

AMBIENT TEMPERATURE	40°C	WINDING DATA									
TEMPERATURE RISE	H	Winding code		MO							
INSULATION CLASS	H	Number of leads		12							
POWER FACTOR	0,8	Winding pitch		2/3							
FREQUENCY	Hz	50			60						
VOLTAGE	Star series	V	380	400	415	440	380	416	440	460	480
	Star parallel		190	200	208	220	190	208	220	230	240
RATING	kVA		180	180	180	162	180	195	206	216	225
	kW		144	144	144	130	144	156	165	173	180
EFFICIENCY (%) @ 0,8 p.f.	4/4		91,4	91,8	91,9	92,1	91,5	92,0	92,2	92,4	92,4
	3/4		92,6	92,8	92,8	92,6	92,6	93,0	93,1	93,2	93,3
	2/4		93,4	93,4	93,2	92,5	93,3	93,5	93,6	93,6	93,6
EFFICIENCY (%) @ 1,0 p.f.	4/4		93,7	94,0	94,2	94,6	93,5	93,9	94,2	94,3	94,5
	3/4		94,6	94,9	95,0	95,0	94,4	94,8	94,9	95,1	95,1
	2/4		95,3	95,3	95,3	94,8	95,0	95,2	95,3	95,4	95,4
STAND-BY RATING (163/27)	kVA		198	198	198	178	198	215	227	238	248
STAND-BY EFFICIENCY (%) @ 0,8 p.f.			91,0	91,3	91,5	91,8	91,0	91,6	91,9	92,0	92,1
SHORT CIRCUIT RATIO (referred to class H rating)			0,44	0,49	0,53	0,66	0,37	0,41	0,43	0,45	0,47
REACTANCES (%) (referred to class H rating)											
Direct axis synchronous	x _d		322	291	270	216	387	350	330	317	303
Quadrature axis synchronous	x _q		133	120	112	90	160	145	137	131	125
Direct axis transient	x' _d		19,8	17,9	16,6	13,3	23,8	21,5	20,3	19,5	18,6
Direct axis subtransient	x'' _d		13,9	12,6	11,7	9,4	16,7	15,1	14,3	13,7	13,1
Quadrature axis subtransient	x'' _q		15,3	13,8	12,9	10,3	18,4	16,6	15,7	15,1	14,4
Negative sequence	x ₂		14,6	13,2	12,3	9,8	17,6	15,9	15,0	14,4	13,8
Zero sequence	x ₀		5,9	5,3	4,9	3,9	7,0	6,4	6,0	5,8	5,5

TIME CONSTANTS [s]

Open circuit (T' _{do})	0,912	Subtransient (T'' _d)	0,008
Transient (T' _d)	0,092	Armature (T _a)	0,010

MECHANICAL CHARACTERISTICS

D-end bearing/Lubrication	Available on double bearing configuration (on request)
N-end bearing/Lubrication	6313 2Z C3 / Prelubricated
Weight [kg]	513
Inertia (J) [kgm ²]	1,56
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	0,024
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

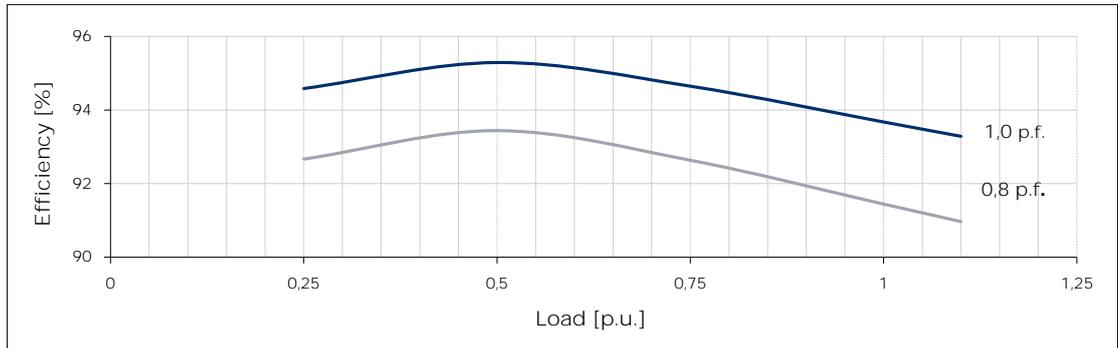
IEC 60034-1; BS 4999-5000; NEMA MG 1.32.
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THREE-PHASE SYNCHRONOUS GENERATOR
MXB-E 250 SA 4

