

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		60
VOLTAGE	Star series Star parallel	V	380 400 415 440 190 200 208 220	380 416 440 460 480 190 208 220 230 240
RATING	kVA kW	155 165 160 150 124 132 128 120	165 179 189 198 206 132 143 151 158 165	
EFFICIENCY (%) @ 0,8 p.f.	4/4 3/4 2/4	92,3 92,4 92,6 92,9 93,4 93,4 93,5 93,4 94,0 94,0 94,0 93,5	92,1 92,6 92,8 93,0 93,1 93,2 93,5 93,7 93,8 93,9 93,8 94,1 94,2 94,2 94,2	
EFFICIENCY (%) @ 1,0 p.f.	4/4 3/4 2/4	94,3 94,4 94,6 95,0 95,1 95,2 95,4 95,5 95,7 95,7 95,7 95,4	93,9 94,3 94,5 94,7 94,8 94,8 95,1 95,3 95,4 95,5 95,4 95,6 95,7 95,7 95,8	
STAND-BY RATING (163/27)	kVA	171 182 176 165	182 197 208 218 227	
STAND-BY EFFICIENCY (%) @ 0,8 p.f.		91,9 92,0 92,3 92,7	91,7 92,2 92,5 92,6 92,8	
SHORT CIRCUIT RATIO (referred to class H rating)		0,39 0,40 0,45 0,54	0,30 0,34 0,36 0,37 0,39	
REACTANCES (%) (referred to class H rating)				
Direct axis synchronous	x _d	364 350 315 263	465 421 398 381 364	
Quadrature axis synchronous	x _q	151 145 131 109	193 175 165 158 151	
Direct axis transient	x' _d	20,9 20,1 18,1 15,1	26,7 24,2 22,8 21,9 20,9	
Direct axis subtransient	x'' _d	10,6 10,2 9,2 7,7	13,6 12,3 11,6 11,1 10,6	
Quadrature axis subtransient	x'' _q	11,7 11,3 10,1 8,5	15,0 13,5 12,8 12,3 11,7	
Negative sequence	x ₂	11,2 10,7 9,7 8,1	14,3 12,9 12,2 11,7 11,2	
Zero sequence	x ₀	5,2 5,0 4,5 3,7	6,6 6,0 5,7 5,4 5,2	

TIME CONSTANTS [s]

Open circuit (T' _{do})	1,162	Subtransient (T'' _d)	0,010
Transient (T' _d)	0,106	Armature (T _a)	0,013

MECHANICAL CHARACTERISTICS

D-end bearing/Lubrication	Available on double bearing configuration (on request)
N-end bearing/Lubrication	6309 2RS1 C3 WT / Prelubricated
Weight [kg]	471
Inertia (J) [kgm ²]	1,80
Overspeed [min ⁻¹]	2250
Method of cooling	IC 01
Cooling air required [m ³ /s] @ 50/60 Hz	0,2 / 0,233
Degree of protection	IP 23
Type of construction available	B2 (B34 on request)
Direction of rotation	CW

OTHER DATA

Phase resistance [Ω] @ 20 °C - Star series	0,027
Overloads	10% for 1 hour
3-phase short circuit current	>= 300% (3 I _n) with aux. winding or PMG
Voltage regulation accuracy	+/- 0,5 % (@ rated load, balanced and non-distorting, p.f. 0,8)
Radio interference	EN 55011 Class B Group 1
Wave form THF	< 2%
Total harmonic content	< 2% (at no load)

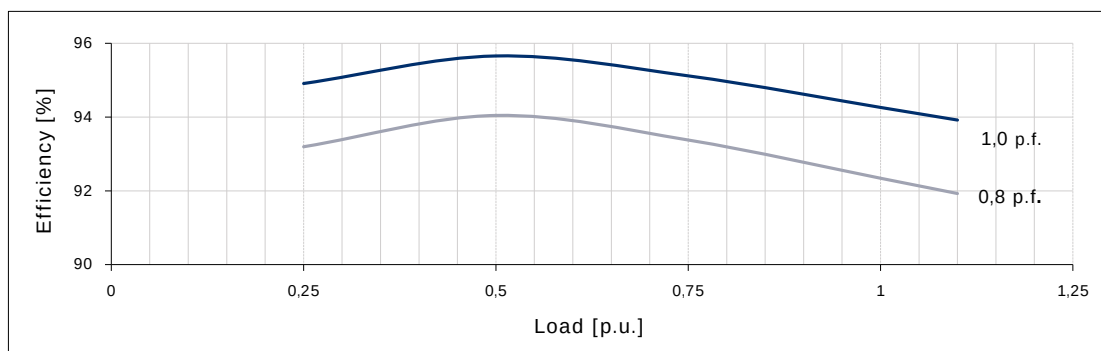
STANDARDS

IEC 60034-1; BS 4999-5000; NEMA MG 1.32.
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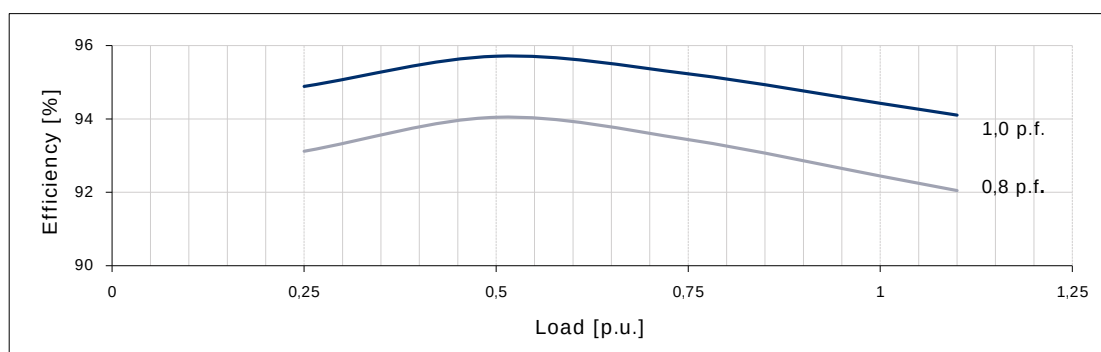
Typical efficiency curves

