

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	380 416 440 460 480
			190 200 208 220	190 208 220 230 240
RATING	kVA	200 200 192 180	200 217 229 240 250	
	kW	160 160 154 144	160 174 183 192 200	
EFFICIENCY (%) @ 0,8 p.f.	4/4	91,6 92,0 92,4 92,8	91,5 92,1 92,3 92,6 92,7	
	3/4	92,8 93,1 93,3 93,5	92,7 93,1 93,3 93,5 93,6	
	2/4	93,8 93,9 93,9 93,7	93,5 93,8 94,0 94,1 94,1	
EFFICIENCY (%) @ 1,0 p.f.	4/4	93,7 94,1 94,5 94,9	93,5 94,0 94,2 94,4 94,6	
	3/4	94,7 95,0 95,3 95,5	94,5 94,9 95,0 95,2 95,3	
	2/4	95,5 95,6 95,7 95,6	95,2 95,4 95,6 95,6 95,7	
STAND-BY RATING (163/27)	kVA	220 220 211 198	220 239 252 264 275	
STAND-BY EFFICIENCY (%) @ 0,8 p.f.		91,1 91,6 92,0 92,5	91,0 91,7 92,0 92,2 92,3	
SHORT CIRCUIT RATIO (referred to class H rating)		0,31 0,34 0,38 0,46	0,25 0,28 0,30 0,31 0,32	
REACTANCES (%) (referred to class H rating)				
Direct axis synchronous	x _d	387 349 311 259	464 420 396 380 363	
Quadrature axis synchronous	x _q	159 144 128 107	191 173 163 157 150	
Direct axis transient	x' _d	25,9 23,4 20,9 17,4	31,1 28,2 26,6 25,5 24,4	
Direct axis subtransient	x'' _d	17,4 15,7 14,0 11,7	20,8 18,9 17,8 17,1 16,3	
Quadrature axis subtransient	x'' _q	19,1 17,2 15,4 12,8	22,9 20,8 19,6 18,8 18,0	
Negative sequence	x ₂	18,2 16,5 14,7 12,2	21,9 19,8 18,7 17,9 17,1	
Zero sequence	x ₀	7,3 6,6 5,9 4,9	8,7 7,9 7,5 7,2 6,8	

TIME CONSTANTS [s]

Open circuit (T' _{do})	1,072	Subtransient (T'' _d)	0,008
Transient (T' _d)	0,103	Armature (T _a)	0,012

MECHANICAL CHARACTERISTICS

D-end bearing/Lubrication	Available on double bearing configuration (on request)
N-end bearing/Lubrication	6313 2Z C3 / Prelubricated
Weight [kg]	541
Inertia (J) [kgm ²]	1,64
Overspeed [min ⁻¹]	2250
Method of cooling	IC 01
Cooling air required [m ³ /s] @ 50/60 Hz	1,7 / 2,1
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	0,023
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)

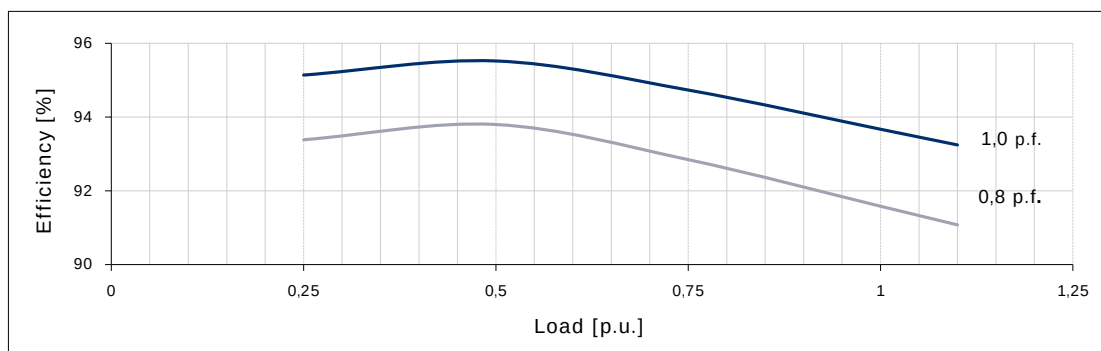
STANDARDS

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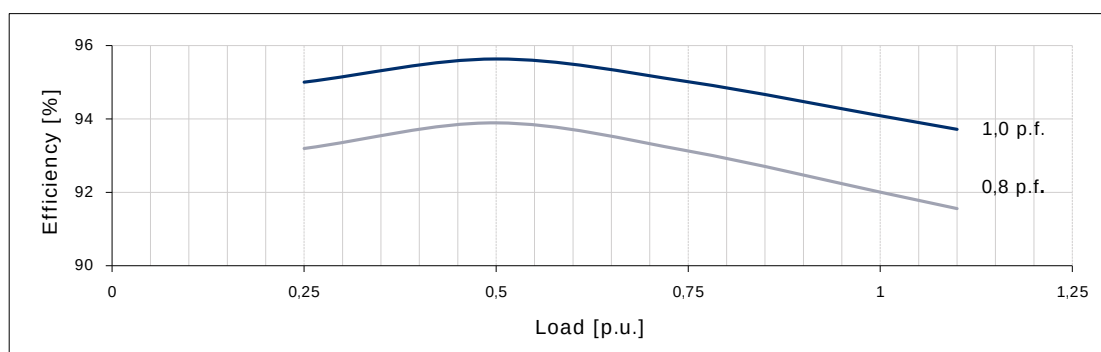
Typical efficiency curves

