

Motors

As a standard, Auma multi-turn actuators are equipped with 3 phase induction motors. Auma motors are class F insulated and withstand winding temperature up to 140°C.

The motors are used for short time duty (S2-15 min. or S4-25% as per IS 12824) and provide approximately three times rated torque for short duration. The size of the motor is smaller compared to continuous duty motor S1 of same output power. This results in reduced inertia of the rotor and therefore less overshoot after switching off the motor. Auma motors are designed for enclosure protection class IP 55 / IP 67 / IP 68 when mounted on the actuator (See Technical data for motor). All motor cables are brought to terminal compartment cover from inside of the actuator thus avoiding terminal box.

Single Phase AC Motors

Auma actuators can be supplied with single phase AC motor. The required capacitor is fitted in the terminal compartment cover.

DC Motors

Auma actuators are also available with DC motors. These motors operate on 24 V, 48 V, 110 V, 220 V or 440 V DC supply.

AC Motors with Other Voltages and Frequency

Three phase induction motors are available in wide range of operating voltages from 220 V to 690 V and operating frequency of 50 or 60 Hz.

Technical Data - Motor						
	3 ph AC Motor			1 ph AC Motor**		DC Motor*
Voltages / Frequency	Std	50 Hz	415 V	50 Hz	220 V - 240 V	440 V, 220 V, 110 V, 48 V, 24 V
	Optional	50 Hz / 60 Hz	220 V, 380 V, 400 V, 415 V, 440 V, 460 V, 480 V, 500 V, 550 V, 690 V			
Permissible Variation in Voltage	± 10%			± 10%		± 10%
Motor Standard	IS 325			IS 996		IS 4722
Mounting	C Type Flange, B14, IS 2223					
Enclosure Protection	IP 67 or IP 68 after mounting					IP 55 after mounting
Type of Cooling	Surface Cooled					
Insulation Class IS 1271	Std. : F Class Optional : H Class					
Starting	Direct On Line					Direct On Line (Not applicable for above 4.0 kW rating motors)
Type of Duty	S2-15 min. or S4-25% as per IS 12824					
Direction of Rotation	Bi-directional					
Motor Protection	3 Thermoswitches			2 Thermoswitches		4 Thermoswitches

* For detailed information on DC motors, please contact Auma.

** 1 ph AC motor for given voltages is available only for 0.06 / 0.12 / 0.25 kW for 1400 rpm.

Motor Protection

Thermoswitch

Motor winding may get overheated if the actuator is run beyond rated duty or if the rotor is stalled for considerable longer time or if too high ambient temperature is encountered. In order to protect the motor against overheating, thermoswitches are embedded in the windings of three phase, single phase AC motors and DC motors. When integrated into the control circuits, they will protect the motor against damage due to excessive winding temperature.

The thermoswitches interrupt the control circuit as soon as winding temperature of 140°C is exceeded. After cooling down to a temperature of approximately 110°C, the actuator can be switched on once again.

Technical Data - Thermoswitch	
AC Voltage	Switch Rating
250 V AC Cos Ø=1	2.5 A
250 V AC Cos Ø=0.6	1.6 A
Tripping Temp. 140°C	
Reset Temp. 90 - 110°C	

Note: The motor protection device must be integrated into the controls, otherwise warranty for motor becomes null & void.

Thermistors

Another way of protecting the motor from burnout due to overheat is through Thermistors. Thermistors are temperature sensors, which are basically of two types:

- PTC (Positive Temperature Coefficient)
- NTC (Negative Temperature Coefficient)

Normally PTC thermistors are used, which has low resistance under normal conditions and whose resistance increases to a very high value at critical temperature. The response time of thermistor is very less, to the tune of <10 sec. It operates within ±1°C of the rated temperature.

The PTC thermistors are embedded in the motor windings. One set of thermistor consists of 3 thermistors connected in series (1 thermistor per phase). These thermistors are to be connected to Thermistor Protection Unit (TPU) whose scope of

supply is to be confirmed. Whenever the tripping temperature is attained it cuts off the supply and resets at pre-determined value.

Technical Data - TPU	
Supply Voltage	110 / 230 / 380 / 415 V AC ± 10%, 50 Hz 24 V DC ± 10%
Input	Max. 6 numbers PTC thermistors
Ambient Temperature	-5°C to + 55°C
Output Contacts	2 change over (2 NO + 2 NC) potential free contacts
Rated at	4 Amps 230 V
Operational life	1 million on / off operation

Note: The technical data furnished is for reference only. Confirm with works before placing an order. Scope of supply of TPU is to be confirmed.