50 Hz - 1500 min⁻¹

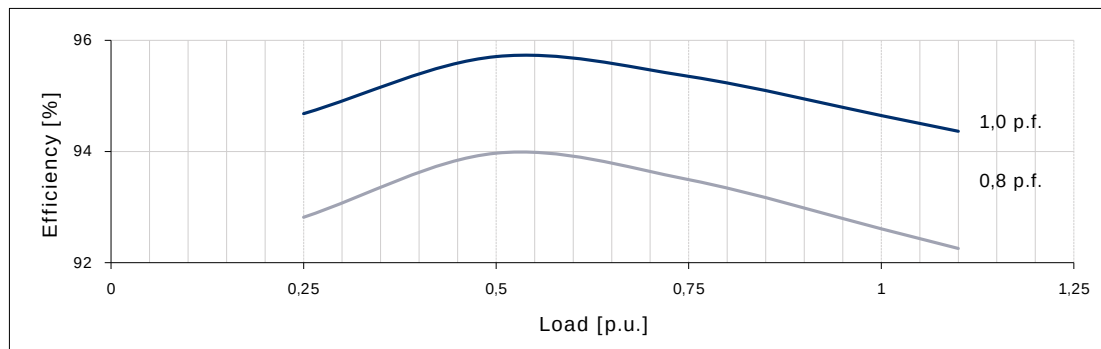
380 V



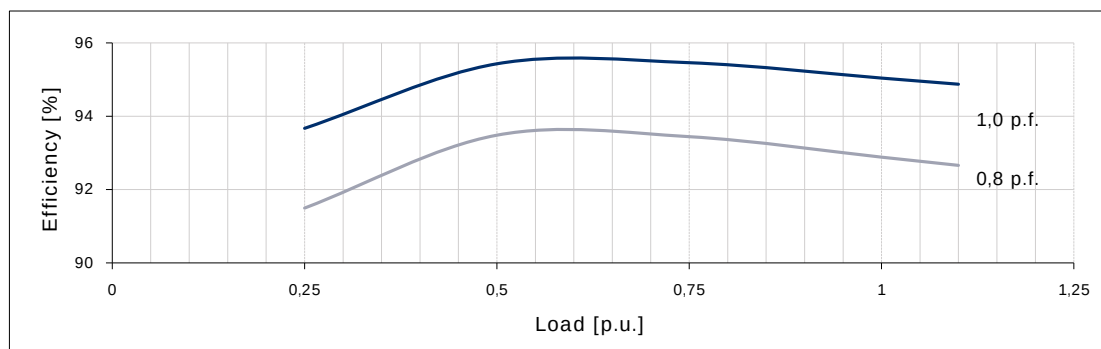
400 V



415 V



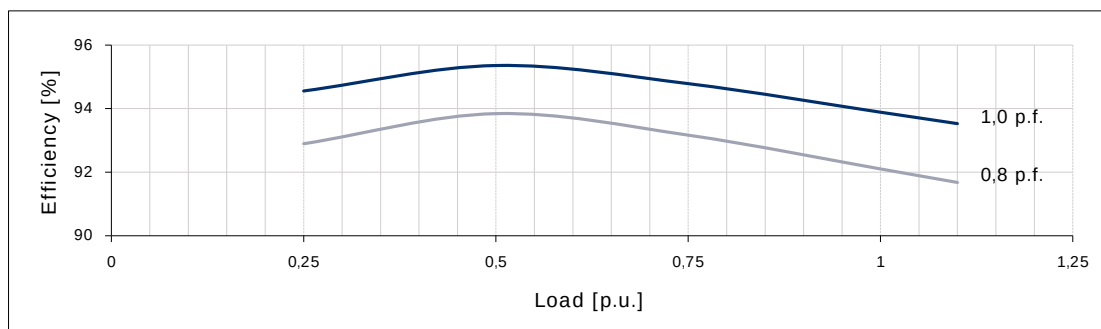
440 V



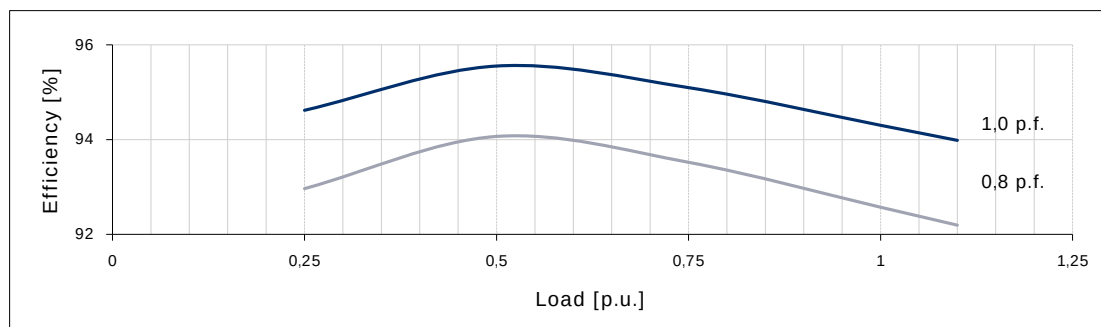
Typical efficiency curves

60 Hz - 1800 min⁻¹

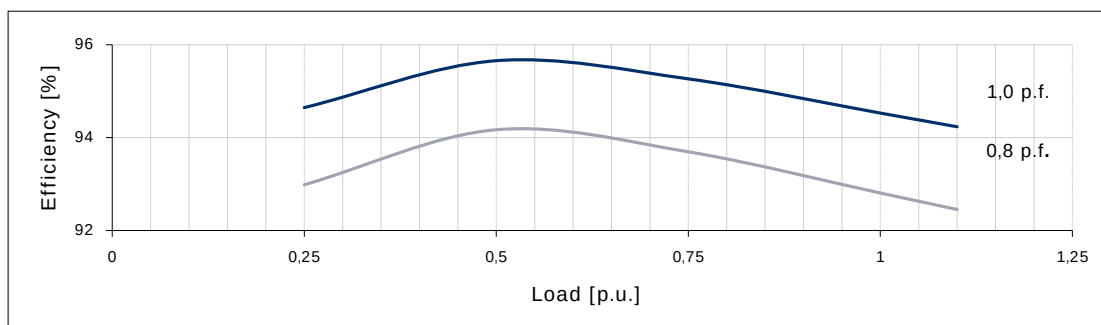
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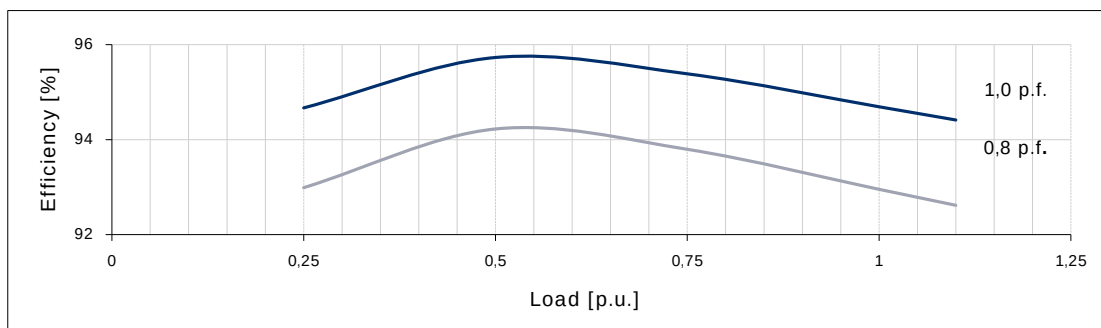
416 V