50 Hz - 1500 min⁻¹

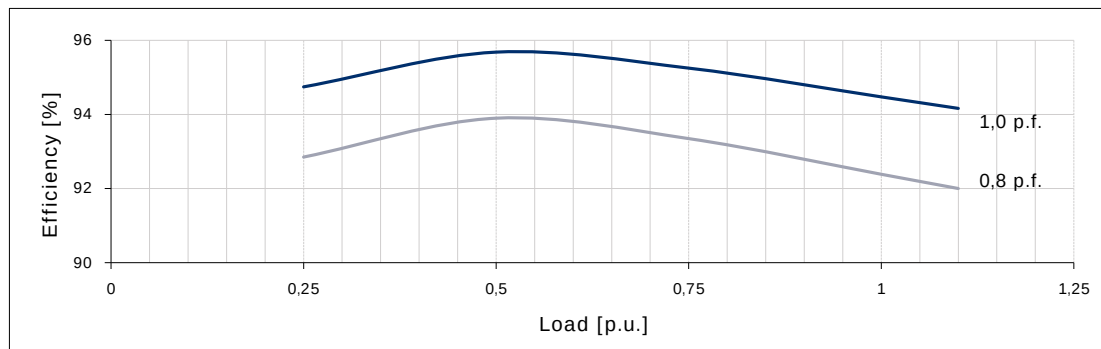
380 V



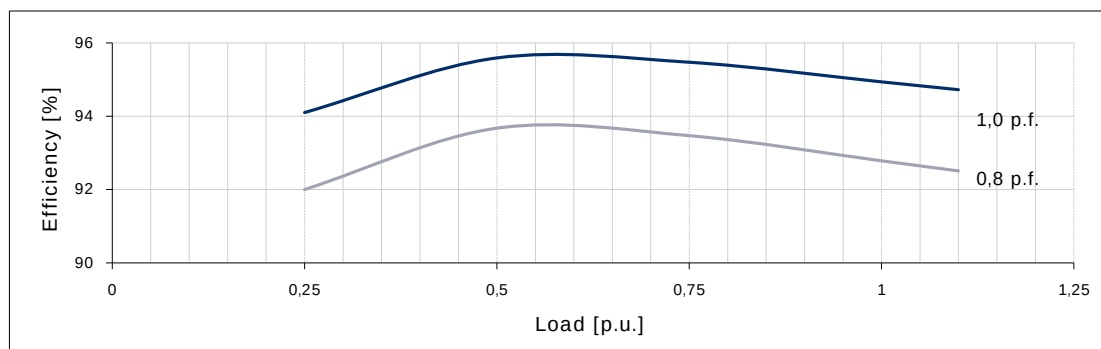
400 V



415 V



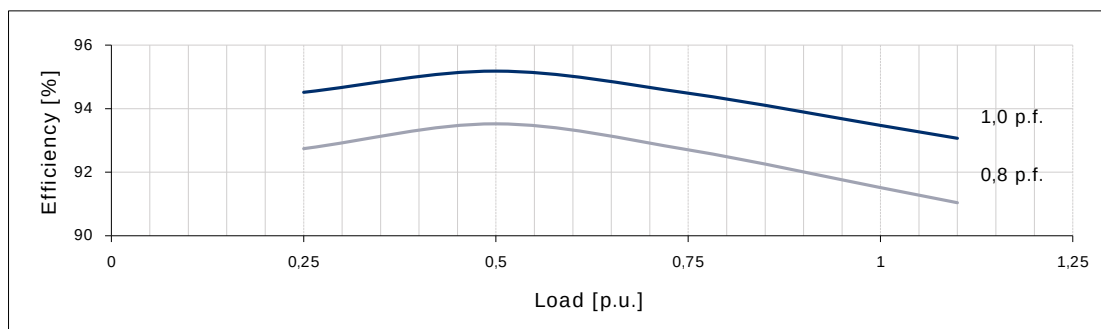
440 V



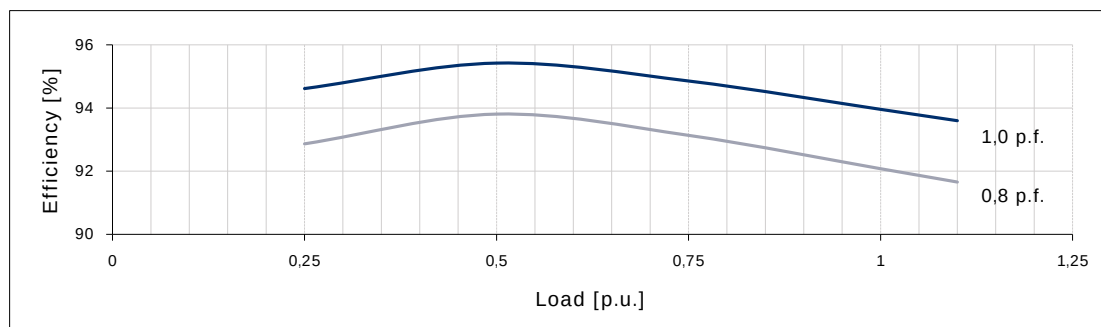
Typical efficiency curves

60 Hz - 1800 min⁻¹

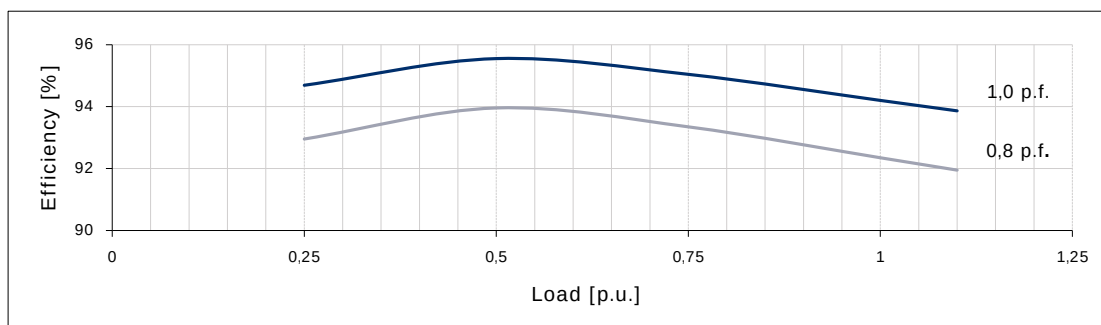
380 V



