MarelliGenerators®

**THREE PHASE SYNCRONOUS GENERATOR**

# MJB 250 MA4

**CONTINUOUS DUTY**

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

| | | | |
|---|---|---|---|
| **AMBIENT TEMPERATURE** | **40°C** | **WINDING DATA** | |
| **TEMPERATURE RISE** | **H** | Winding code | **M0** |
| **INSULATION CLASS** | **H** | Number of leads | **12** |
| **POWER FACTOR** | **0,8** | Winding pitch | **2/3** |

| **FREQUENCY** | | **Hz** | **50 Hz** | | | | **60 Hz** | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **VOLTAGE** Connections | Star series | **V** | **380** | **400** | **415** | **440** | **380** | **416** | **440** | **460** | **480** |
| | Star parallel | | **190** | **200** | **208** | **220** | **190** | **208** | **220** | **230** | **240** |
| **RATING POWER** | | **kVA** | **165** | **165** | **165** | **165** | **170** | **175** | **185** | **195** | **205** |
| | | ***kW*** | ***132*** | ***132*** | ***132*** | ***132*** | ***136*** | ***140*** | ***148*** | ***156*** | ***164*** |
| **EFFICIENCY [%] @ 0,8 p.f.** | | **4/4** | 92,5 | 92,9 | 92,8 | 92,7 | 91,7 | 92,2 | 92,4 | 92,6 | 93,6 |
| | | **3/4** | 93,0 | 93,2 | 93,1 | 93,0 | 92,7 | 93,1 | 93,1 | 93,3 | 93,8 |
| | | **2/4** | 93,2 | 93,1 | 93,0 | 92,8 | 93,1 | 93,2 | 93,3 | 93,4 | 93,4 |
| **EFFICIENCY [%] @ 1 p.f.** | | **4/4** | 94,0 | 94,4 | 94,3 | 94,2 | 93,4 | 93,8 | 94,0 | 94,1 | 94,9 |
| | | **3/4** | 94,4 | 94,6 | 94,5 | 94,5 | 94,2 | 94,5 | 94,6 | 94,7 | 95,1 |
| | | **2/4** | 94,6 | 94,5 | 94,5 | 94,3 | 94,5 | 94,6 | 94,7 | 94,8 | 94,8 |
| **SHORT CIRCUIT RATIO** | | SCR | 0,42 | 0,47 | 0,51 | 0,57 | 0,34 | 0,40 | 0,42 | 0,44 | 0,45 |
| **REACTANCES [%]** | | | | | | | | | | | |
| Direct axis synchronous | | Xd | 361 | 326 | 303 | 269 | 338 | 384 | 362 | 350 | 338 |
| Quadrature axis synchronous | | Xq | 201 | 181 | 168 | 150 | 248 | 213 | 201 | 194 | 187 |
| Direct axis transient | | X'd | 31,7 | 28,6 | 26,6 | 23,6 | 39,2 | 33,7 | 31,8 | 30,7 | 29,6 |
| Direct axis subtransient | | X"d | 13,3 | 12,0 | 11,1 | 9,9 | 16,4 | 14,1 | 13,3 | 12,9 | 12,4 |
| Quadrature axis subtransient | | X"q | 15,3 | 13,8 | 12,8 | 11,4 | 18,9 | 16,2 | 15,3 | 14,8 | 14,3 |
| Negative sequence | | $X_2$ | 14,3 | 12,9 | 12,0 | 10,7 | 17,7 | 15,2 | 14,3 | 13,8 | 13,4 |
| Zero sequence | | $X_0$ | 3,0 | 2,8 | 2,6 | 2,3 | 3,8 | 3,2 | 3,1 | 2,9 | 2,8 |
| **TIME CONSTANTS [s]** | | | | | | | | | | | |
| Open circuit | | T'do | 0,95 | | | | | | | | |
| Transient | | T'd | 0,09 | | | | | | | | |
| Subtransient | | T"d | 0,011 | | | | | | | | |
| Armature | | $T_a$ | 0,012 | | | | | | | | |

### MECHANICAL CHARACTERISTICS

| | | |
|---|---|---|
| D-end bearing/Lubrication | | 6218 2RS C3 / Prelubricated |
| N-end bearing/Lubrication | | 6313 2Z C3 / Prelubricated |
| Overspeed [r.p.m.] | | 2250 |
| Inertia (J) [kgm2] | Refer to B34 construction | 1,41 |
| Weight [kg] | Refer to B34 construction | 530 |
| Method of cooling | | IC01 |
| Cooling air required [m3/s] @ 50/60 Hz | | 0,42 / 0,52 |
| 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 | 0,032 |
| Overloads | 10% for 1 hour every 12 hours |
| 3-phase short circuit sustained current | ≥ 300 % (3 In) with auxiliary winding |
| Voltage regulation accuracy | ± 0,5 % In 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.