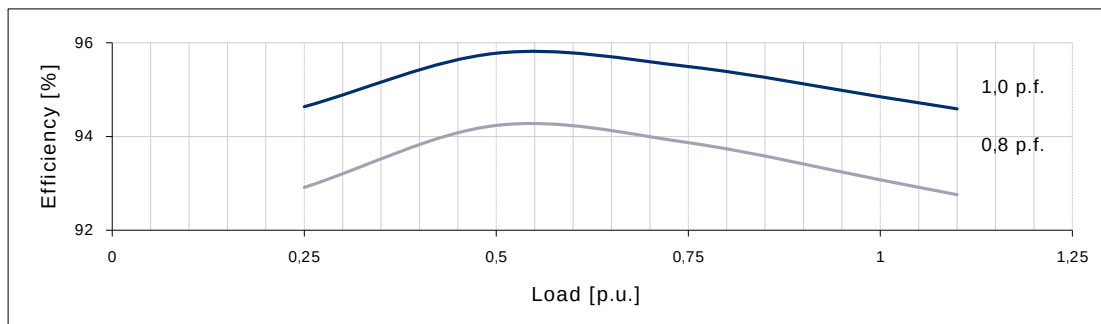
440 V



460 V



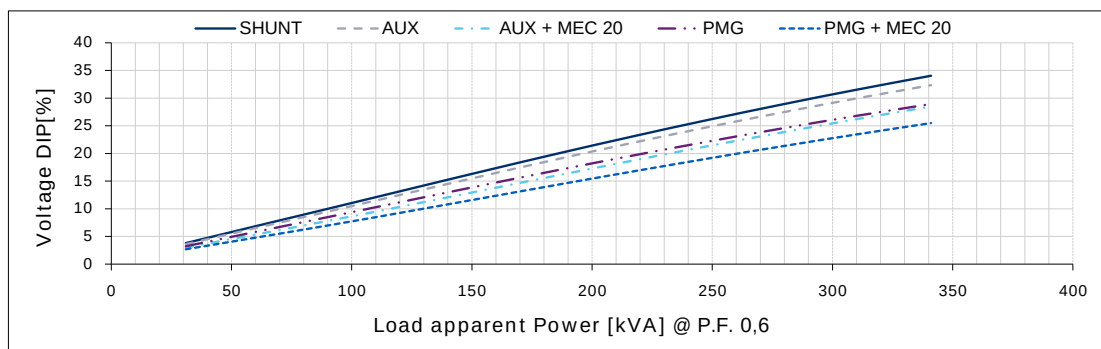
480 V



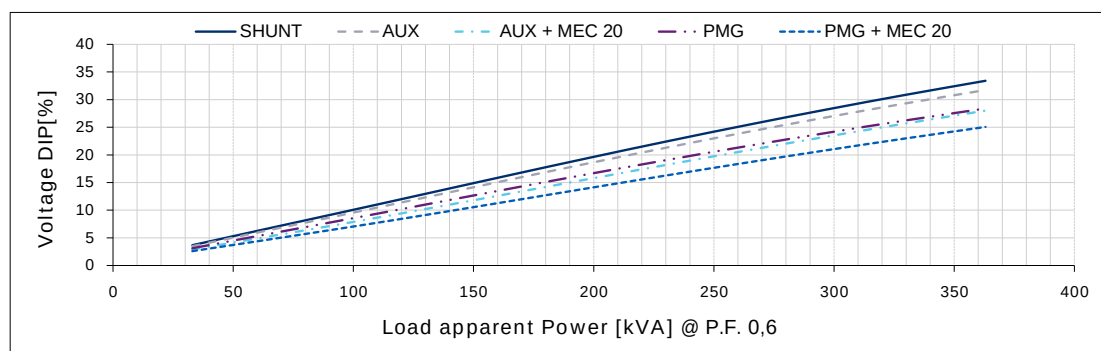
Typical voltage DIP curves

50 Hz - 1500 min⁻¹

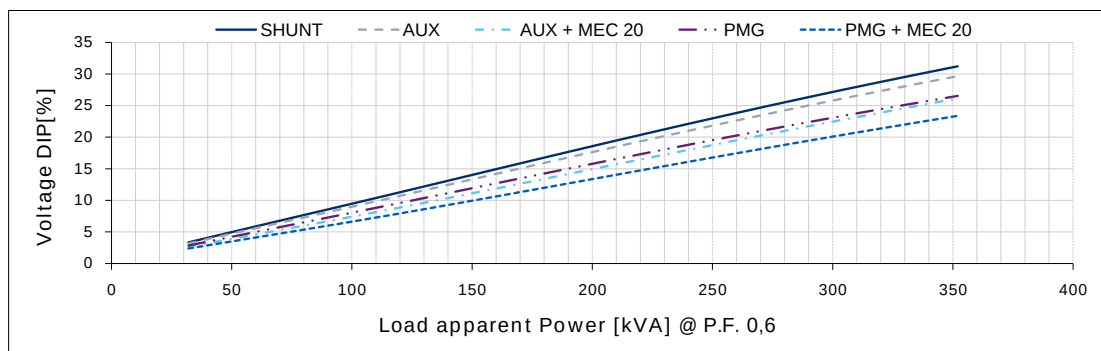
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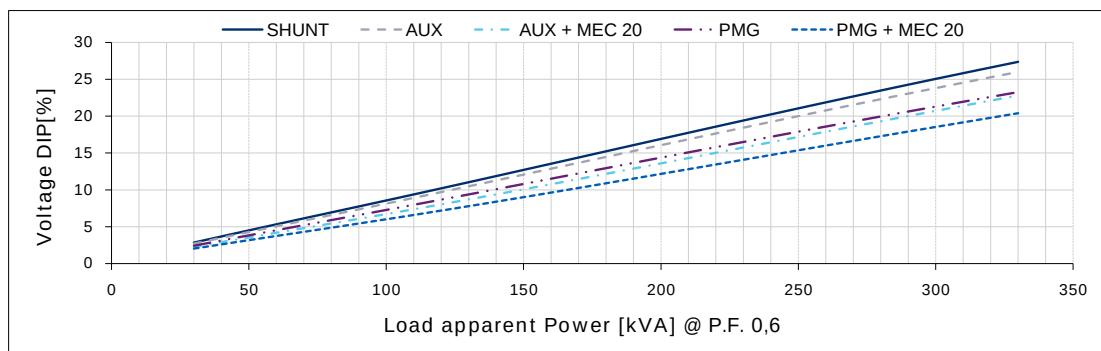
400 V