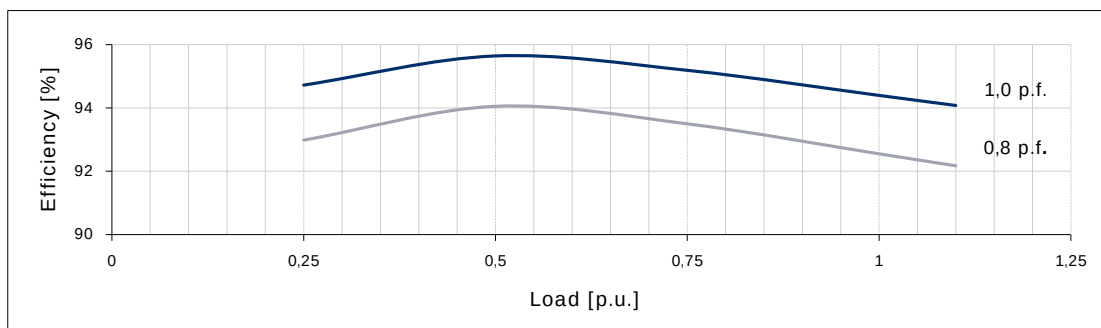
416 V



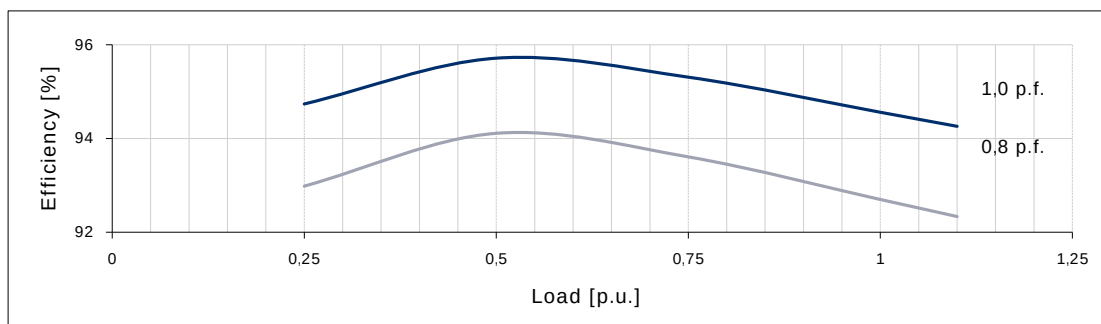
440 V



460 V



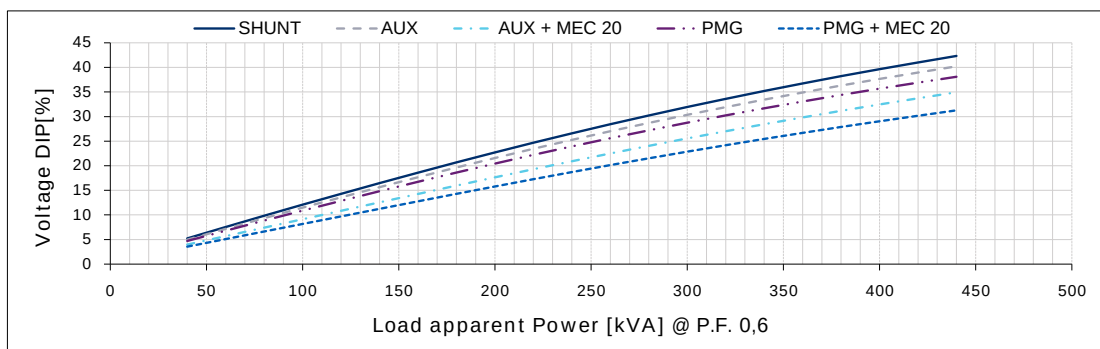
480 V



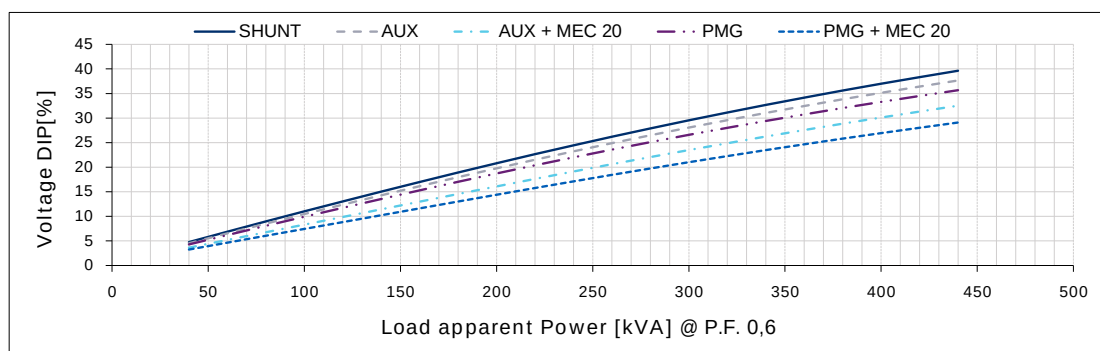
Typical voltage DIP curves

50 Hz - 1500 min⁻¹

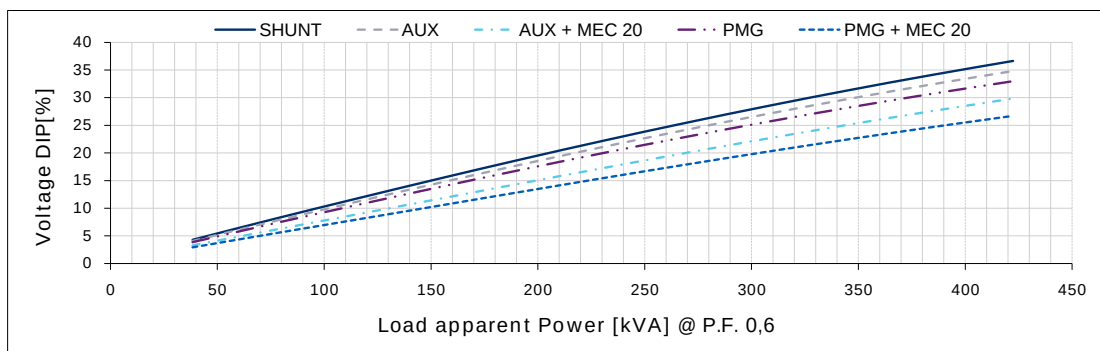
380 V



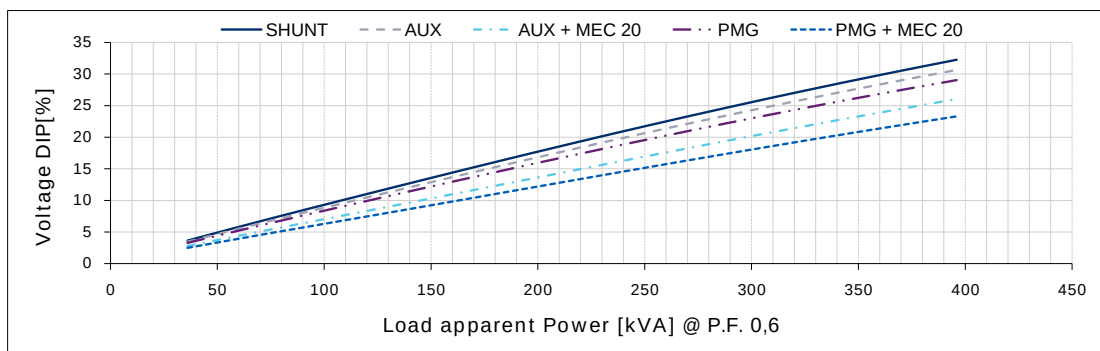
