

## Index

1. Application description
2. Designation and pictures of Motovario solution



## 1. Application description

The *high voltage disconnector* is a device for the safety of a plant or an electrical circuit. It has the task of opening a circuit or a line, so physically and visibly perceptible, separating two points electrically connected to each other so there is no more metallic continuity between them. A disconnector can be associated to a *switch*, but this one has a limit in terms of maximum current opening.

The worst condition is represented by short circuit, in which the component is traversed by *short-circuit* current ( $I_{cc}$ ). While the disconnector opening up is guaranteed if and only the crossing current is less than short circuit, the disconnector does not have this limit, being characterized by the capacity to resist "closed" to the passage of short-circuit current.

The disconnector task is to *disconnect safely the voltage from the plant*, in order to enable people to access the system itself for performing work, involving contact with live parts or activity close to the plant.

Today there are different types of disconnector: manually controlled or by motor. The disconnectors are different regarding of their arm movement (Horizontal disconnector, vertical, central break, double-side break, arm pantograph vertical break knee type, earthing switches), but also regards the type of the movement (manually from an operator, by a motor).

## High voltage disconnecter motor movement

Independently from break disconnecter type, the mechanism box positioned beneath each break disconnecter, contains the geared motor for the machine members handling and the control panels. There must be the manual handling of the break disconnecter in case of failure of the geared motor with an handling time fixed at 15 seconds by the main reference Standards.

## 2. Motovario solution

Motovario offers a range of product that can be selected according to the design and the type of the disconnecter, which best suits on the application. The reducer selected is a worm gear reducer, NRV design, size 63 up to 90. Motovario has developed a particularly design of the worm shaft, modifying also the oil seal; it is used a grease lubrication and a particularly linkage on the worm shaft and worm wheel due to the high speed on the input shaft. Usually is used a 4 poles motors, but solutions are possible event with 6 and 8 poles motors in a power range between 0,22 and 0,55 kW. The manually movement, instead, is ensured by a special handle that thanks to the design of the worm shaft can be directly connected to it, so as able to actuate the gearbox without the electric motor.

<b>GEARBOX</b>	Worm gear reducer with an input solid shaft - NRV
<b>Size</b>	063, 075, 090
<b>Special design of the gearboxes</b>	Worm shaft of the gearbox by MTV drawing
	Oil seal with grater internal diameter
<b>MOTOR POWER INSTALLED</b>	Grease lubrication
	Manual movement of the reducer constraining a special crank gear to the hollow protrusion of the worm shaft
<b>Motors power range</b>	Usually 4 poles motors; can be used 6P/8P motors
	0,22 ÷ 0,55 kW