415 V



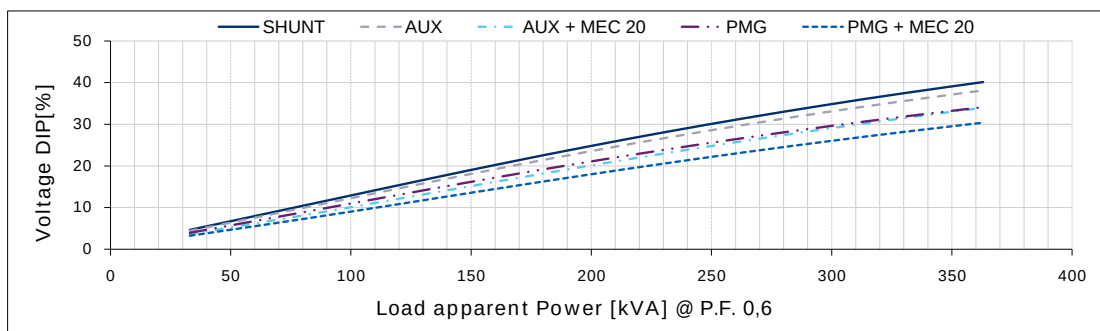
440 V



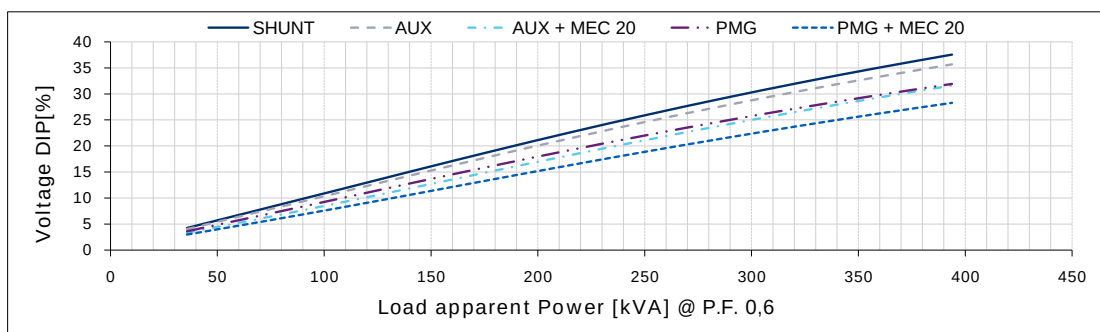
Typical voltage DIP curves

60 Hz - 1800 min⁻¹

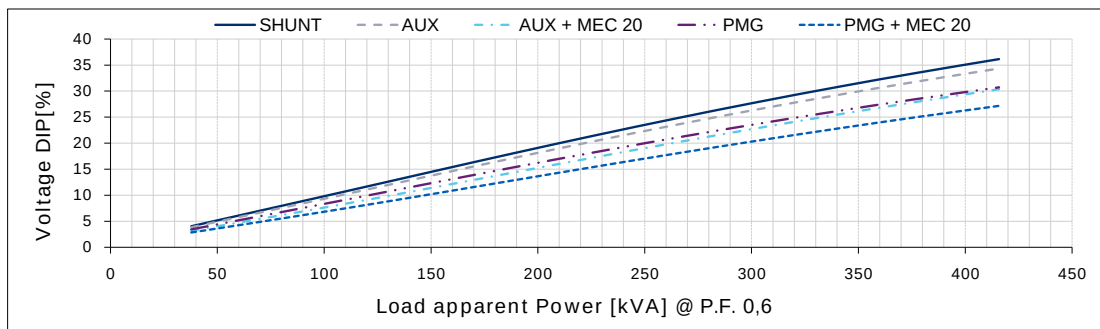
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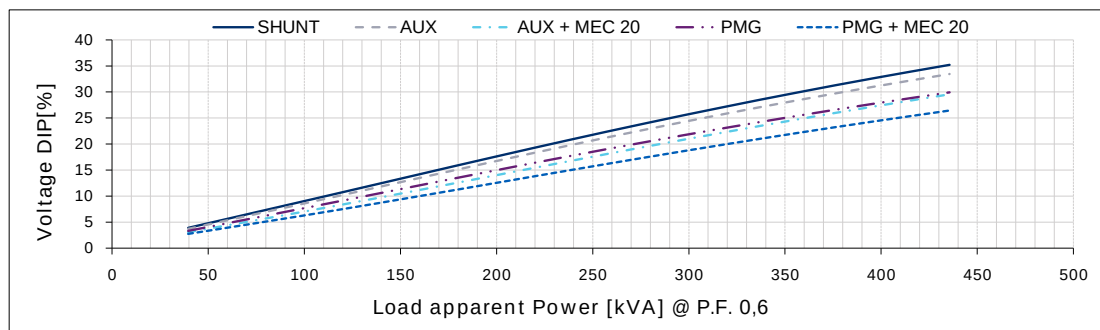
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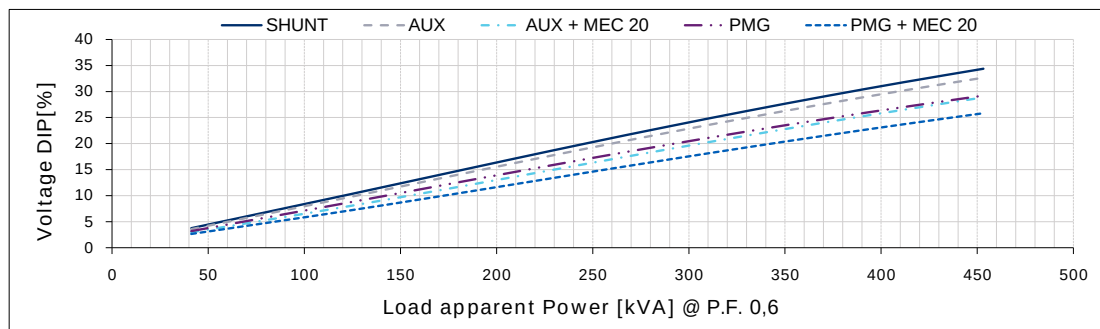
440 V



