

CONTINUOUS DUTY

**4 poles**  
**50 Hz - 1500 rpm / 60 Hz - 1800 rpm**

AMBIENT TEMPERATURE			40°C	WINDING DATA										Winding code	M0
TEMPERATURE RISE			H											Number of leads	12
INSULATION CLASS			H											Winding pitch	2/3
POWER FACTOR			0,8												
FREQUENCY			Hz	50 Hz				60 Hz							
VOLTAGE		Connections	Star series Star parallel	V	380	400	415	440	380	416	440	460	480		
					190	200	208	220	190	208	220	230	240		
RATING POWER			kVA	19,0	20,0	20,0	20,0	20,3	21,8	23,1	23,4	25,0			
				kW	15,2	16,0	16,0	16,0	16,2	17,4	18,5	18,7	20,0		
EFFICIENCY [%] @ 0,8 p.f.				4/4	86,1	87,4	87,0	86,7	85,7	86,3	86,8	87,6	88,2		
				3/4	88,3	88,8	88,8	88,6	88,2	88,5	88,9	89,4	89,8		
				2/4	89,4	89,3	89,2	89,2	89,3	89,5	89,9	89,9	90,1		
EFFICIENCY [%] @ 1 p.f.				4/4	88,8	89,9	89,6	89,3	88,5	89,0	89,4	90,0	90,5		
				3/4	90,7	91,1	91,0	90,9	90,5	90,8	91,1	91,5	91,8		
				2/4	91,5	91,4	91,4	91,3	91,4	91,6	91,9	92,0	92,1		
SHORT CIRCUIT RATIO			SCR	0,44	0,46	0,50	0,56	0,34	0,38	0,40	0,43	0,44			
REACTANCES [%]															
Direct axis synchronous			X <sub>d</sub>	307	292	271	241	304	353	334	310	304			
Quadrature axis synchronous			X <sub>q</sub>	173	164	152	136	221	198	188	174	171			
Direct axis transient			X' <sub>d</sub>	30,3	28,8	26,8	23,8	38,9	34,8	33,0	30,6	30,0			
Direct axis subtransient			X'' <sub>d</sub>	14,3	13,6	12,6	11,2	18,4	16,4	15,6	14,4	14,2			
Quadrature axis subtransient			X'' <sub>q</sub>	17,8	16,9	15,7	14,0	22,8	20,4	19,4	17,9	17,6			
Negative sequence			X <sub>2</sub>	16,0	15,2	14,1	12,6	20,5	18,4	17,4	16,1	15,8			
Zero sequence			X <sub>0</sub>	2,9	2,8	2,6	2,3	3,8	3,4	3,2	3,0	2,9			
TIME CONSTANTS [s]															
Open circuit			T' <sub>do</sub>	0,4											
Transient			T' <sub>d</sub>	0,04											
Subtransient			T'' <sub>d</sub>	0,008											
Armature			T <sub>a</sub>	0,004											

### MECHANICAL CHARACTERISTICS

D-end bearing/Lubrication	6310 2RS C3 / Prelubricated
N-end bearing/Lubrication	6309 2RS C3 / Prelubricated
Overspeed [r.p.m.]	2250
Inertia (J) [kgm <sup>2</sup> ]	Refer to B34 construction 0,124
Weight [kg]	Refer to B34 construction 140
Method of cooling	IC01
Cooling air required [m <sup>3</sup> /s] @ 50/60 Hz	0,11 / 0,14
Degree of protection	IP23
Types of construction available	B2 (SAE) - IM B34
Direction of rotation (Standard)	CW

### OTHER DATA

Phase resistance [Ω] @ 20 °C - Star series	0,79
Overloads	10% for 1 hour every 12 hours
3-phase short circuit sustained current	≥ 300 % (3 I <sub>n</sub> ) with auxiliary winding
Voltage regulation accuracy	± 1 % I <sub>n</sub> steady state condition
Radio interference	EN 55011 - Class B Group 1
Wave form THF	< 2%
Total harmonic content	< 2% - At no load

