

# Synchronous Motors – Rotational UFR

## UFR1/UFR3/UFR4

Dimensions (mm)	∅ 52 x 28 / ∅ 52 x 42 / ∅ 52 x 56
Voltage (V)	24–230
Speed (rpm.) 50 Hz	500
60 Hz	600
Pole number	12
Running torque (cNm)	
50 Hz	2.8 / 3.7 / 5.3
60 Hz	2.6 / 3.1 / 4.7
Power output (W)	
50 Hz	1.5 / 1.9 / 2.8
60 Hz	1.6 / 2 / 3
Gear combination	A, D, M, B, F, V, J



**RoHS  
Compliant**

## Standard Data

Climatic class	wide-spread according to IEC 721, part 2-1
Ambient temperature operation	°C -15...+60
Ambient temperature storage	°C -20...+100
Thermal resistance at f=0 R <sub>therm</sub>	11 K/W (UFR1), 7 K/W (UFR4)
Thermal class	A according to IEC 85
Approval	Standard/UL/CSA
Mounting	any position
Electrical connection	wire
Protection	IP 40 according to DIN 40 050 / DIN EN 60034-5
Weight	180 g (UFR1), 370 g (UFR4)
Rotor stalling	motor can be stopped when voltage is applied, without being overheated
Bearings	sintered bronze, self-lubricating
Surge voltage strength	according to EN 60 034-1/EN 60-335-1

## Order Reference – How to Build a Part Number

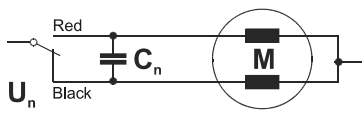
Type	Synchronous Motor		UFR	1	0	N	24 V/50 Hz	R	N
Configuration	1	Two coils							
	3	Three coils							
	4	Four coils							
Rotor shaft, mounting	0	center bolt 8 mm, shaft 3.0 mm, clip	3	center bolt 8 mm, shaft 3.0 mm, screw plate					
	1	center bolt 8 mm, shaft 2.0 mm, clip	4	center bolt 8 mm, shaft 2.0 mm, screw plate					
	2	center bolt 8 mm, shaft 1.5 mm, clip	5	center bolt 8 mm, shaft 1.5 mm, screw plate					
Approval	N	Approval Standard							
	UL	Approval UL							
	CSA	Approval UL/CSA							
Voltage/Frequency	See page 23								
Direction	reversible								
Cable	N	wire 150 mm (other on request)							

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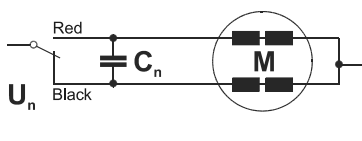
## Technical Data

UFR1	Rated frequency	Hz	50	60		
	Speed n	rpm	500	600		
	Power output $P_{\text{mech}}^*$	W	1.5	1.6		
	Running torque $M_n^*$	cNm	2.8	2.6		
	Power consumption $P_{\text{el}}^*$	W	3.3	3.6		
	Detent torque $M_S$	cNm	0.46			
	Rotor inertia $J_R$	gcm <sup>2</sup>	14.2			
	Capacitors at Rated voltage $U_N$	V	24	48	110	230
	Operation capacitor $C_{50}$	μF/VAC	10/45	2.7/90	0.47/200	0.1/400
	Operation capacitor $C_{60}$	μF/VAC	8.2/45	2.2/90	0.39/200	0.082/440
UFR3	Rated frequency	Hz	50	60		
	Speed n	rpm	500	600		
	Power output $P_{\text{mech}}^*$	W	1.9	2		
	Running torque $M_n^*$	cNm	3.7	3.1		
	Power consumption $P_{\text{el}}^*$	W	6.1	5.1		
	Detent torque $M_S$	cNm	0.54			
	Rotor inertia $J_R$	gcm <sup>2</sup>	17			
	Capacitors at Rated voltage $U_N$	V	24	48	110	230
	Operation capacitor $C_{50}$	μF/VAC	39/24	10/50	1.8/110	0.39/240
	Operation capacitor $C_{60}$	μF/VAC	27/24	6.8/50	1.2/110	0.27/240
UFR4	Rated frequency	Hz	50	60		
	Speed n	rpm	500	600		
	Power output $P_{\text{mech}}^*$	W	2.8	3		
	Running torque $M_n^*$	cNm	5.3	4.7		
	Power consumption $P_{\text{el}}^*$	W	6.4	6.9		
	Detent torque $M_S$	cNm	0.8			
	Rotor inertia $J_R$	gcm <sup>2</sup>	24.2			
	Capacitors at Rated voltage $U_N$	V	24	48	110	230
	Operation capacitor $C_{50}$	μF/VAC	18/45	7/90	0.82/200	0.22/440
	Operation capacitor $C_{60}$	μF/VAC	15/45	3.9/90	0.68/200	0.18/440
Tolerance of voltage	Standard power supply system + 10% ... - 10%					
Winding temperature $T_{\text{max}}$	105°C					
Duty cycle	100%					
Direction of rotation	reversible					
* at rated voltage						