460 V



480 V



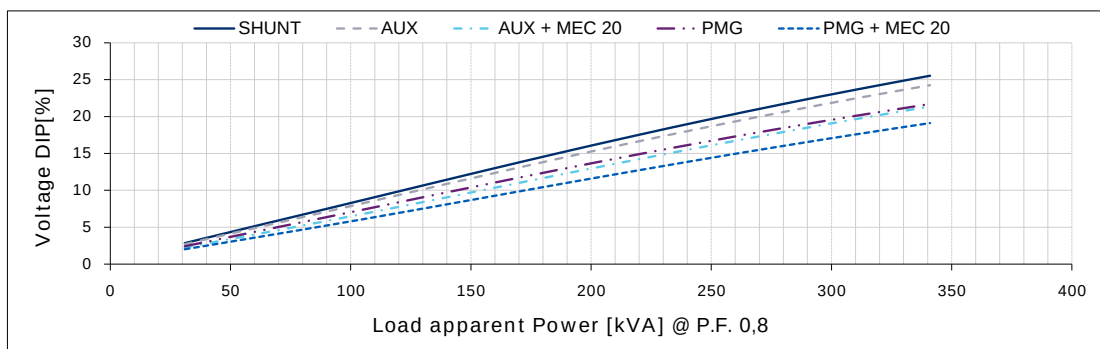
For P.F. different from 0,6 the following simplified formula can be used: $\Delta V (@ P.F.) = \Delta V (@ 0,6) \cdot \sin(\arccos(P.F.)) / 0,8$

