

2.9 Motors

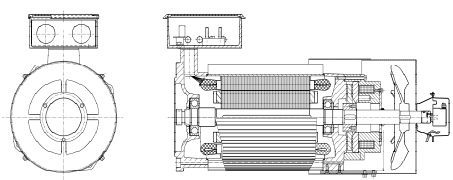
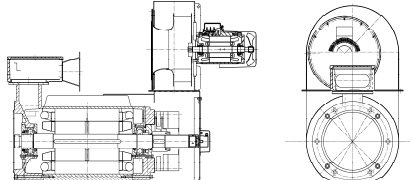
2.9.1 Hoisting motors

Table 27. Technical information of VT9 hoisting motor.

Motor type		MF16ZR200N (VT9)	
Speed control		Inverter	
Ventilation		Self circulation	
Motor voltage	[V]	400	460
Frequency	[Hz]	48	55
Connection		Y	Y
Motor code		YD	YD
Synchronous speed	[rpm]	1440	1650
Brake torque	[Nm]	500	500
Starting torque	[Nm]	380	380
Maximum torque	[Nm]	700	700
80 % of max. torque	[Nm]	560	560
Speed at 80 % torque	[rpm]	1320	1535
Current at 80 % torque	[A]	180	180
Brake inertia	[kgm ²]	0.015	0.015
Inertia without brake	[kgm ²]	0.155	0.155
Weight	[kg]	220	220
No-load current		32	32
Stator resistance at 20 [°C]		[Ω]	0.19
S3-40 %	Speed	[rpm]	1390
	Power	[kW]	44
	Current	[A]	85
	Power factor		0.83
	Efficiency		0.91
S3-60 %	Speed	[rpm]	1400
	Power	[kW]	37
	Current	[A]	71
	Power factor		0.82
	Efficiency		0.92
	Short time duty	[min]	60
Encoder type		NM701NR3 (600 ppr)	NM701NR3 (600 ppr)
Brake type		NM40410NR2	NM40410NR2
Insulation class		F/H ¹⁾	F/H ¹⁾
Protection class		IP55	IP55
Cut off bi-metal switch		[°C]	170

Option alarm bi-metal switch	[°C]	150	150
Option heater	[V]	230/115	230/115
Temperature sensor		NTC	NTC
1) Insulation class F/H (temperature rise class F and insulation class H).			

Table 28. Technical information of hoisting motors.

						
Motor type		MF18XR200 (VT10)		MF22LR200 (VT11)		
Speed control		Inverter		Inverter		
Ventilation		Self circulation		Auxiliary fan ²⁾		
Motor voltage	[V]	400	460	400	460	
Frequency	[Hz]	48	55	48	55	
Connection		Y	Y	Y	Y	
Motor code		YD	YD	YE	YE	
Synchronous speed	[rpm]	1440	1650	1440	1650	
Brake torque	[Nm]	800	800	1300	1300	
Starting torque	[Nm]	600	600	1000	1000	
Maximum torque	[Nm]	1200	1200	2400	2400	
80 % of max. torque	[Nm]	960	960	1920	1920	
Speed at 80 % torque	[rpm]	1320	1530	1350	1565	
Current at 80 % torque	[A]	280	280	525	525	
Brake inertia	[kgm ²]	0.014	0.014	0.044	0.044	
Inertia without brake	[kgm ²]	0.305	0.305	0.65	0.65	
Weight	(kg)	330	330	880	880	
No-load current	[A]	40	40	70	70	
Stator resistance at 20 °C	[Ω]	0.10	0.10	0.035	0.035	
S3-60 %	Speed	[rpm]	1400	1610	1410	1620
	Power	[kW]	60	69	94	107
	Current	[A]	109	109	170	170
	Power factor		0.86	0.86	0.86	0.86
	Efficiency		0.91	0.91	0.94	0.94
	Short time duty	[min]	60	60	60	60
Encoder type		NM701NR3 (600 ppr)	NM701NR3 (600 ppr)	NM701NR3 (600 ppr)	NM701NR3 (600 ppr)	
Brake type		NM40420NR2	NM40420NR2	NM40430NR2	NM40430NR2	
Insulation class		F/H ¹⁾	F/H ¹⁾	F/H ¹⁾	F/H ¹⁾	
Protection class		IP55	IP55	IP55	IP55	
Cut off bi-metal switch	[°C]	170	170	170	170	
Option alarm bi-metal switch	[°C]	150	150	150	150	
Option heater	[V]	230/115	230/115	230/115	230/115	
<p>1) Insulation class F/H (temperature rise class F and insulation class H).</p> <p>2) See table for technical information of the cooling fan.</p>						