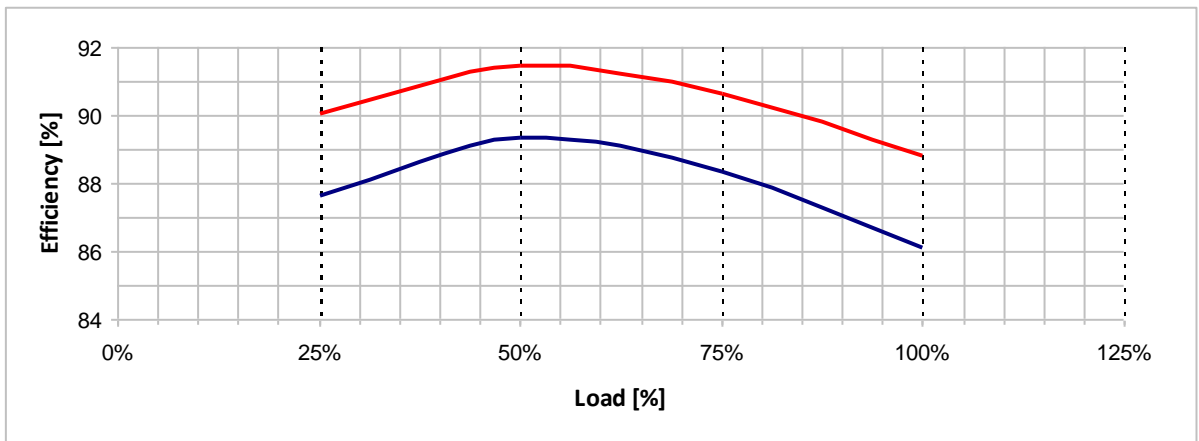
### STANDARDS

IEC 60034-1; CEI 2-3; BS 4999-5000; VDE 0530; NF 51-100,111; OVE M-10, NEMA MG 1.22.
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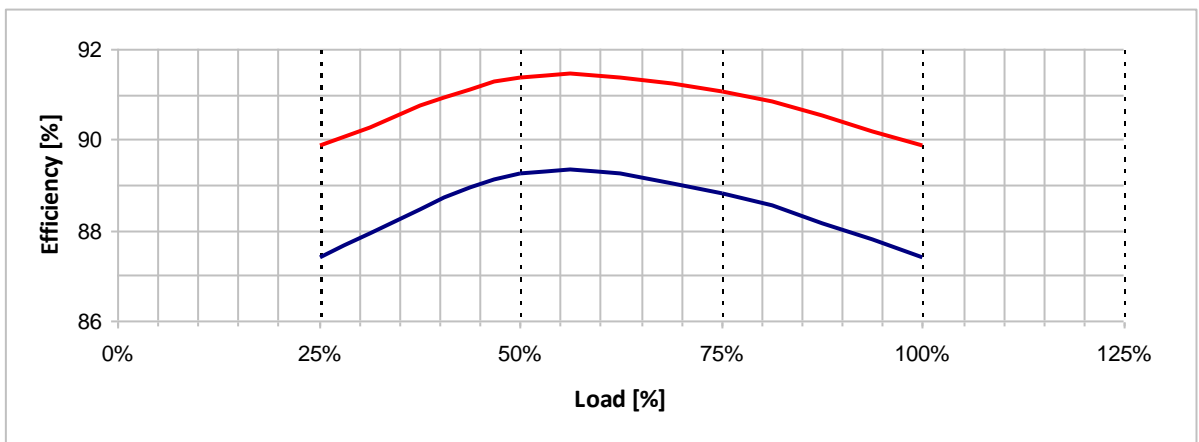
**Typical efficiency curves**