THREE-PHASE SYNCHRONOUS GENERATOR MXB-E 225 LB 4

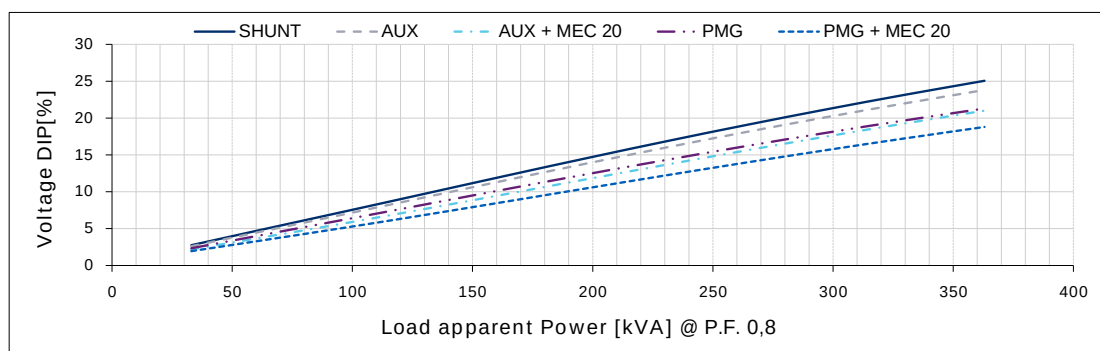
Typical voltage DIP curves

50 Hz - 1500 min⁻¹

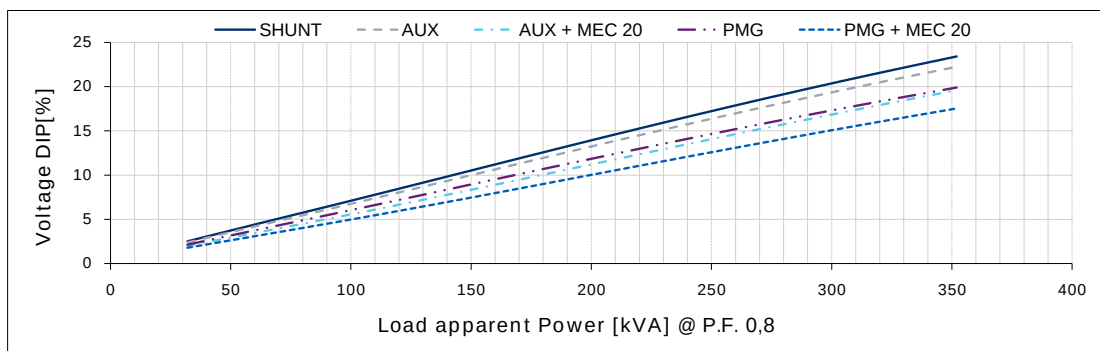
380 V



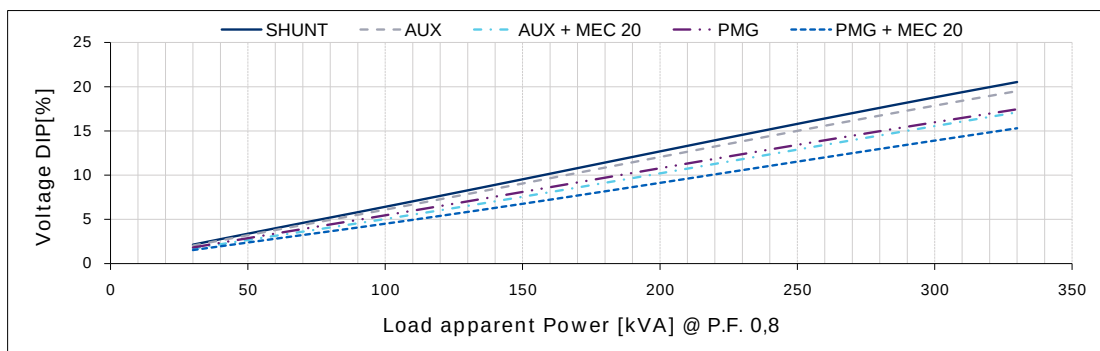
400 V



415 V



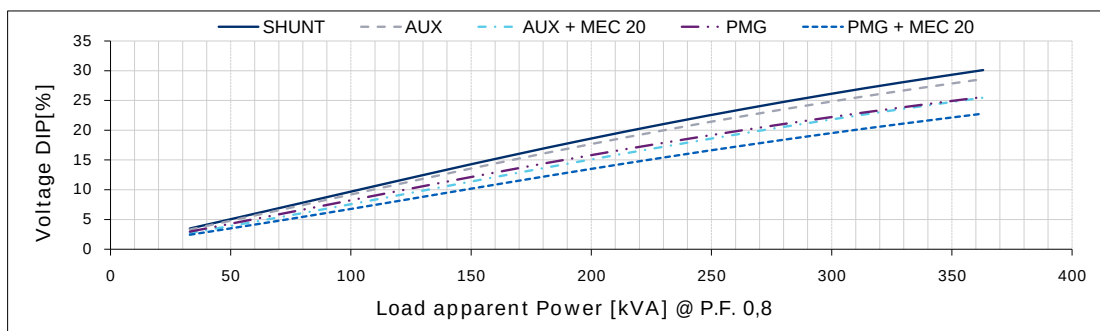
440 V



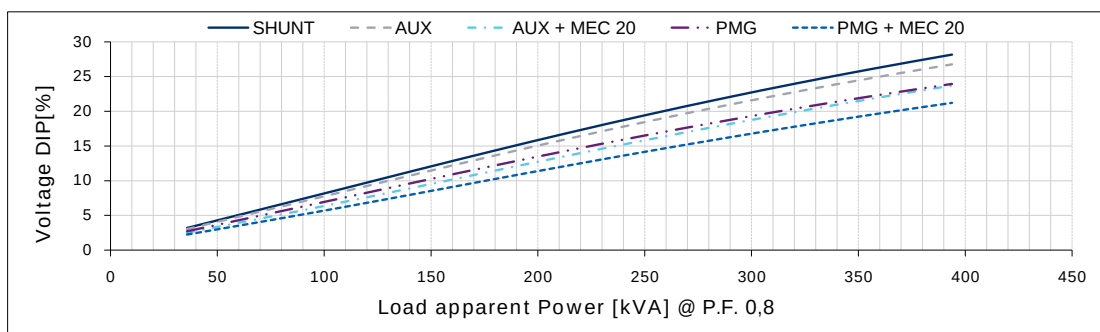
Typical voltage DIP curves

60 Hz - 1800 min⁻¹

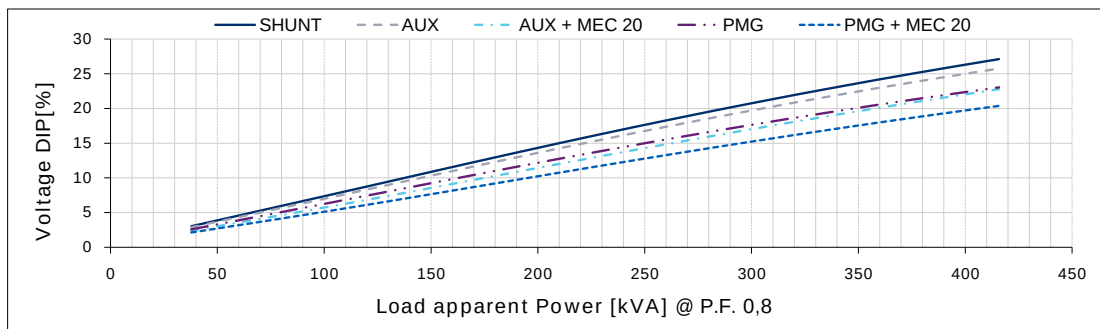
380 V



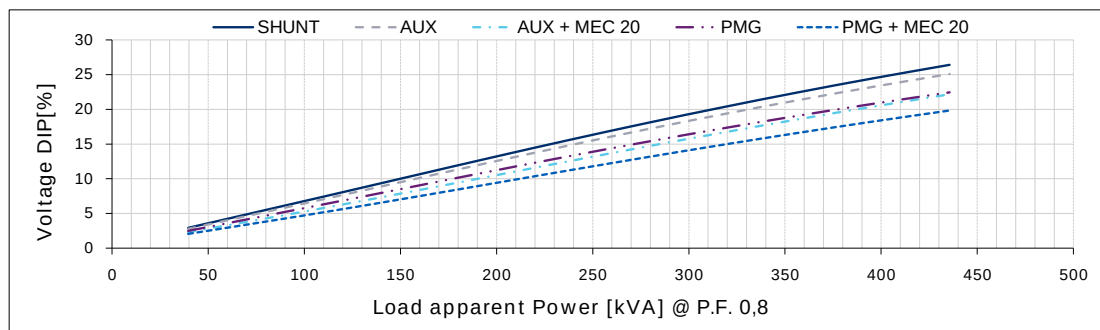
416 V



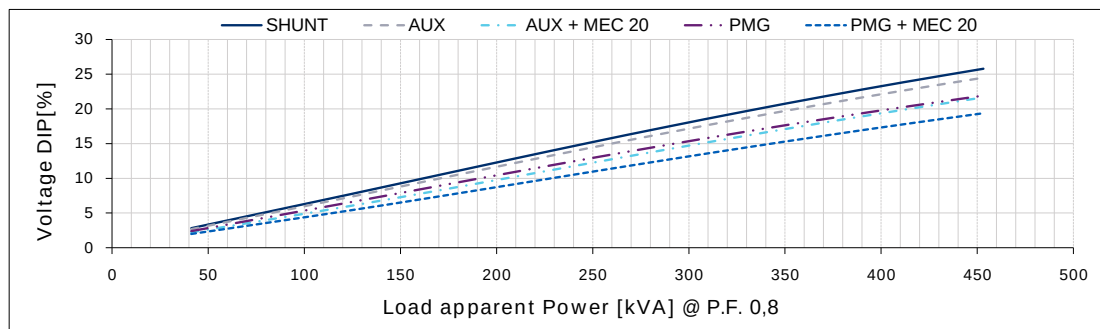
440 V



460 V



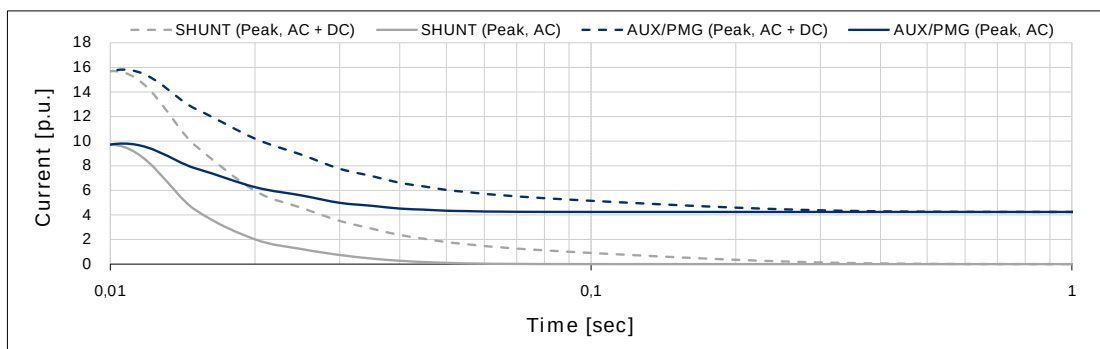
480 V



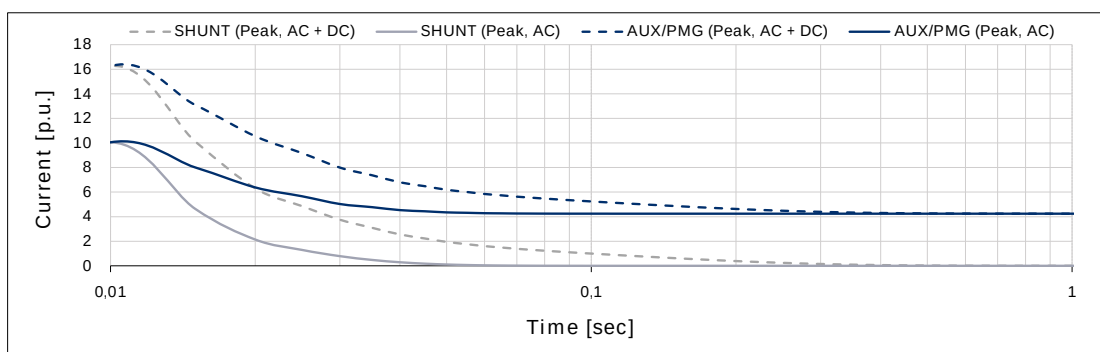
Typical 3-phase short circuit decrement curves