400 V



415 V



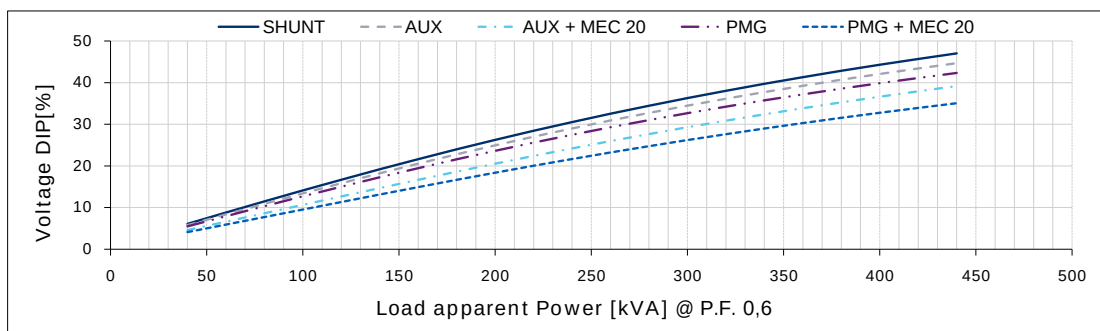
440 V



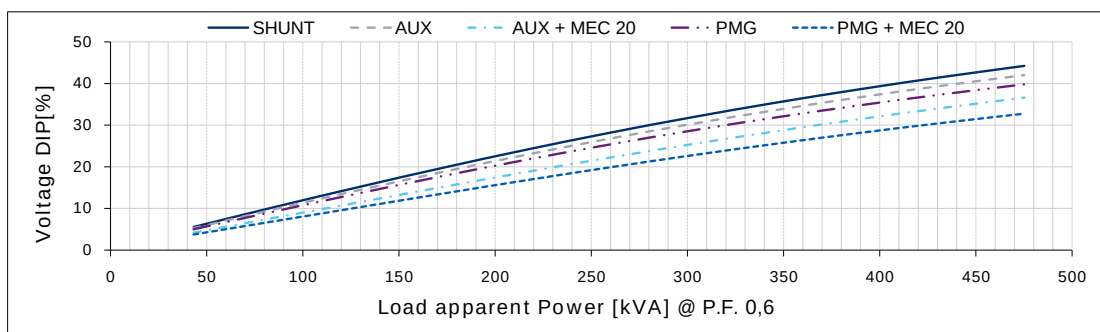
Typical voltage DIP curves

60 Hz - 1800 min⁻¹

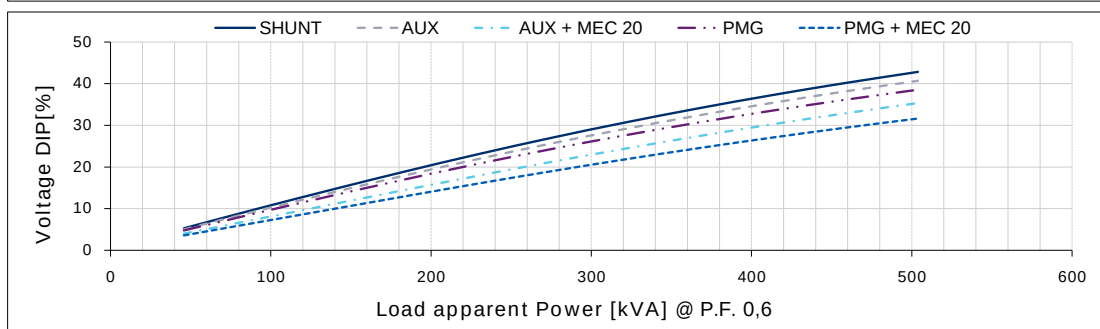
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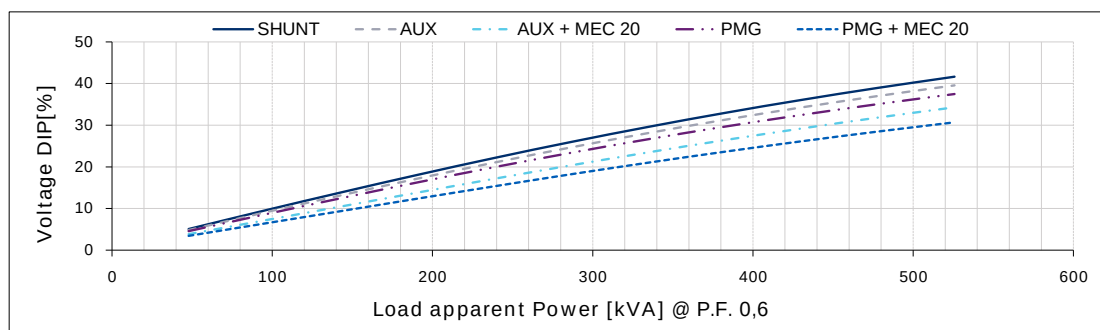
416 V