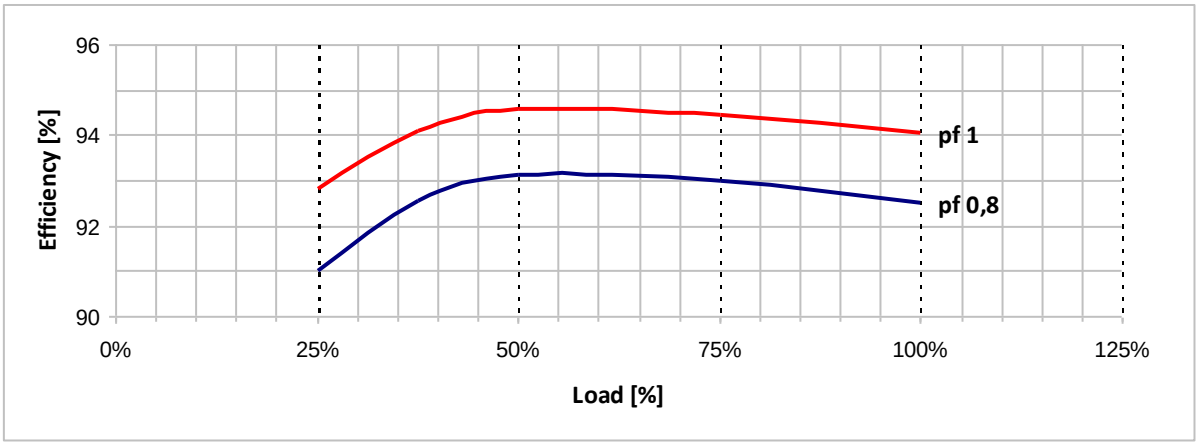
THREE PHASE SYNCRONOUS GENERATOR

# MJB 250 MA4

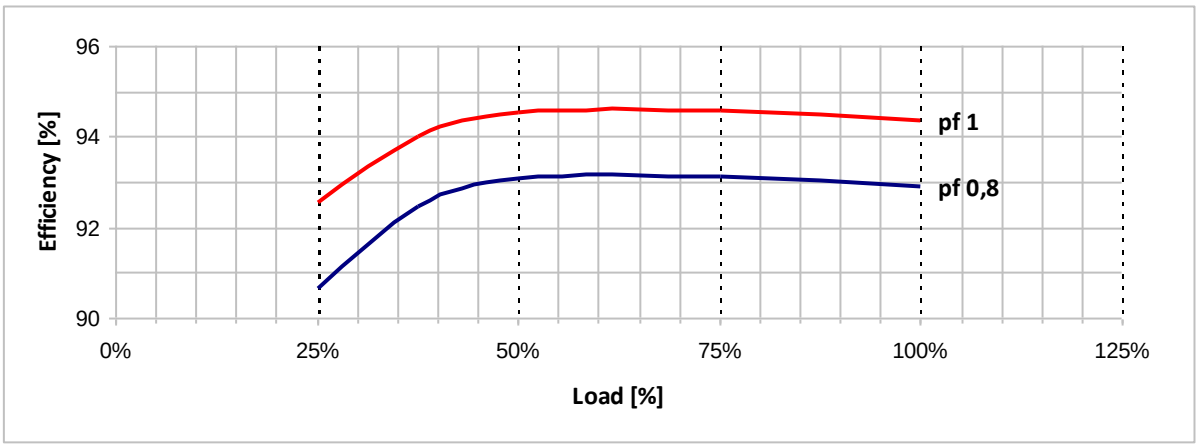
## Typical efficiency curves

## 50 Hz - 1500 rpm

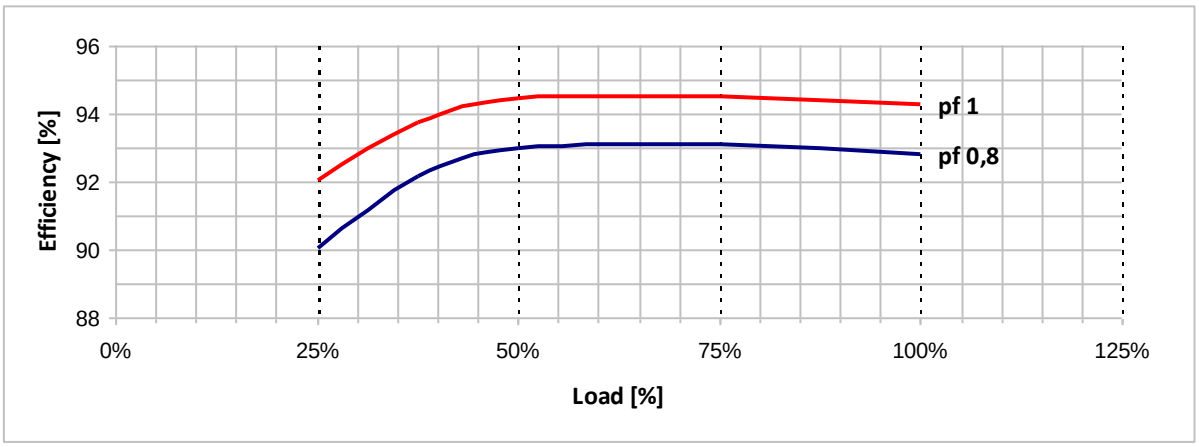