**50 Hz - 1500 rpm**

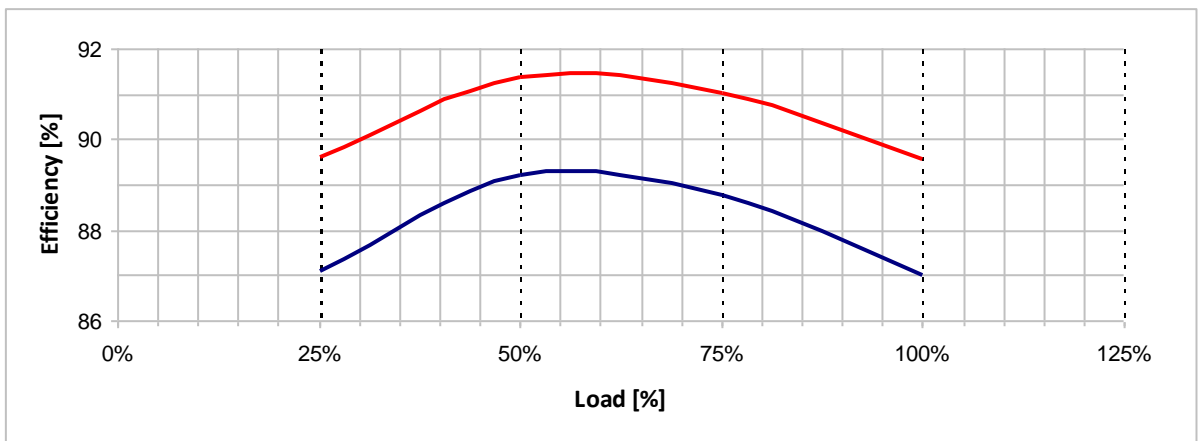
**380 V**



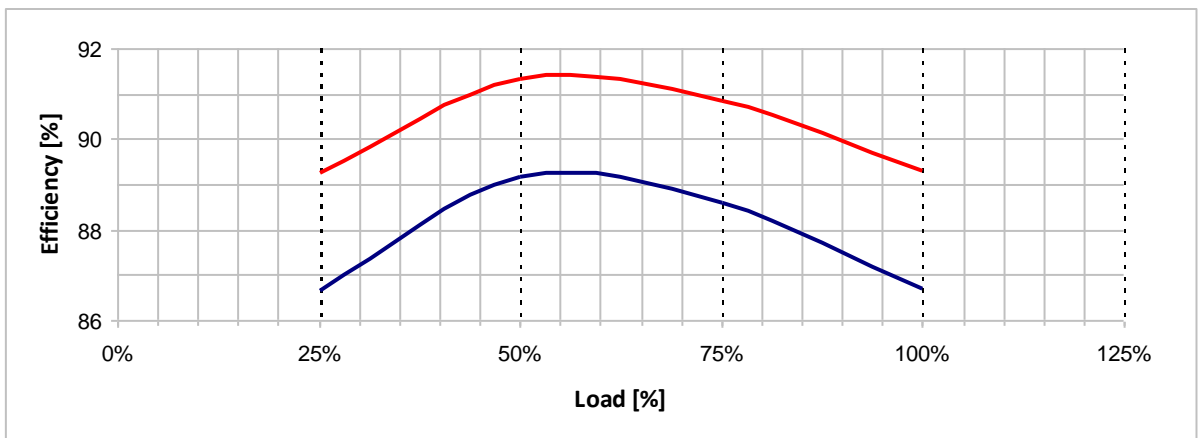
**400 V**



**415 V**



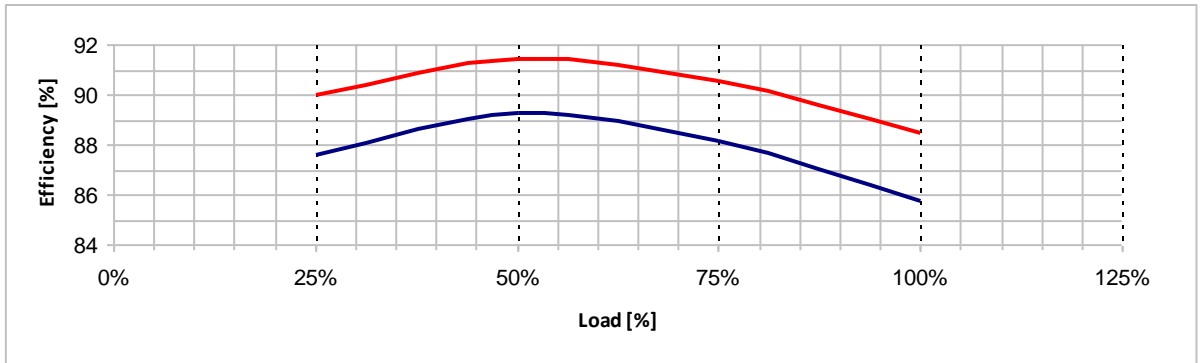