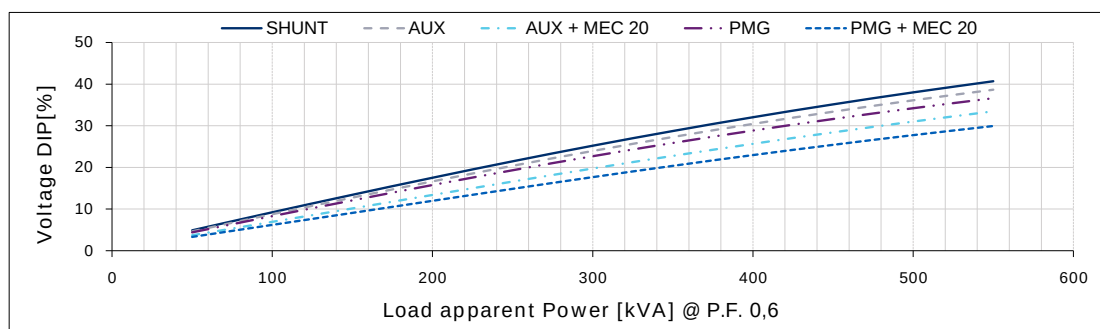
440 V



460 V



480 V



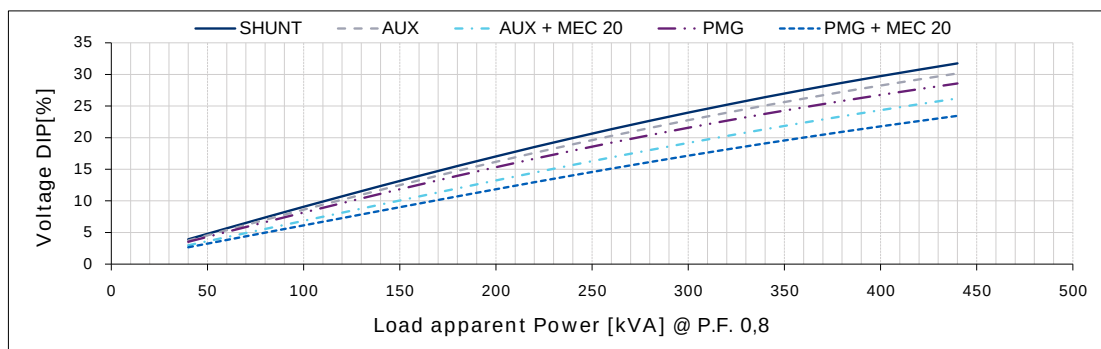
For P.F. different from 0,6 the following simplified formula can be used: $\Delta V (@ P.F.) = \Delta V (@ 0,6) \cdot \sin(\arccos(P.F.)) / 0,8$

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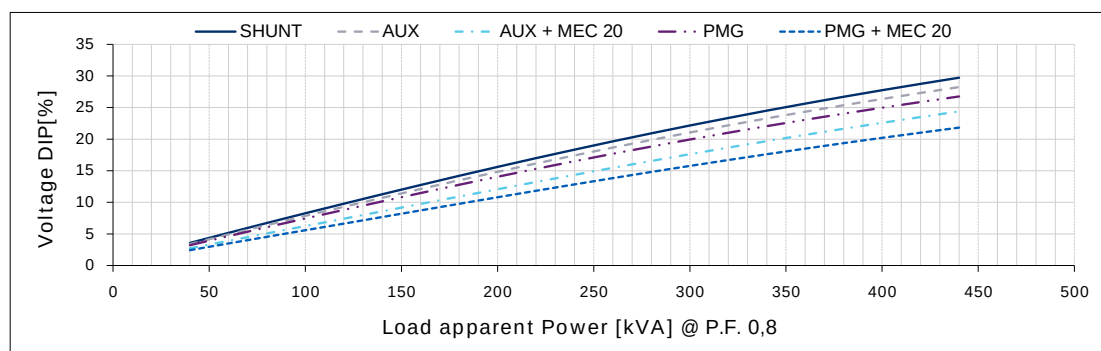
Typical voltage DIP curves

