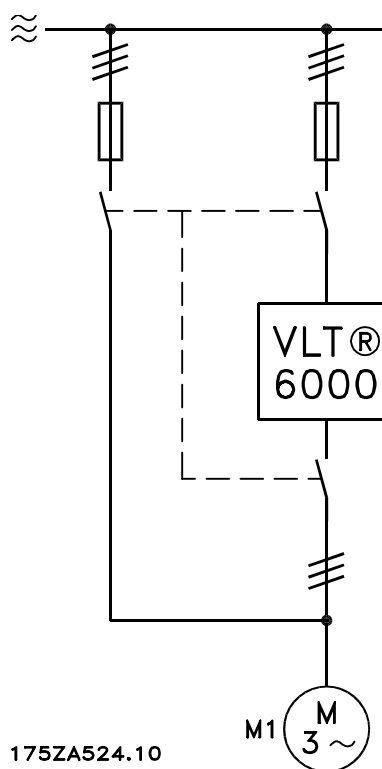


Switching between mains supply and VLT® frequency converter by means of a change-over switch

In certain plants, e.g. pump or ventilation plants, the use of the same motor in two different ways may be expedient:

- A) Connected direct to the mains supply so that the motor is running at a fixed speed.
- B) Connected to a frequency converter so that the speed of the motor is variable.

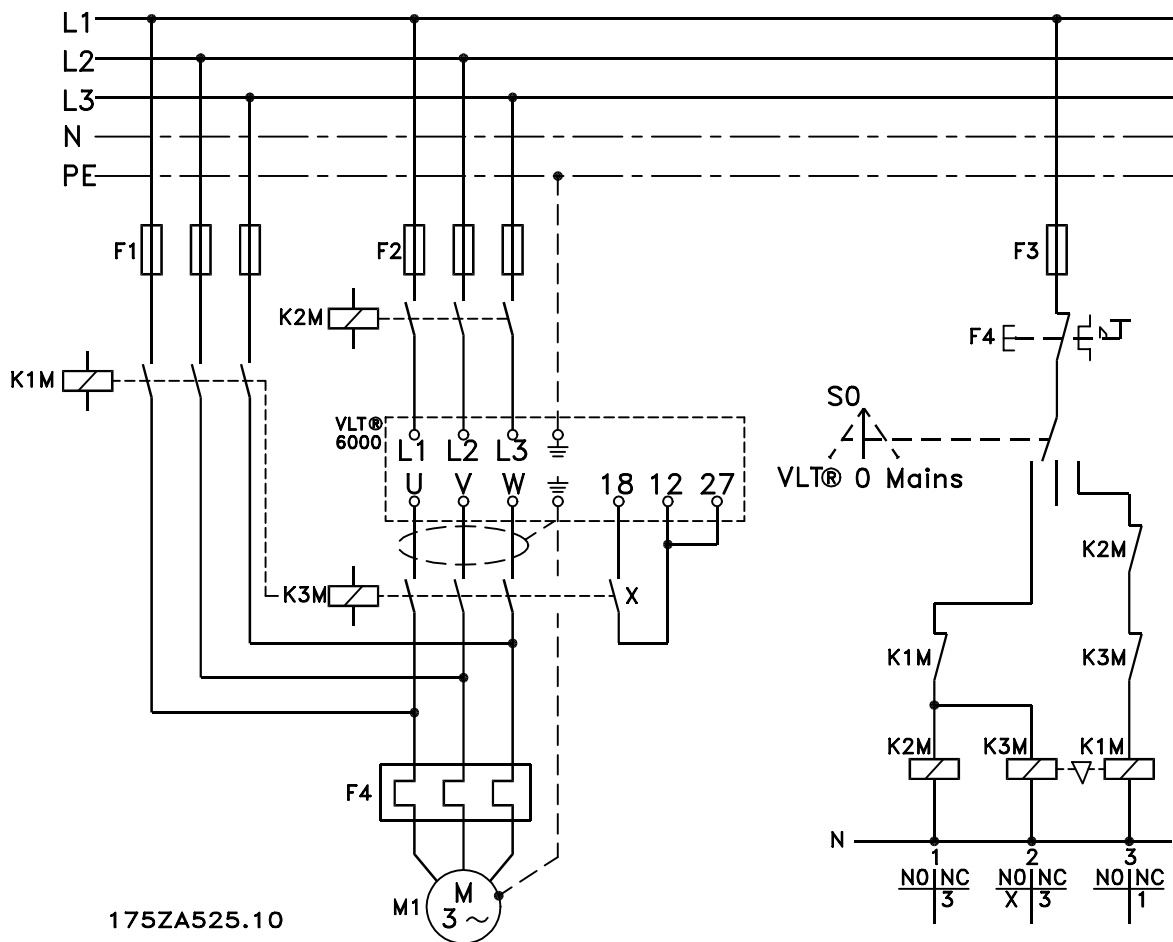
Fig. 1 illustrates how the motor "M1" can be connected either direct to the mains or to a VLT® 6000 frequency converter:



Advantages by switching between mains supply and VLT frequency converter by means of change-over switch

- The possibility of switching between mains operation and operation via VLT frequency converter can be used to increase the reliability of the plant through a redundant system
- Operating on the mains supply, the motor can yield a very high breakaway torque

The diagram below shows how the switchgear can be made:



Mains operation

- **Start:** Turn the switch "S0" from position "0" to position "MAINS". Then the relay "K1M" is energized and the motor starts.
- **Stop:** Turn the switch "S0" back to position "0". The relay "K1M" drops out and the motor stops.

Operation via VLT frequency converter

- **Start:** Turn the switch "S0" to position "VLT". The relays "K2M" and "K3M" are energized and the VLT frequency converter will power up and start the motor using "Flying start". If the motor may not start, when the drive is powered up, then an additional start condition must be set, as described in the operating instructions. It is now possible to control the speed and torque of the motor via the normal control inputs of the frequency converter.
- **Stop:** Turn the switch "S0" back to position "0". Then the relays "K2M" and "K3M" fall and the motor stops.

List of components

- **F1:** 3 motor fuses
- **F2:** 3 fuses for the VLT frequency converter. Size A = according to MG60A202
- **F3:** 1 control current fuse
- **F4:** Thermal relay with stop, type CI
- **K1M:** Contactor, type CI, with one NC auxiliary contacts (NC = Normally closed)
- **K2M:** Contactor, type CI, with one NC auxiliary contact
- **K3M:** Contactor, type CI, with one NC auxiliary contact and a CBNO Code No. 037H0121 (gold plated NO contact) (NO = Normally open)
- **S0:** 1-pole change-over switch with 3 positions

1 mechanical interlock to be placed between "K1M" and "K3M", to prevent that somebody by hand pushes down the contactor bridge.

F2 and K2M can be substituted if it is accepted according to local code of Practicel with a "Circuit Breakers" type CTI. For further information, see Application notes MN500102.

Further information:

Operating instructions VLT 6000 HVAC Code No. MG.60.AX.YY
Motor Control Gear Code No. IK40T202 and MN.90.KX.YY

X = version number
YY = language version