**440 V**



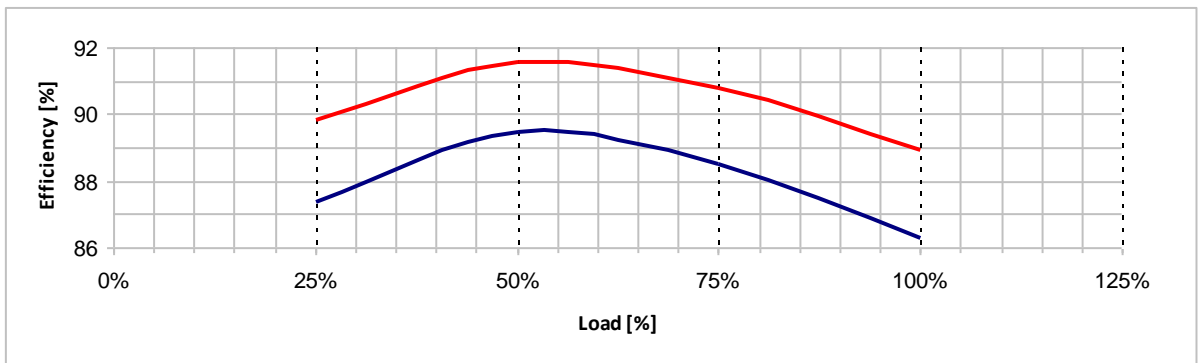
**Typical efficiency curves**

**60 Hz - 1800 rpm**

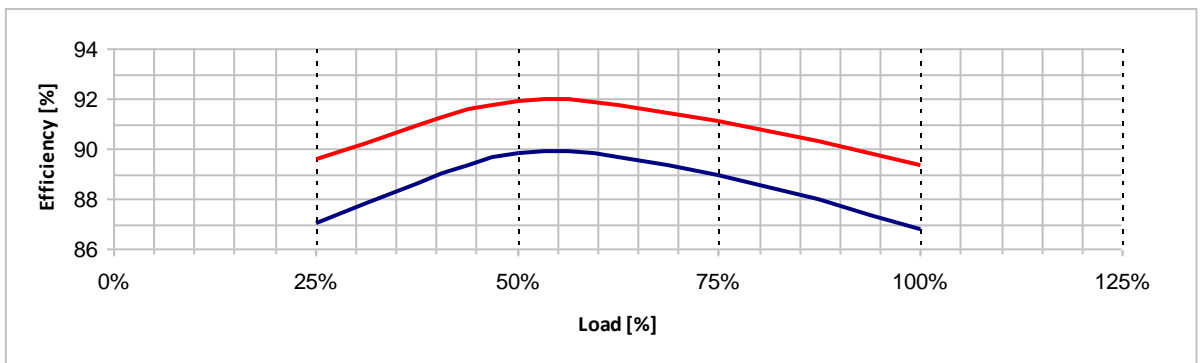
**380 V**



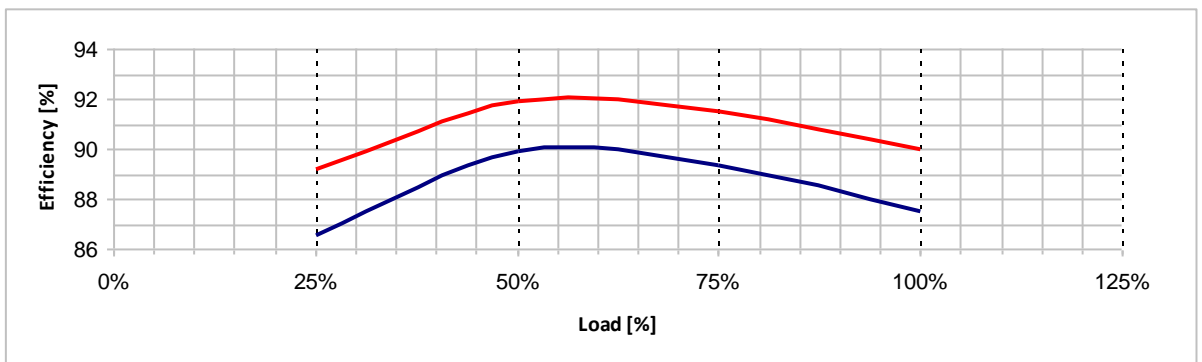