50 Hz - 1500 min⁻¹

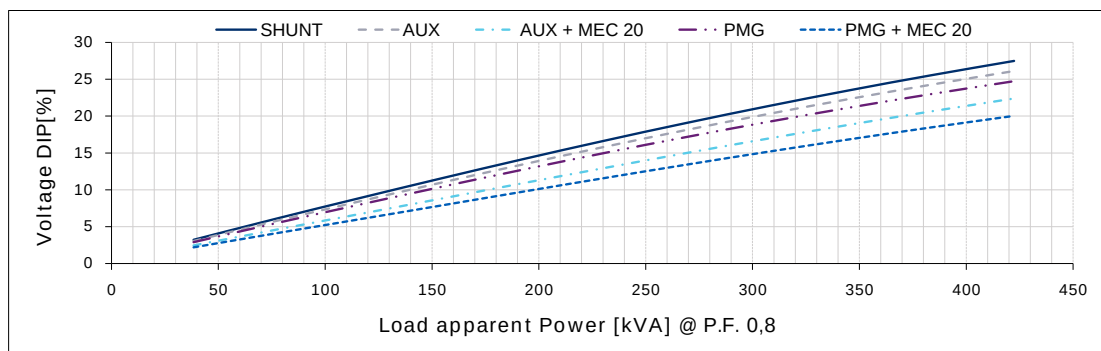
380 V



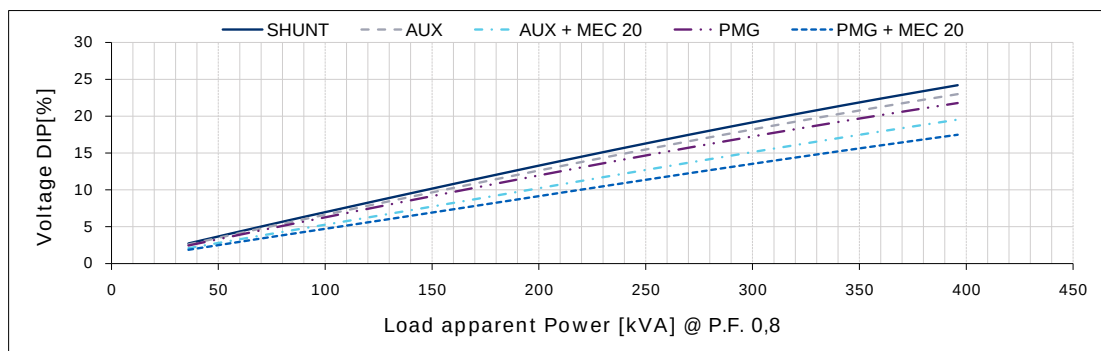
400 V



415 V



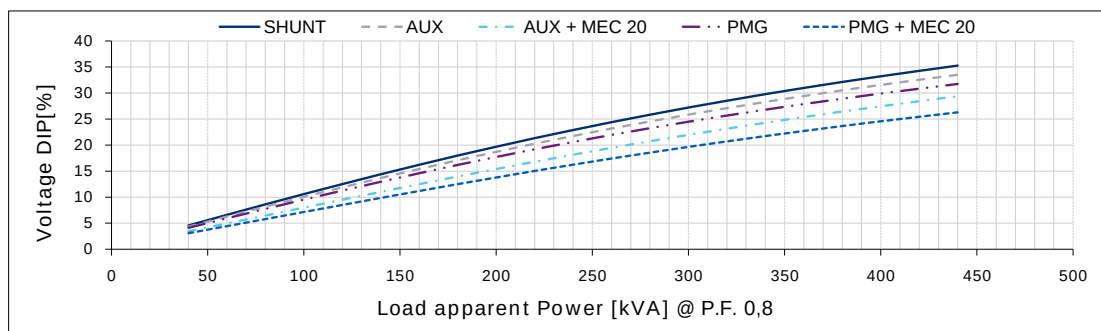
440 V



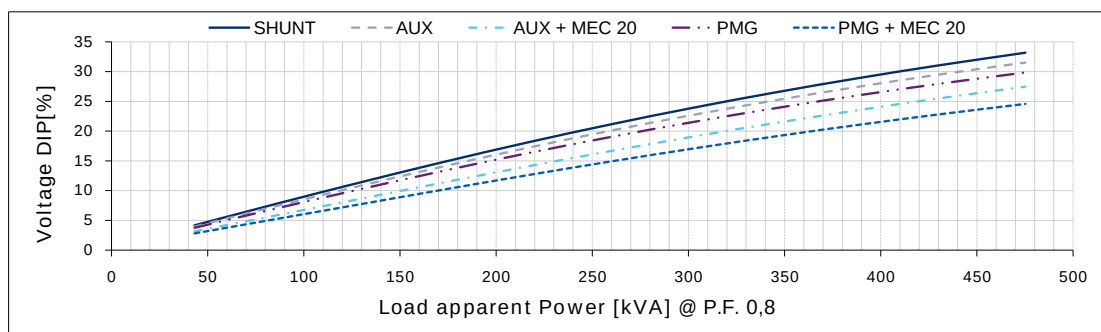
Typical voltage DIP curves

60 Hz - 1800 min⁻¹

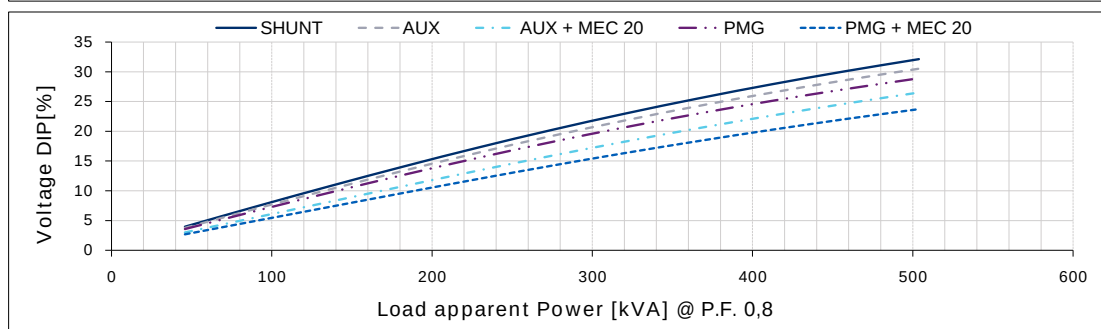
380 V



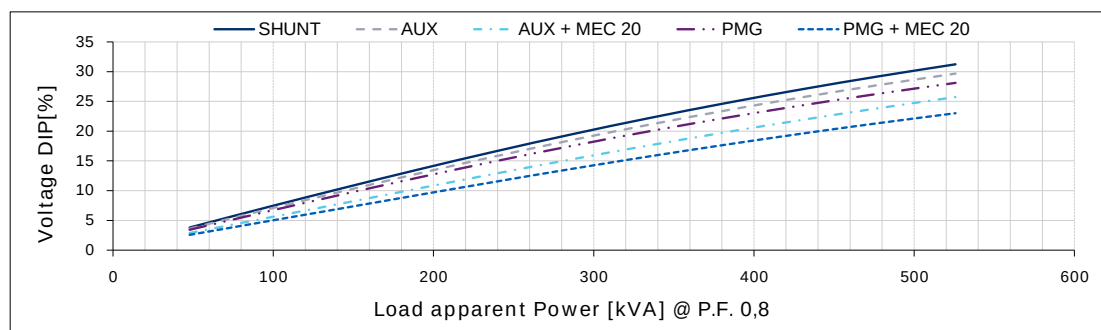
416 V



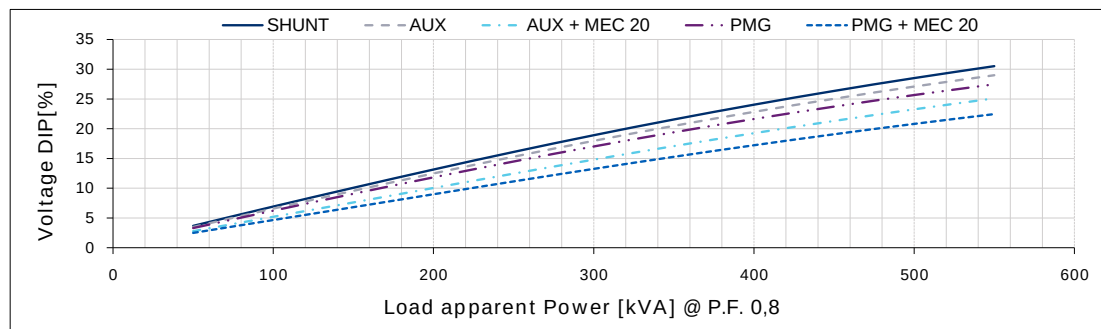
440 V



460 V



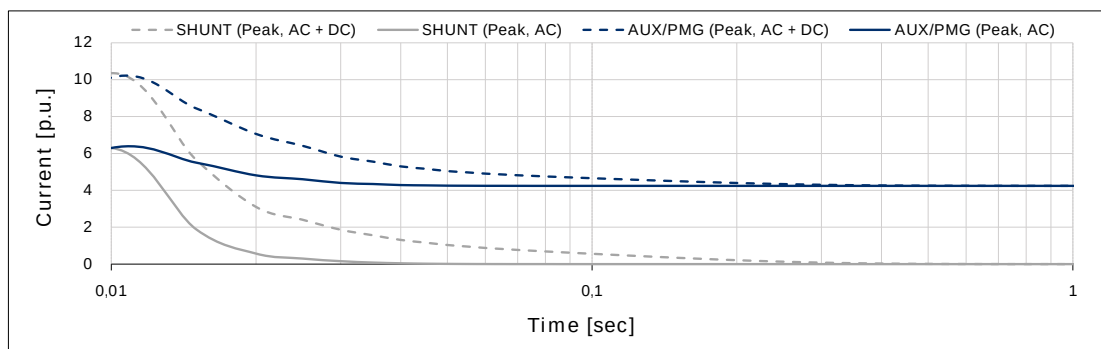
480 V



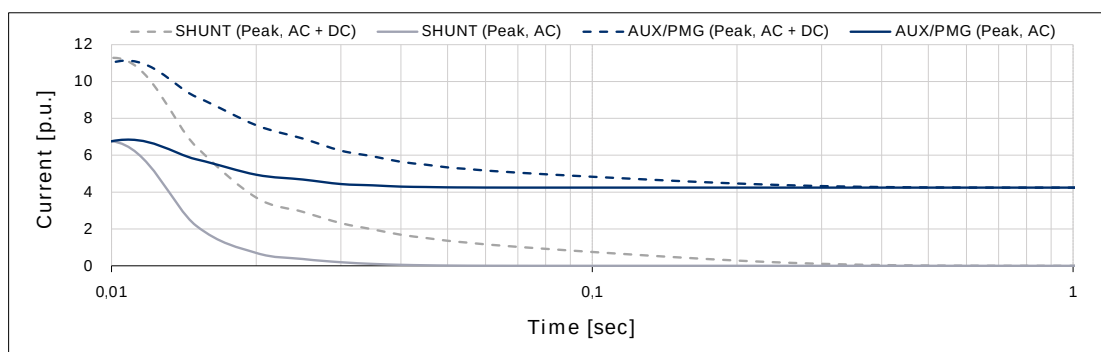
Typical 3-phase short circuit decrement curves