50 Hz - 1500 min⁻¹

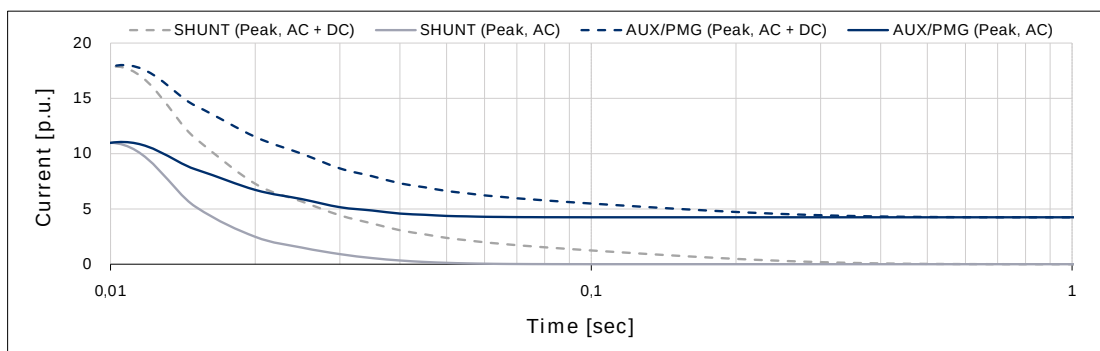
380 V



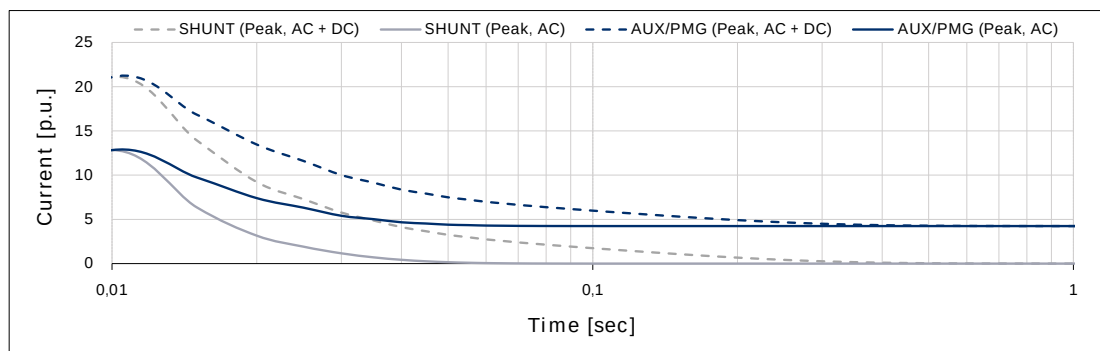
400 V



415 V



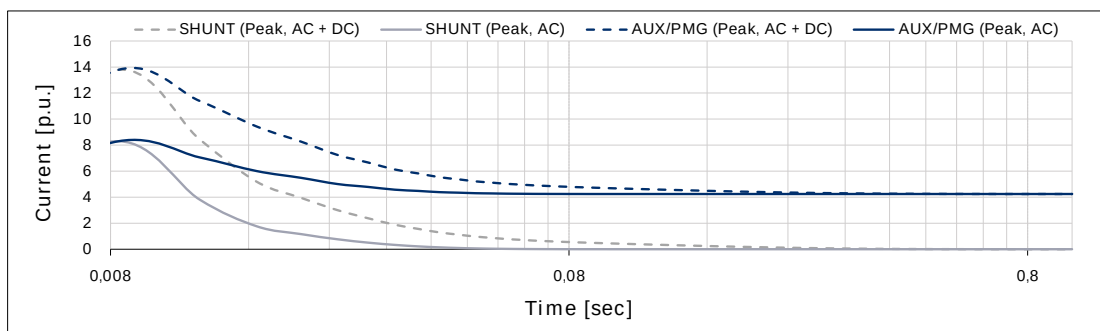
440 V



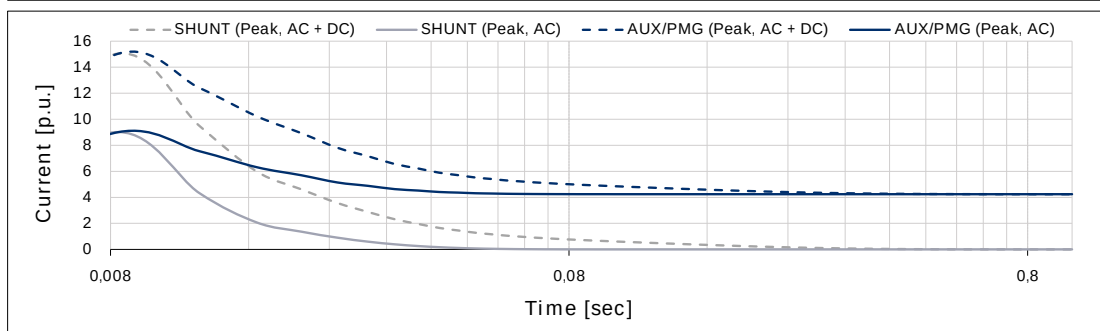
Typical 3-phase short circuit decrement curves