**380 V**



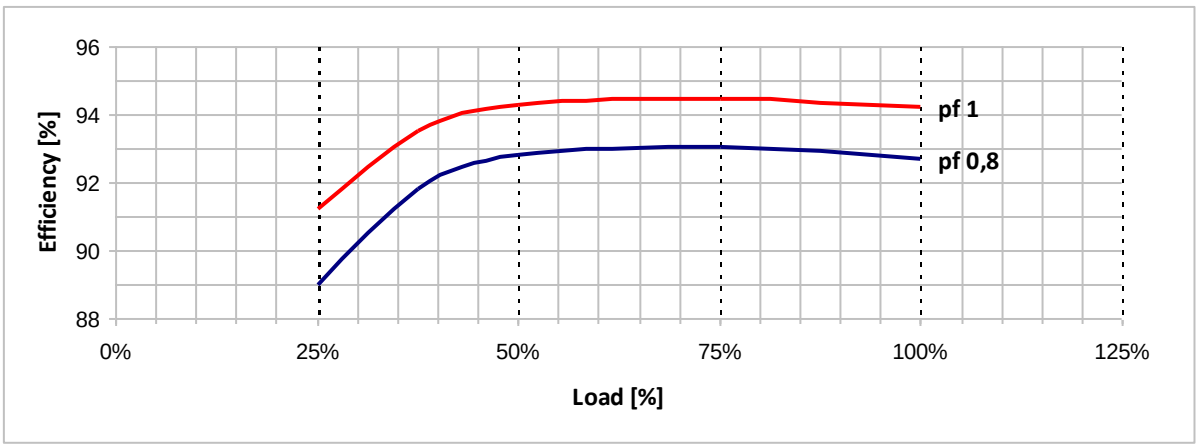

**400 V**




**415 V**




**440 V**



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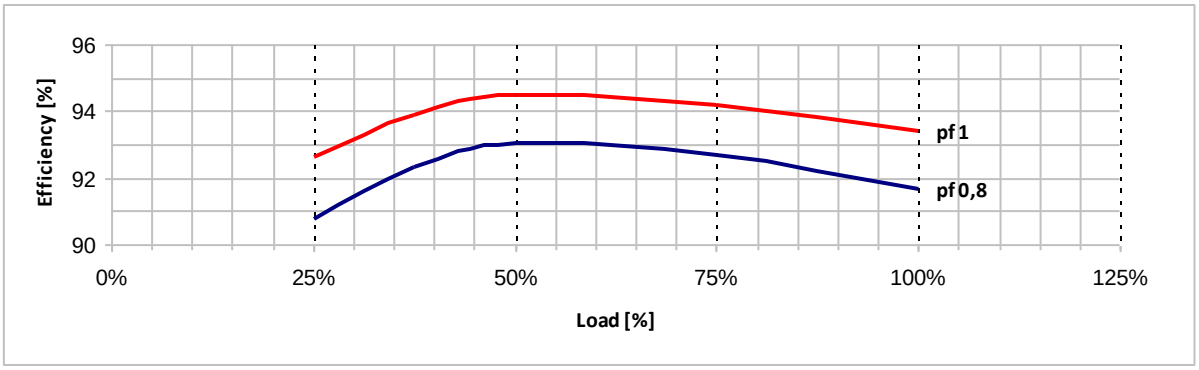
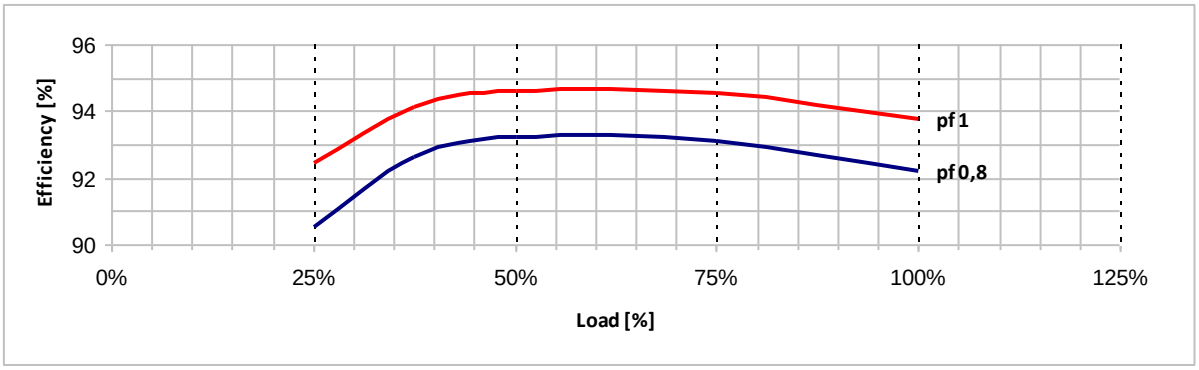
## Typical efficiency curves