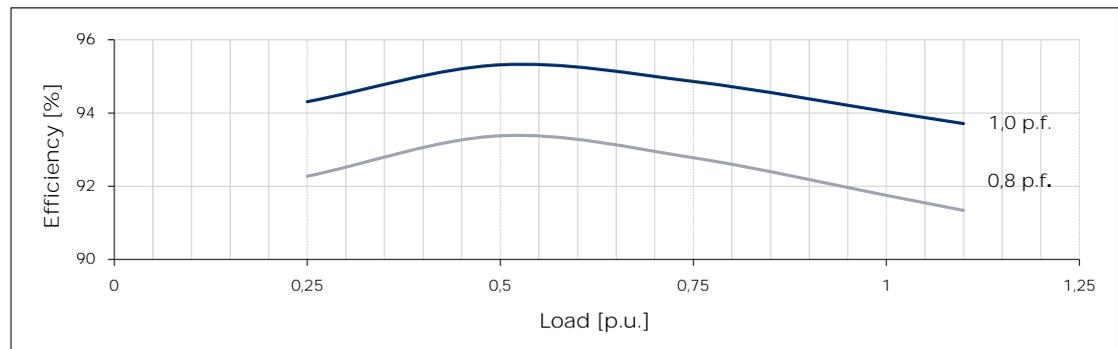
Typical efficiency curves

50 Hz - 1500 min⁻¹

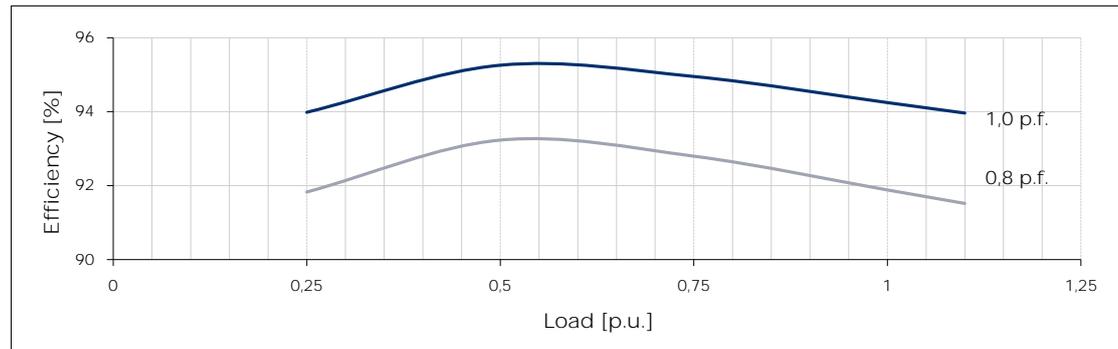
380 V



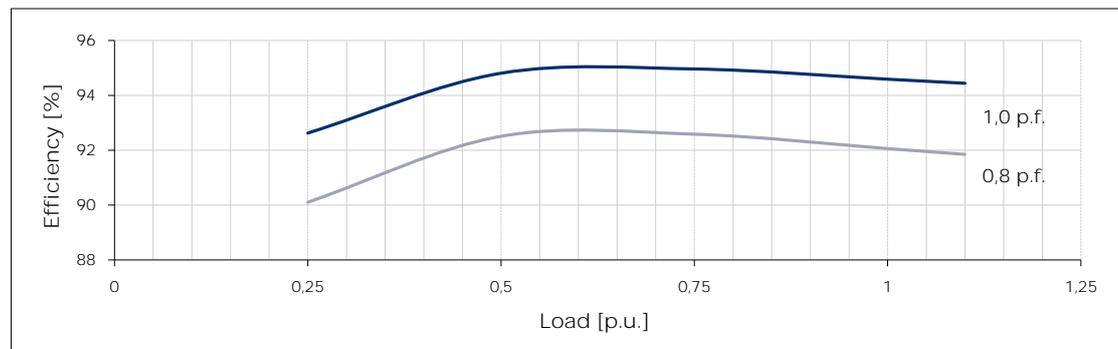
400 V



