Cooling methods for motors

Classification of the cooling methods (IC code) acc. to DIN EN 60034-6 and NEMA MG1 part 6

**IC 01**
Enclosure IP 21- IP 23 (type G...)
**Self-ventilated with integral fan cooling (DP)**
Cooling air is blown through the motor by a fan mounted on the shaft.

**IC 06**
Enclosure IP 21- IP 23 (type G..I)
**Separate ventilation with radial fitted fan unit (FV)**
Cooling air is blown through the motor by a separately excited fan motor. The inlet side may be equipped with an air filter.

**IC 17**
Enclosure IP 21- IP 23 (type G..)
**Single pipe ventilated (FV)**
Cooling air is blown across the motor through the pipe connection with a separate customer provided external blower fan and discharges on the other side to open space.

**IC 410**
Enclosure IP 44 - IP 55 (type G..Z)
**Totally-enclosed nonventilated (TENV)**
Cooling without using a fan, only by natural ventilation and radiation on the totally enclosed motor surface.

**IC 411**
Enclosure IP 44 - IP 55 (type G..ZE)
**Totally-enclosed fan-cooled (TEFC)**
Cooling air is blown over the totally enclosed motor surface by a fan mounted on the shaft.

**IC 416**
Enclosure IP 44 - IP 55 (type G..ZO)
**External surface cooling (TEFV)**
Cooling air is blown over the totally enclosed motor surface by an separately excited fan motor.

**IC 37**
Enclosure IP 44 - IP 55 (type G..Z)
**Double pipe ventilated (TEPV)**
Cooling air is blown across the motor through a pipe connecting by means of a separate customer provided external blower fan and discharges on the other side’s pipe connecting.