## 60 Hz - 1800 rpm

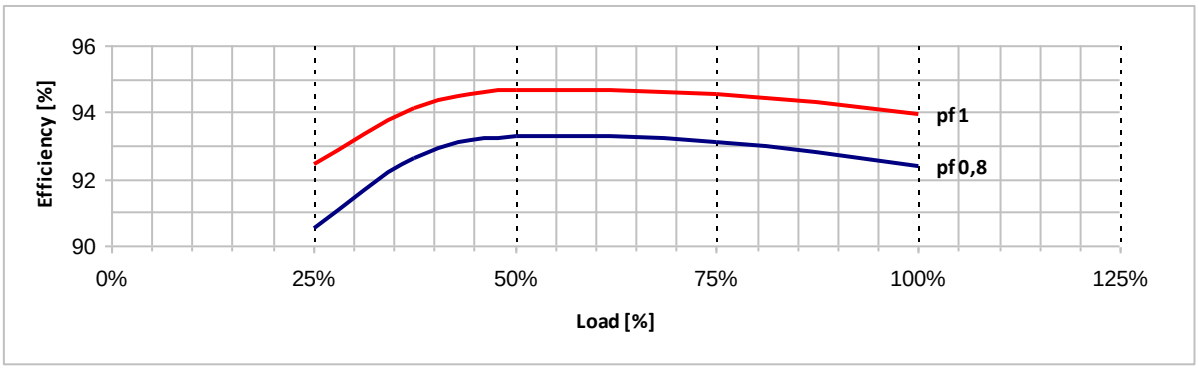
**380 V**



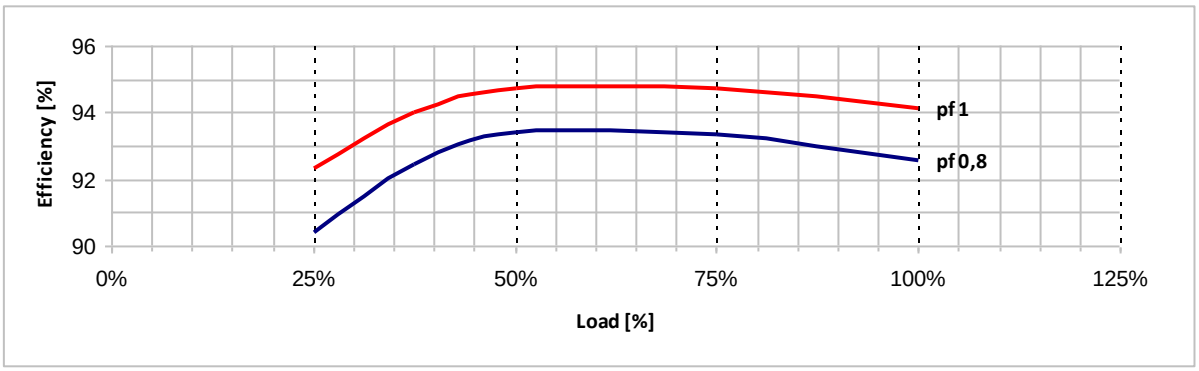