**416 V**



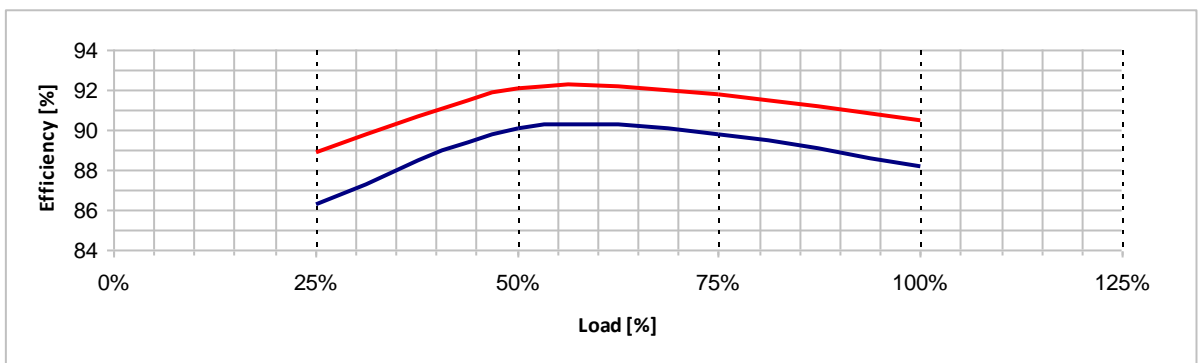
**440 V**



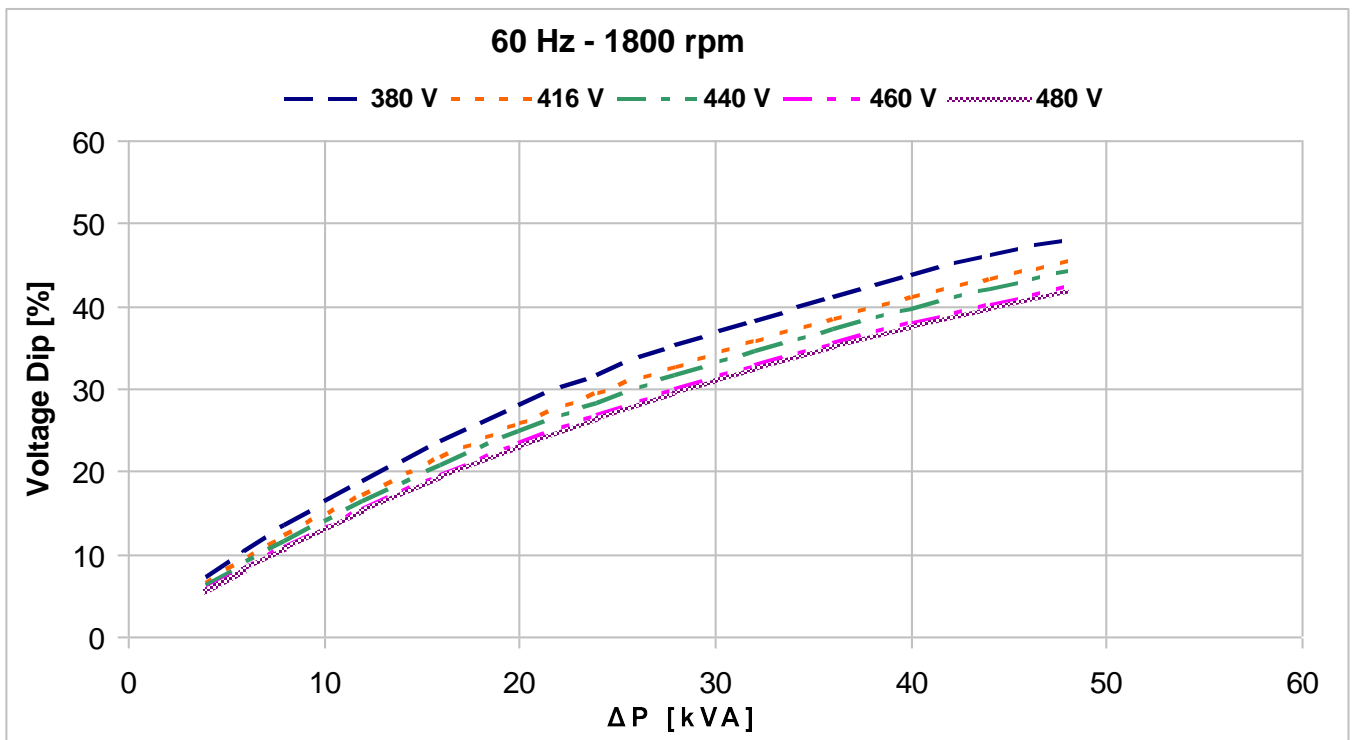
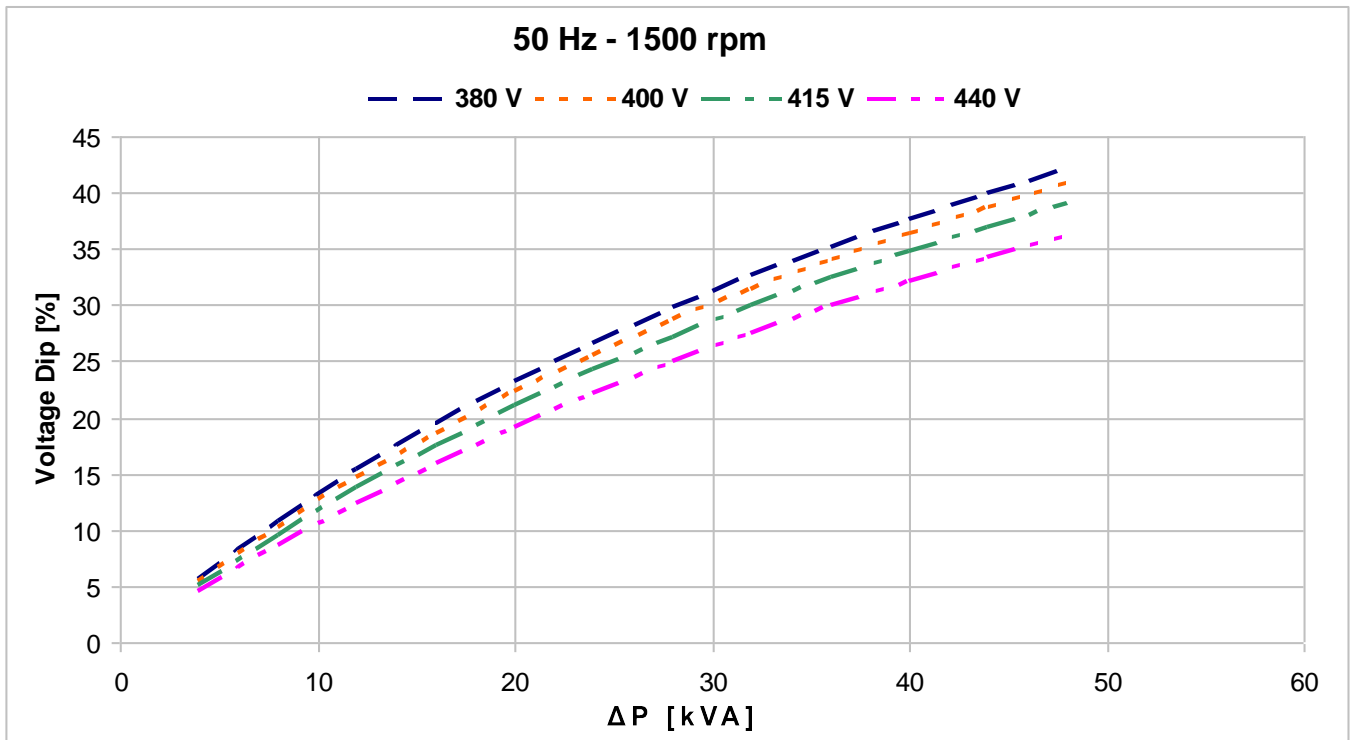
**460 V**



**480 V**



### Locked rotor motor starting curves (\*)



$$\Delta P = P_n \times \frac{I_s/I_n}{\cos \varphi_n \times \eta_n}$$

(\*): A coefficient of 0,85 must be applied to the voltage dip if the load has a power factor equal or greater than 0,8.