415 V



440 V

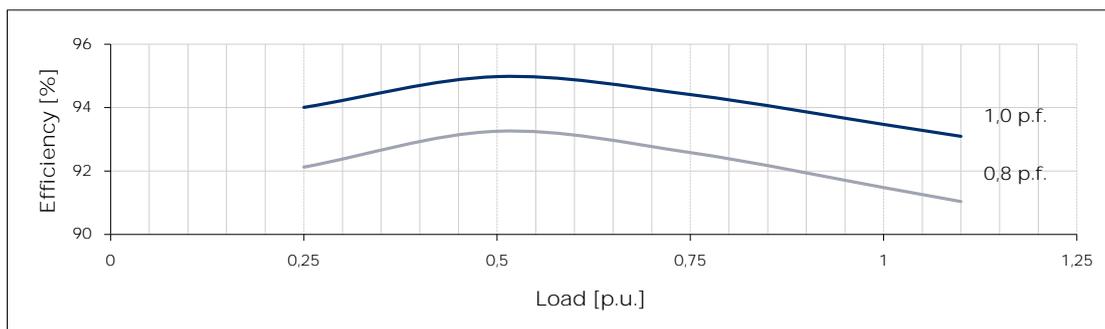


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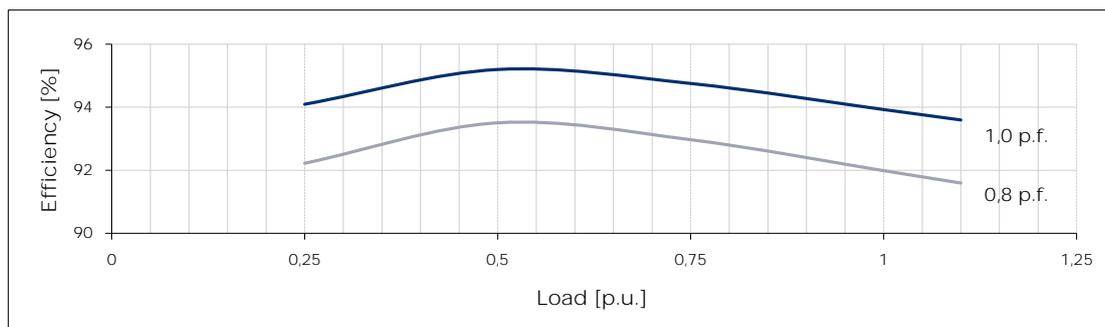
Typical efficiency curves