**416 V**



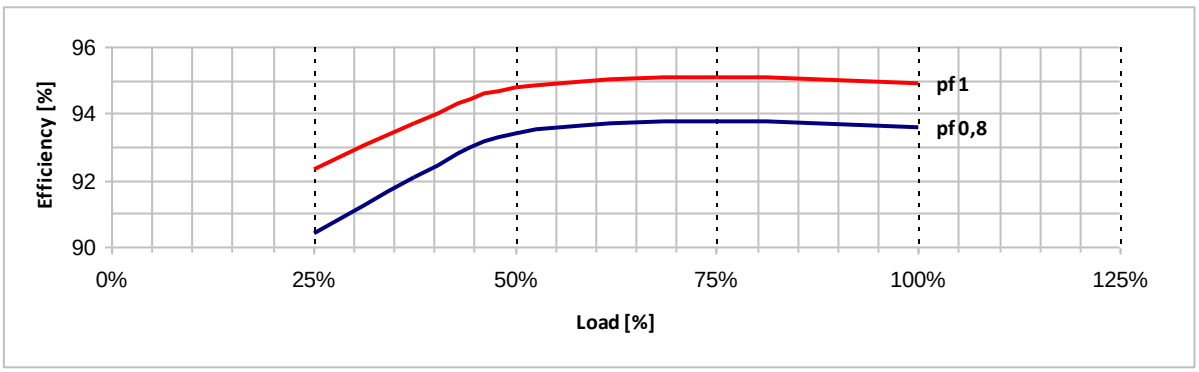

**440 V**



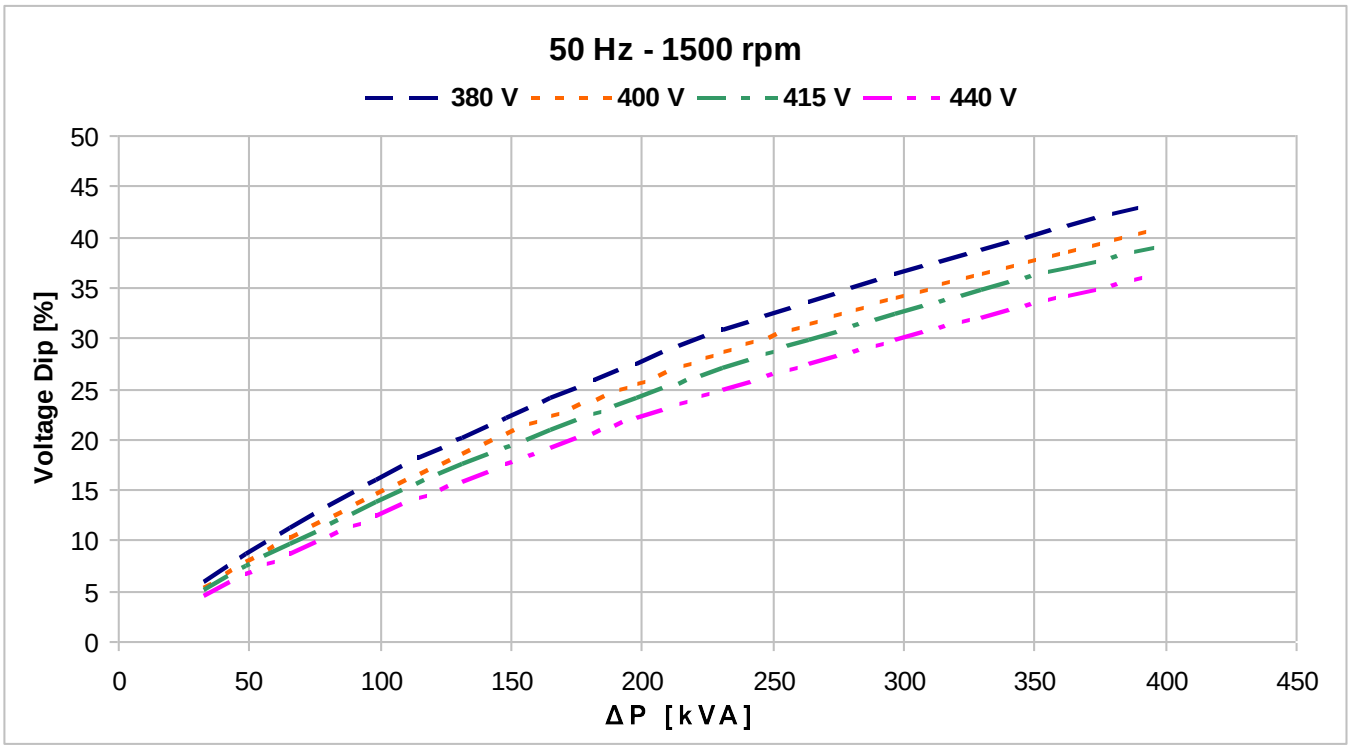