50 Hz - 1500 min⁻¹

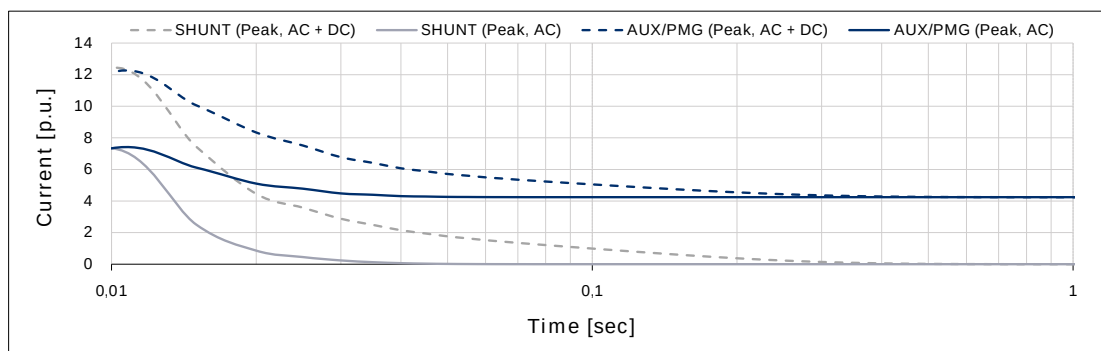
380 V



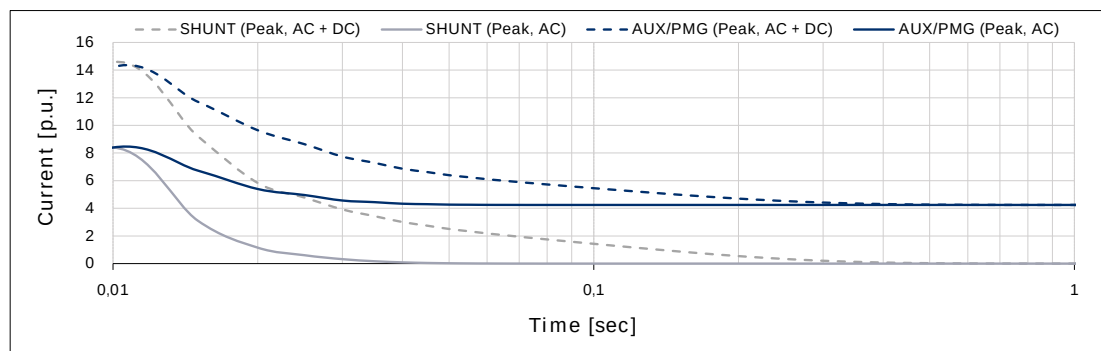
400 V



415 V



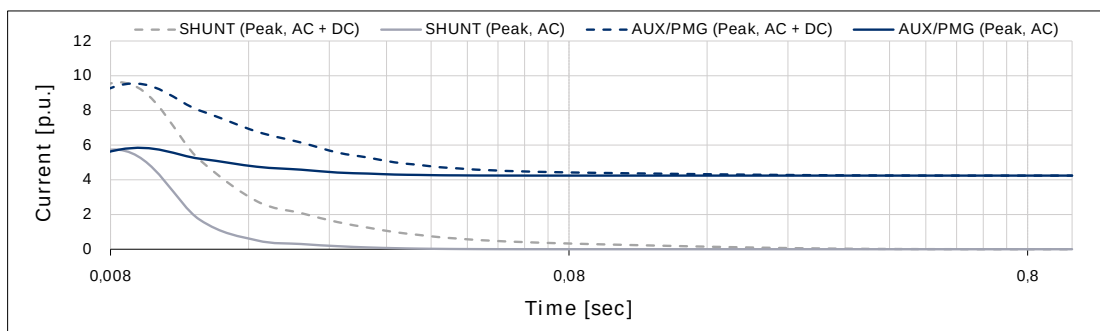
440 V



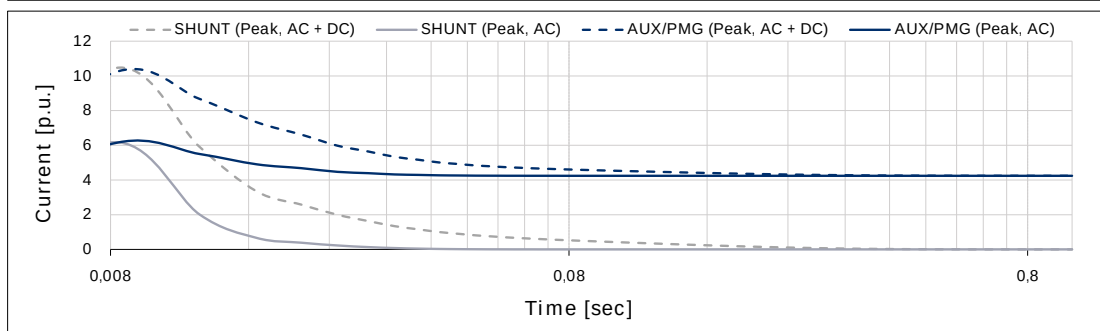
Typical 3-phase short circuit decrement curves