60 Hz - 1800 min⁻¹

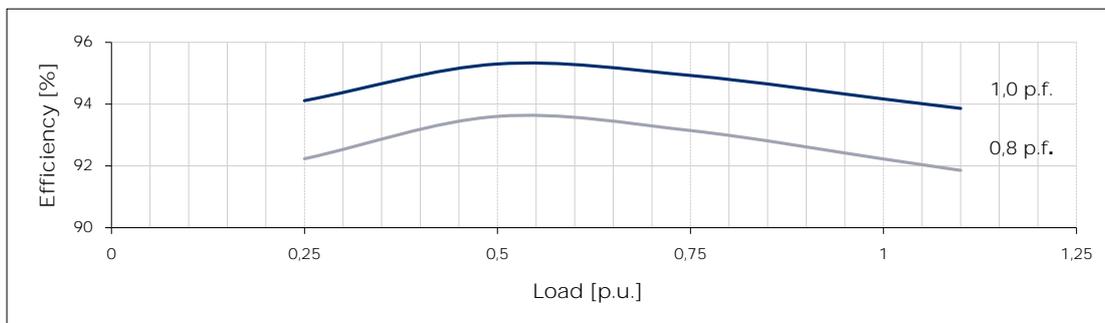
380 V



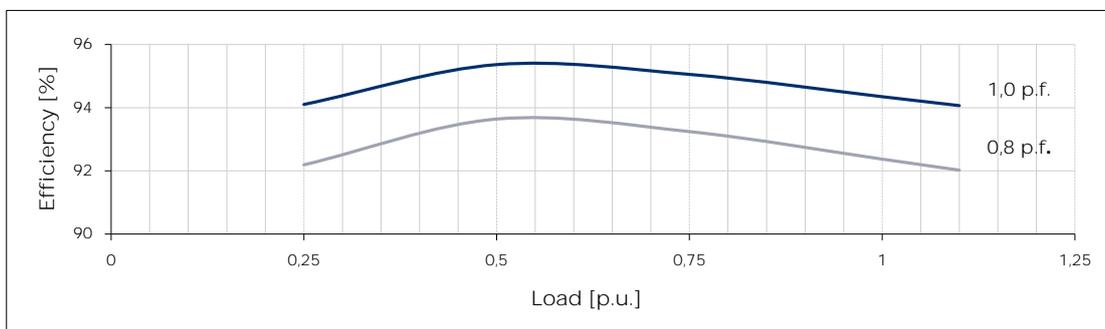
416 V



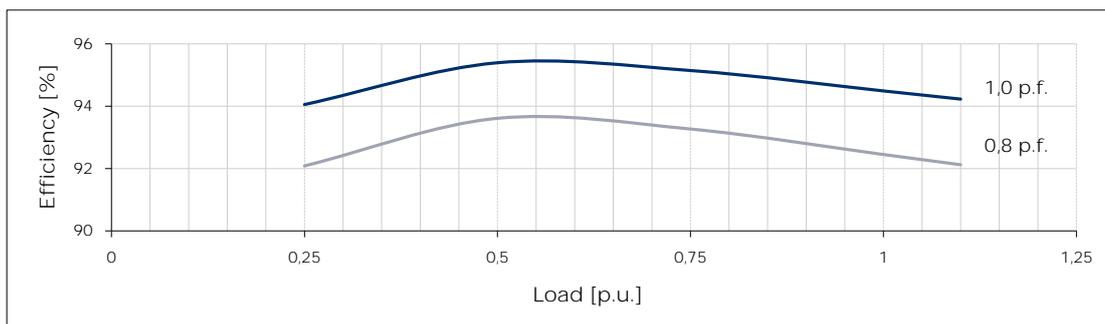
440 V



460 V



480 V





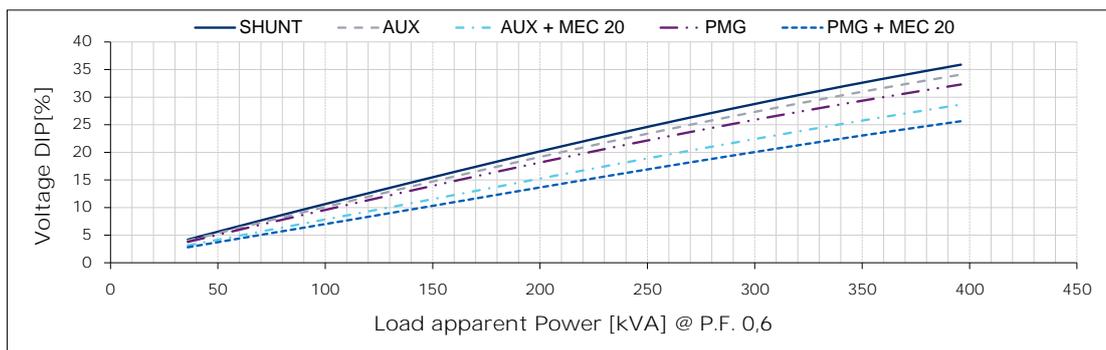
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Inspired solutions