**460 V**

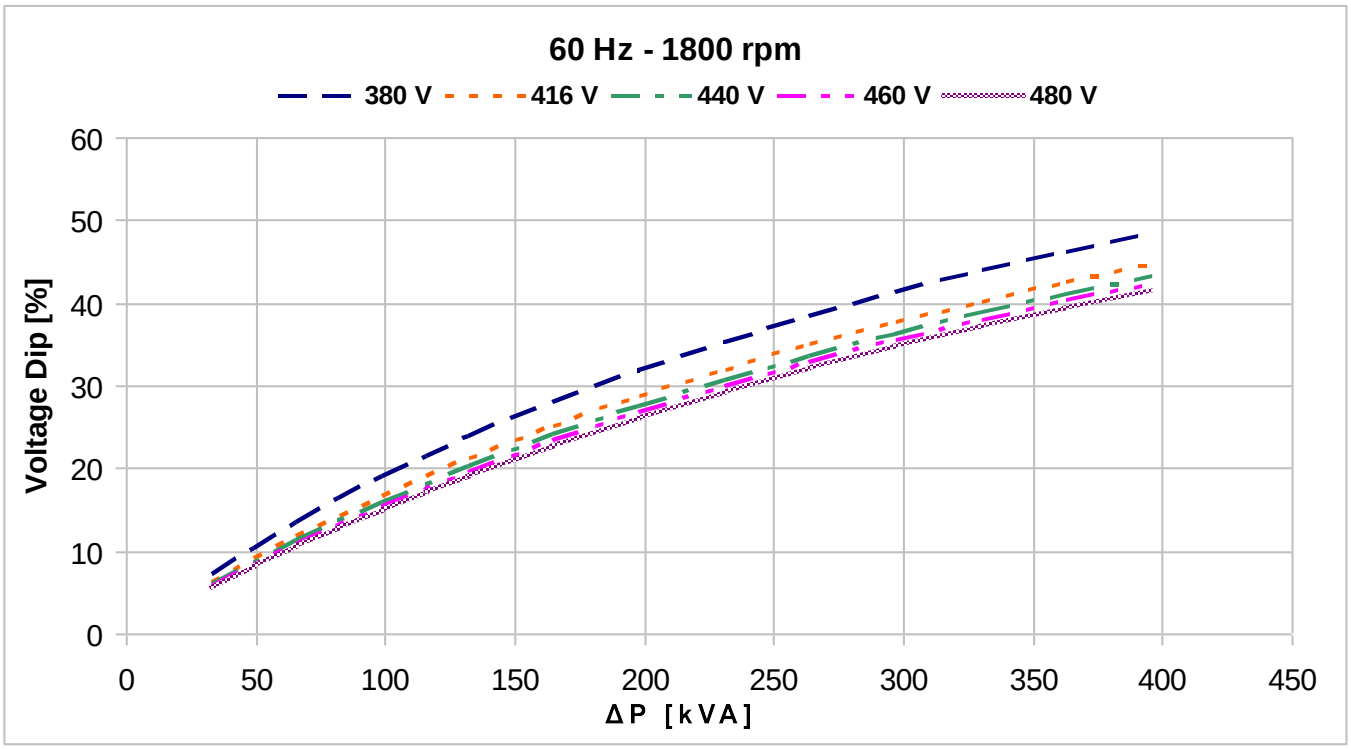



**480 V**



## 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.