RAMA UNIVERSITY

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FACULTY OF ENGINEERING & TECHNOLOGY

Electrical Machine-ii

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STAR DELTA STARTER

Star-Delta starting

For star, 3 terminals of stator wdg are required.

For delta, 6 terminals are required.

Now TPDT to 2- Delta

Line voltage applied to wdg Motor runs at rated speed

Now make delta Connection.

At starting TPDT to 1, wdg in star Reduced voltage is applied to wdg = $V_L/\sqrt{3}$ Motor rotates.

The starting current is

$$I_{st.y} = V_L / \sqrt{3} z_1$$

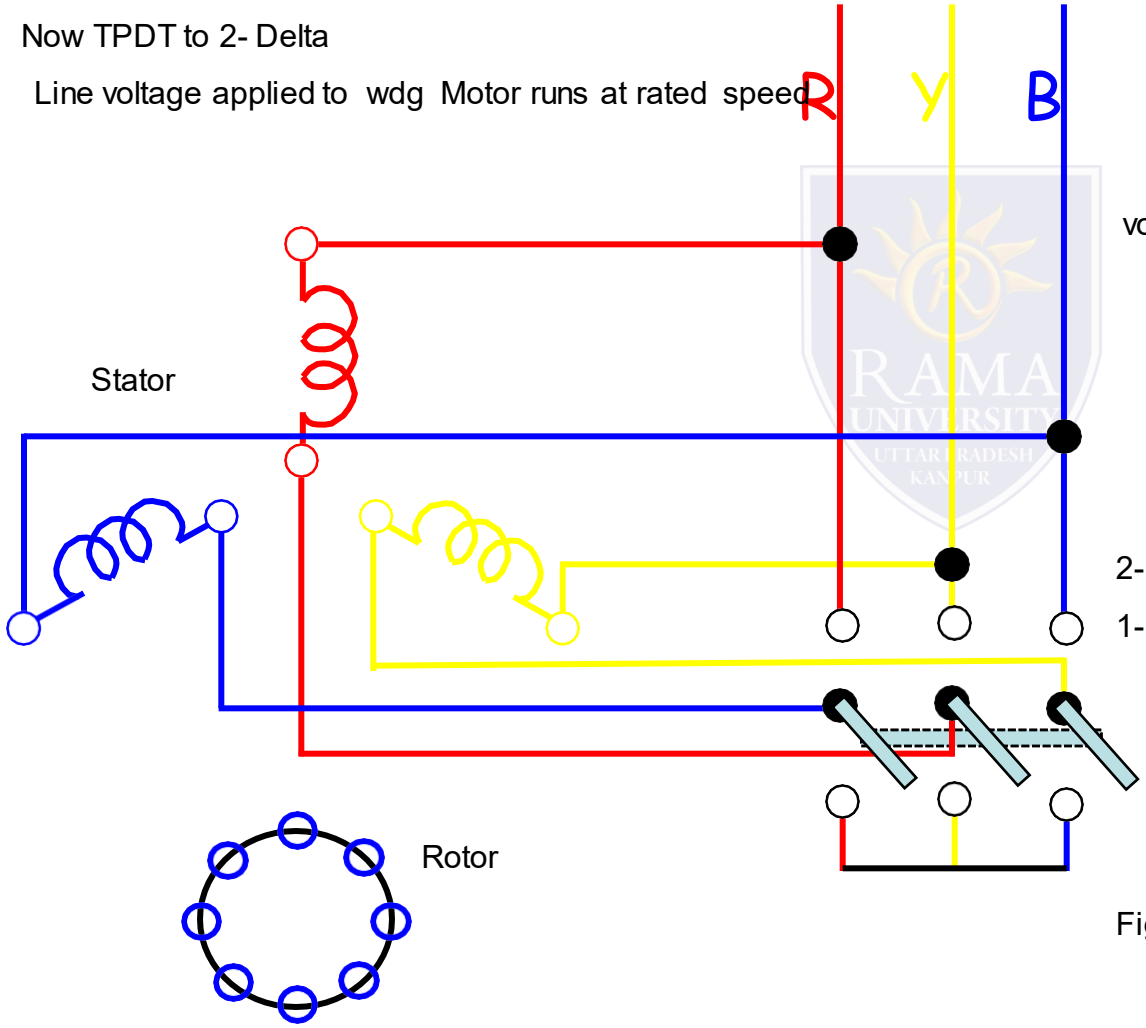

Fig.: Star-Delta starting

DOL(DIRECT-ON-LINE)STARTING

- This method involves direct switching of poly-phase stator on to the supply mains.
- The motor takes starting current of 5 to 7 times its full load current depending upon its size and design.
- Such large current of short duration don't harm the rugged squirrel cage motor, but the high currents may cause objectionable voltage drop in power supply feeding the induction motor
- These large voltage drop causes undesirable dip in the supply line voltage, consequently affecting the other equipments connected to the same supply.

- The relation between the starting torque Ts and full load torque Tf is now obtained .
- Let Is and If be the per phase stator currents drawn from the supply mains corresponding to starting and full load conditions respectively.