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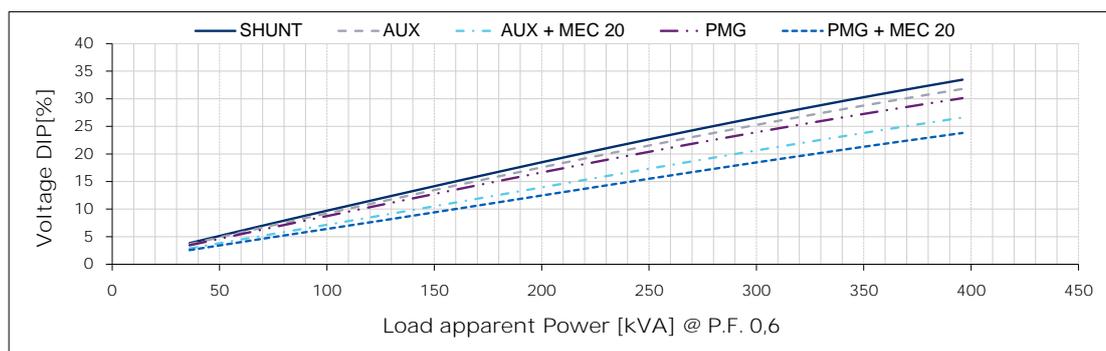
Typical voltage DIP curves

50 Hz - 1500 min⁻¹

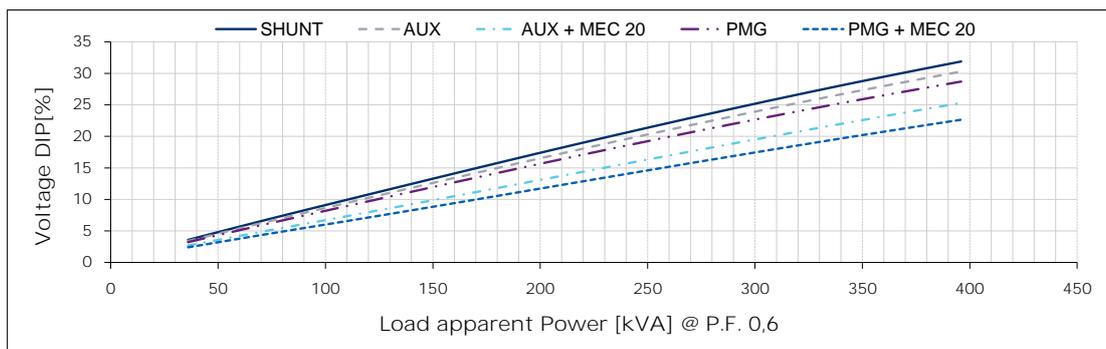
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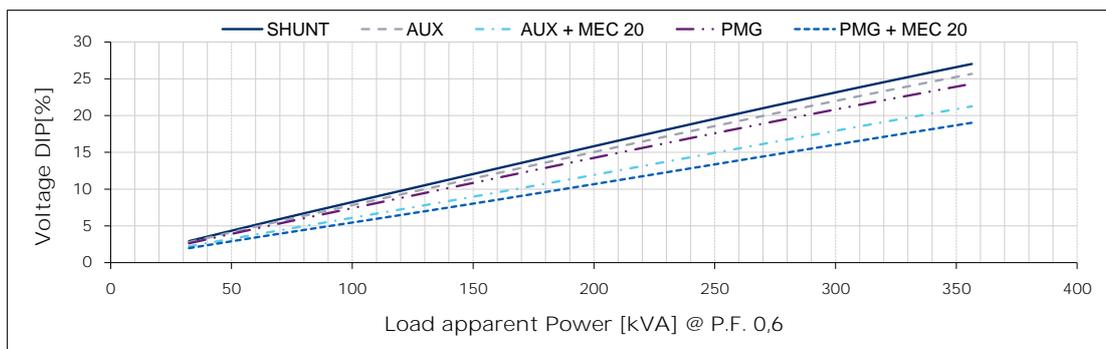
400 V