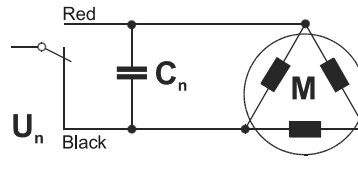
Connection sheet UFR1 Parallel circuit



UFR4 Parallel circuit



UFR3 Parallel circuit

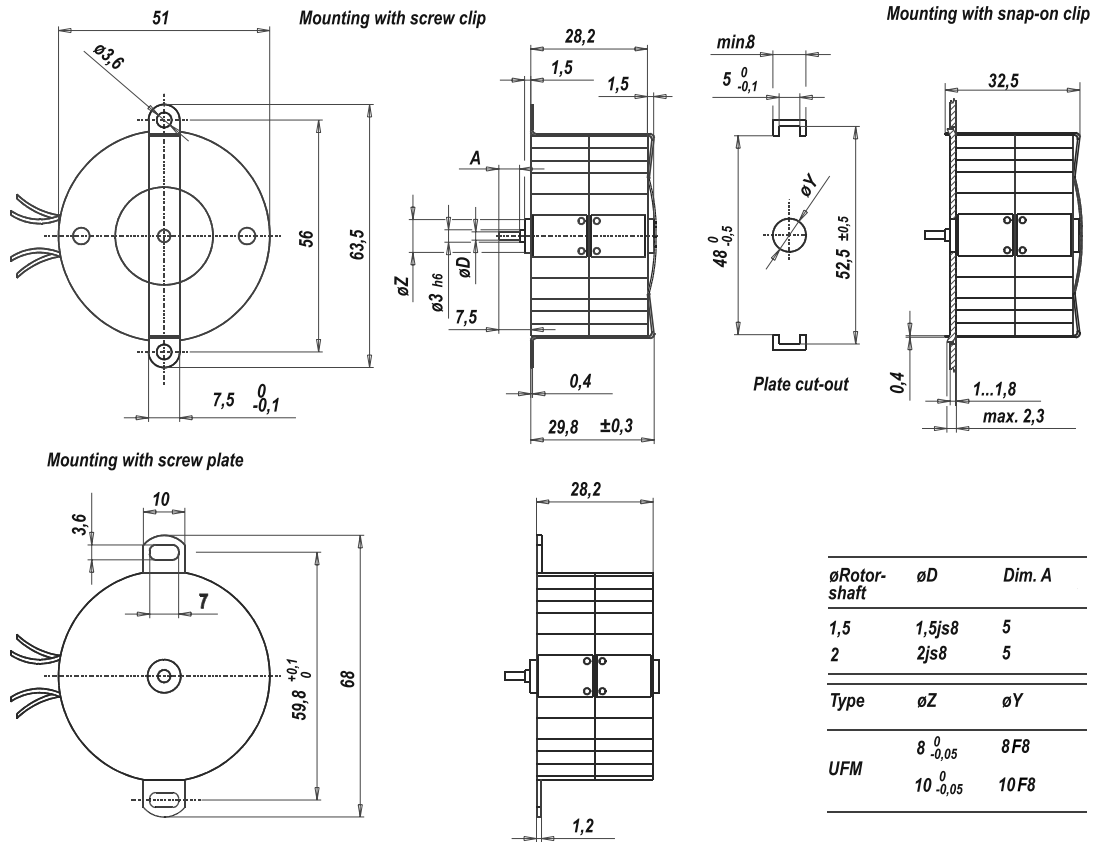


Red = clockwise rotation  
Black = counter-clockwise rotation

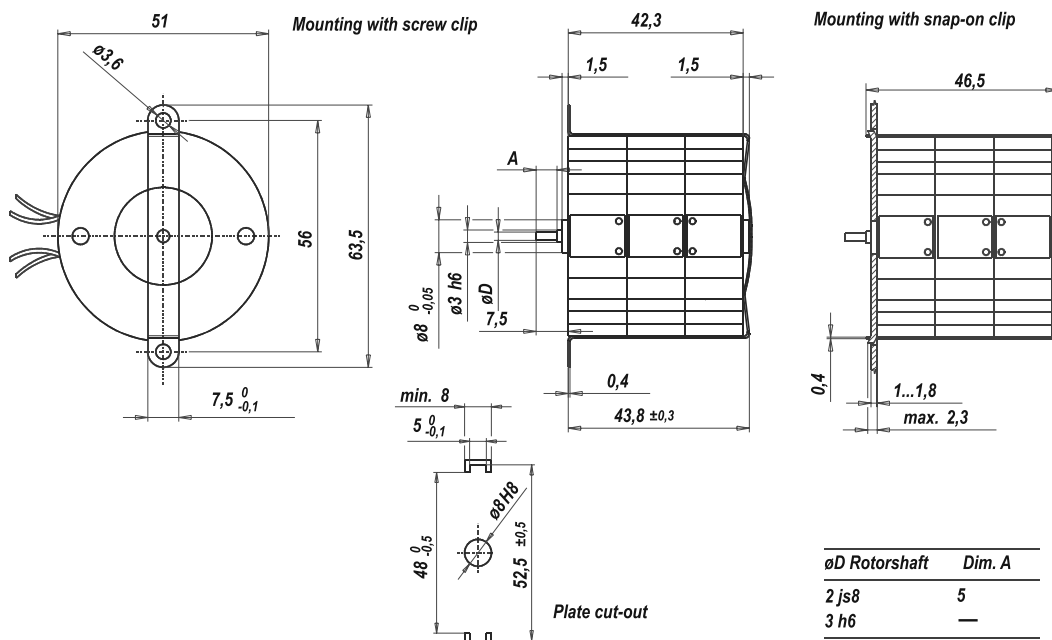
# Synchronous Motors – Rotational UFR

Dimensions (mm)

UFR1



UFR3



# Synchronous Motors – Rotational UFR

Dimensions (mm)

UFR4