60 Hz - 1800 min⁻¹

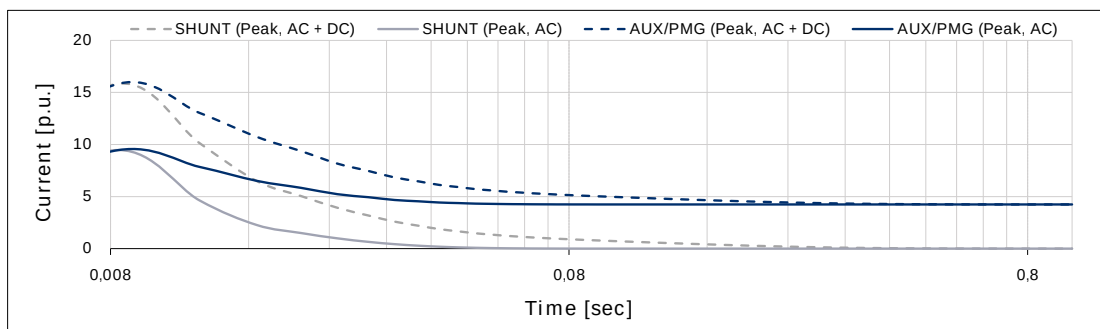
380 V



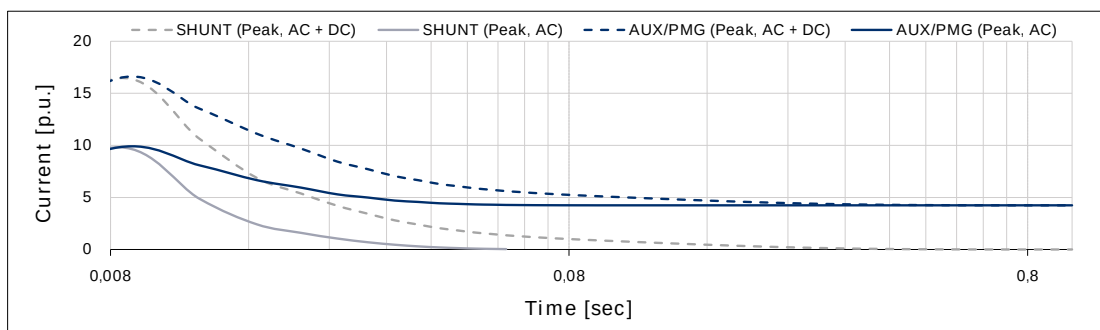
416 V



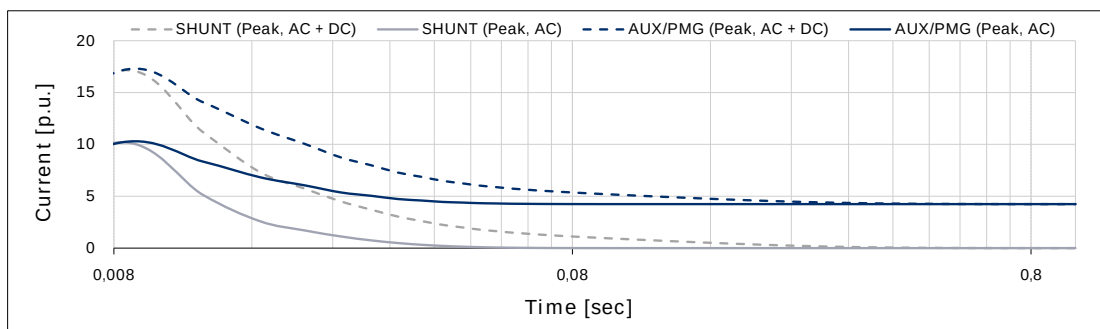
440 V



460 V



480 V



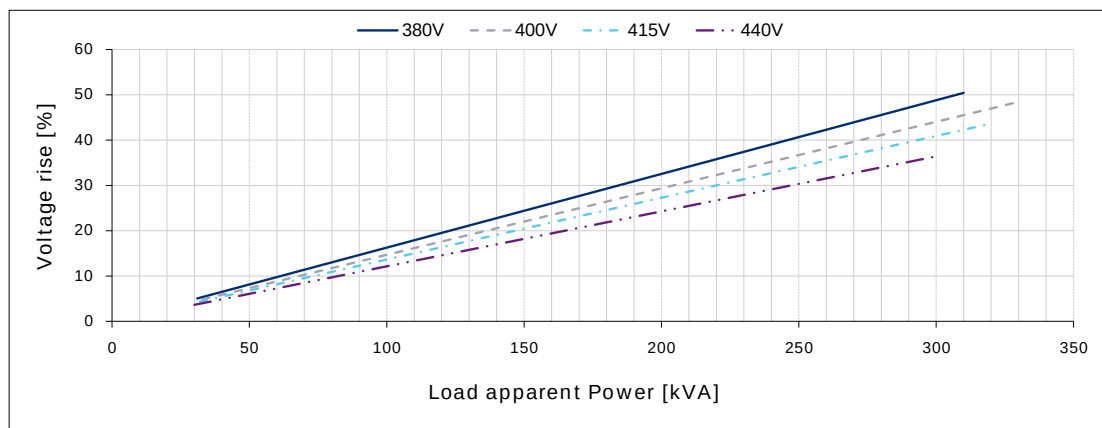
Above curves are based on a three-phase short circuit
For other type of short circuit use the following multiplication factors

	2 phase	1 phase
Instantaneous (max)	0,94	1,20
Continuous	1,50	1,83

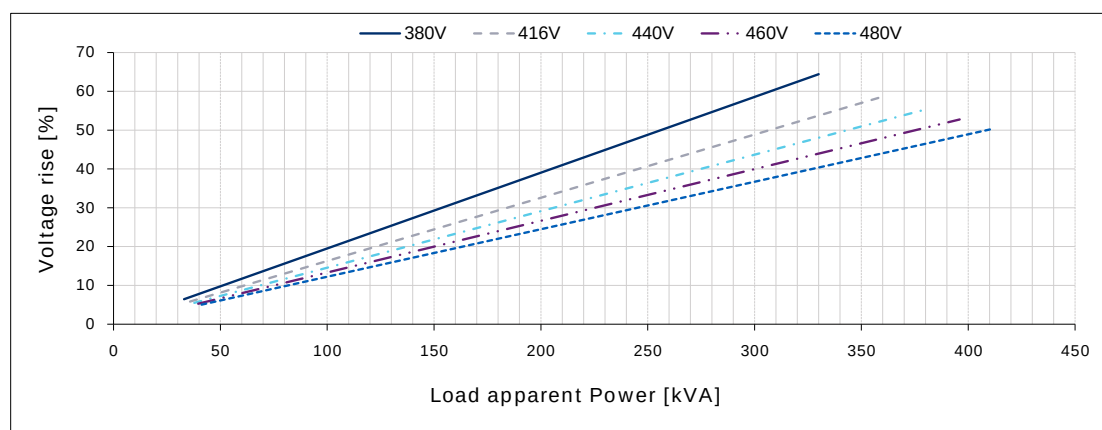
SYN.DS.0068_ =

Typical load rejection curves

50 Hz - 1500 min-1



60 Hz - 1800 min-1



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