60 Hz - 1800 min⁻¹

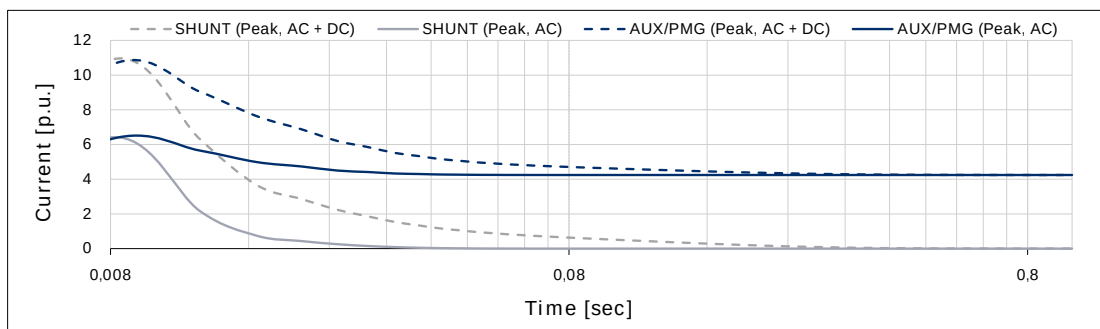
380 V



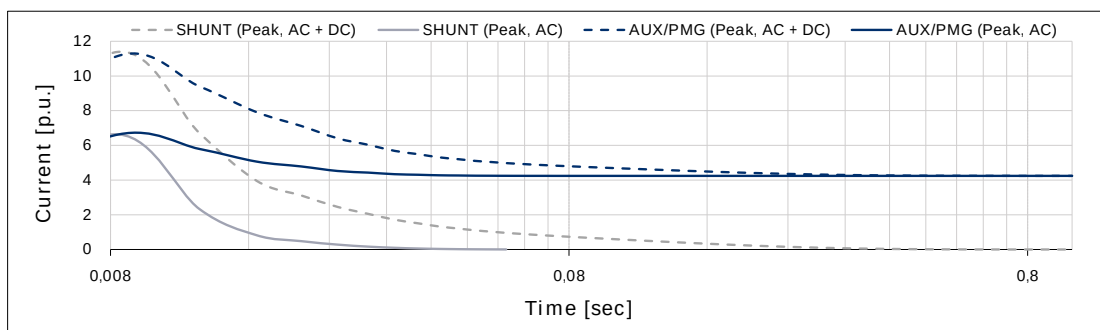
416 V



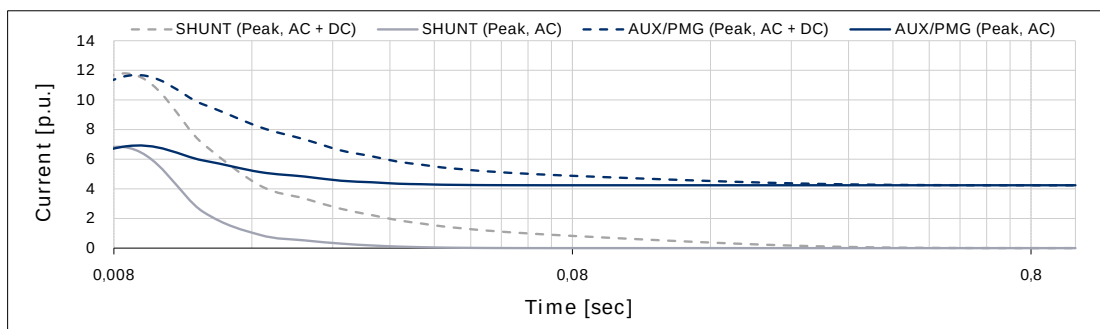
440 V



460 V



480 V



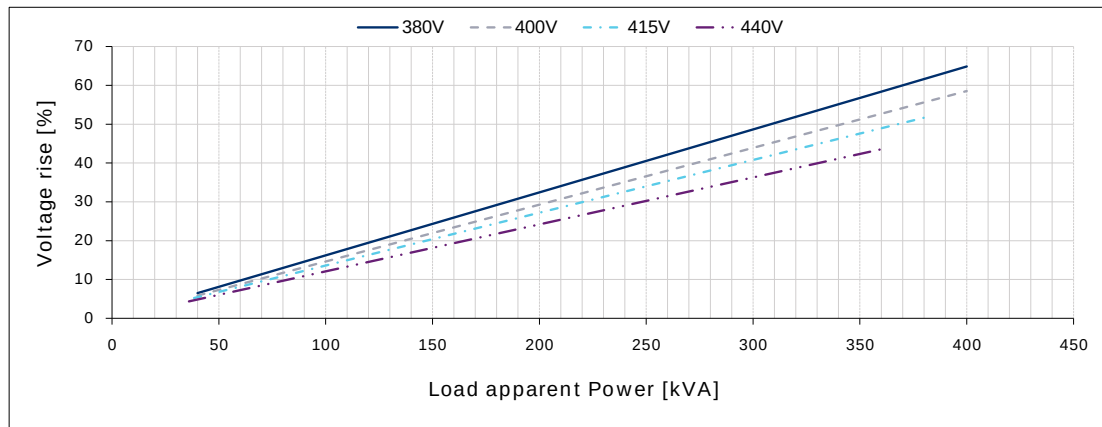
Above curves are based on a three-phase short circuit
For other type of short circuit use the following multiplication factors

	2 phase	1 phase
Instantaneous (max)	0,98	1,23
Continuous	1,50	1,83

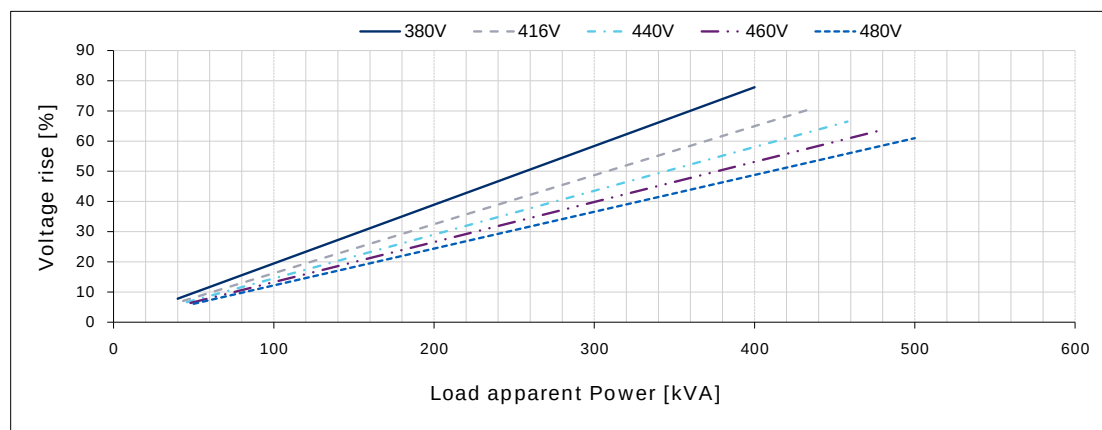
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Typical load rejection curves

50 Hz - 1500 min-1



60 Hz - 1800 min-1



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