415 V



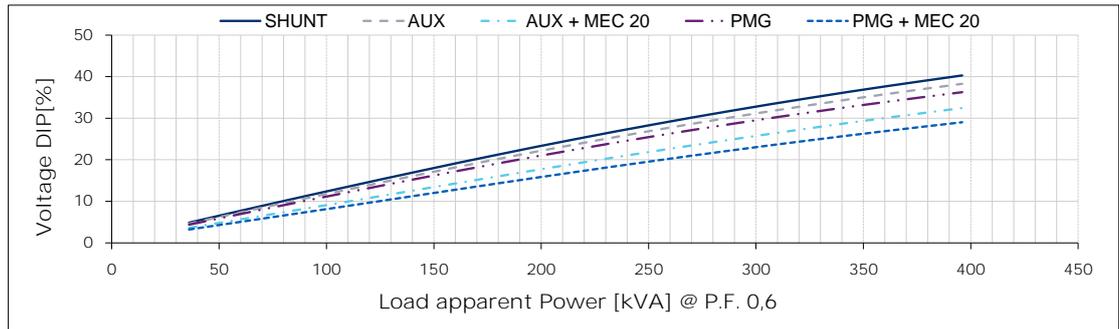
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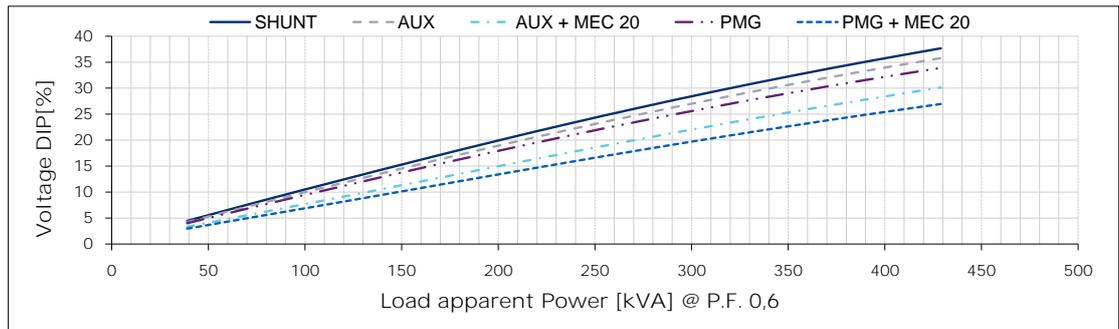
Typical voltage DIP curves

60 Hz - 1800 min⁻¹

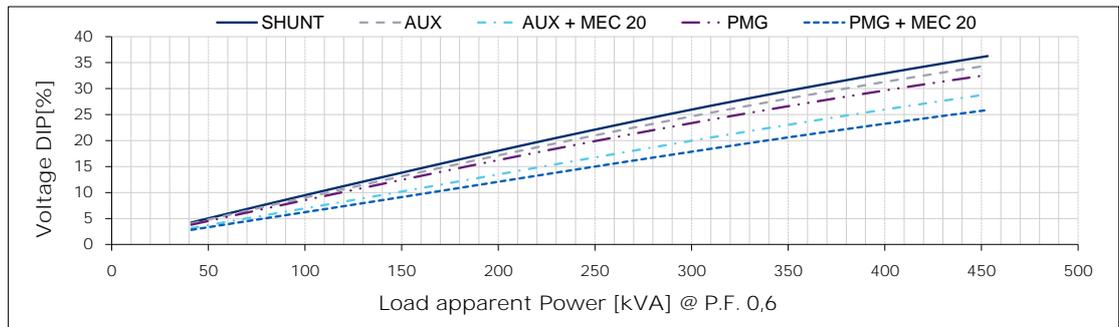
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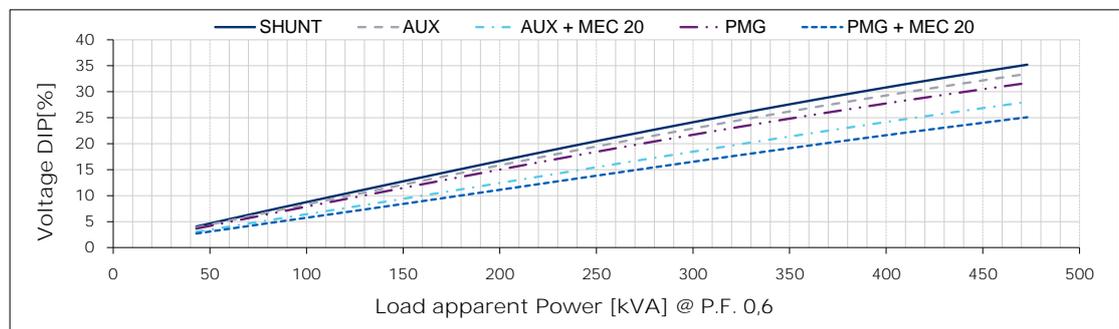
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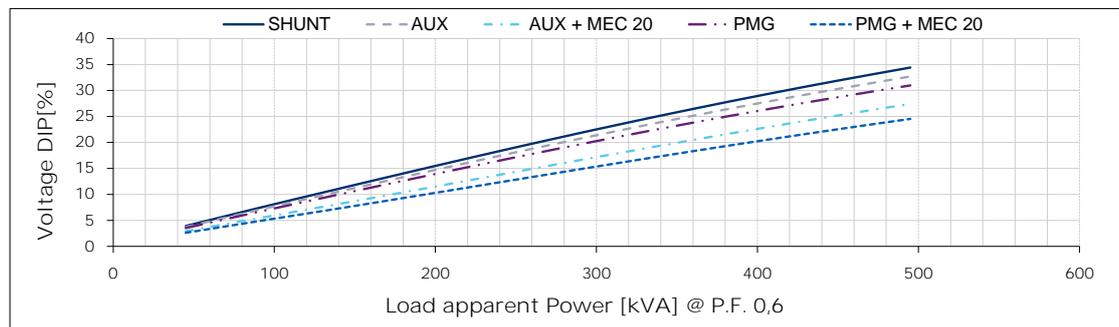
440 V



