 10 h / day	*24 h / day*
Uniform	1,0	1,5
With moderate impact loads	1,5	2,0
With important impact loads	2,0	3,0

Use of the running reverser		
Low inertia	2,0	3,0
High inertia	Not recommended or at stop	Not recommended or at stop

11. LUBRIFICATION

The variators are lubricated in our factory. The renewal of oil is not necessary. Check regularly the level.

12. VISCOSITY

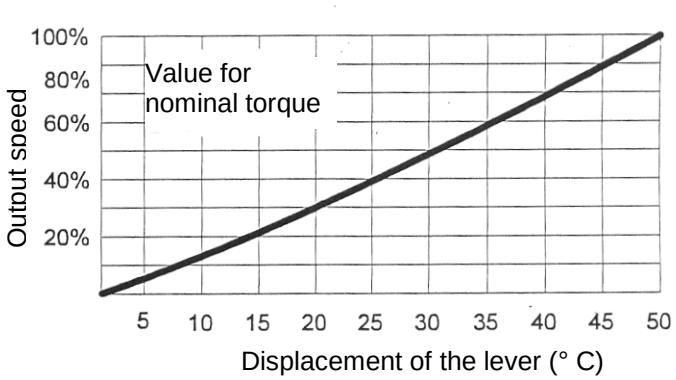
SAE 40

13. QUANTITY

1,3 Litres

14. SPEED VARIATION CONTROL

- The speed variation can be progressive or very quick.
- The variator answers immediately (the torque necessary to accelerate a machine has always to be lower than the limits of the equipment).
- The output velocity is not exactly proportional to the lever displacement.



Output torque =7 mN Output speed : 0 - 330 tr/mn