460 V



480 V



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



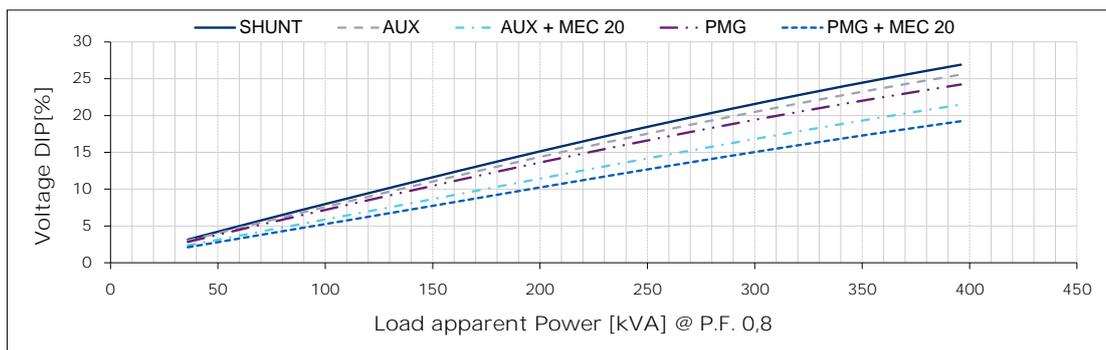
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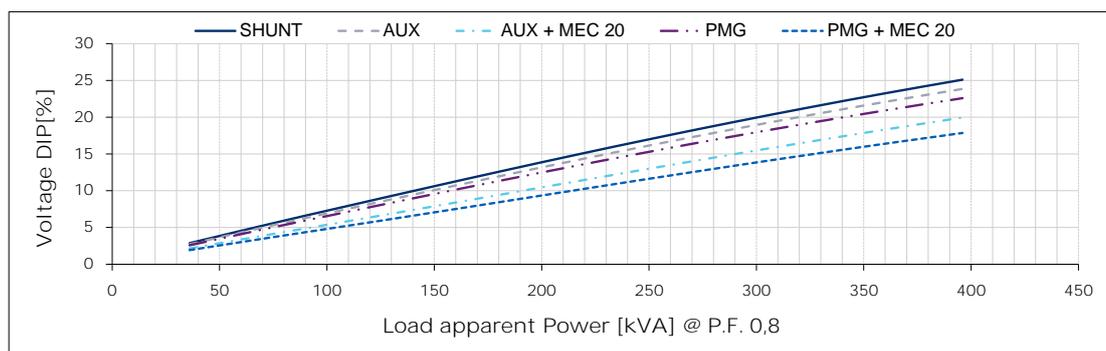
Typical voltage DIP curves

50 Hz - 1500 min⁻¹

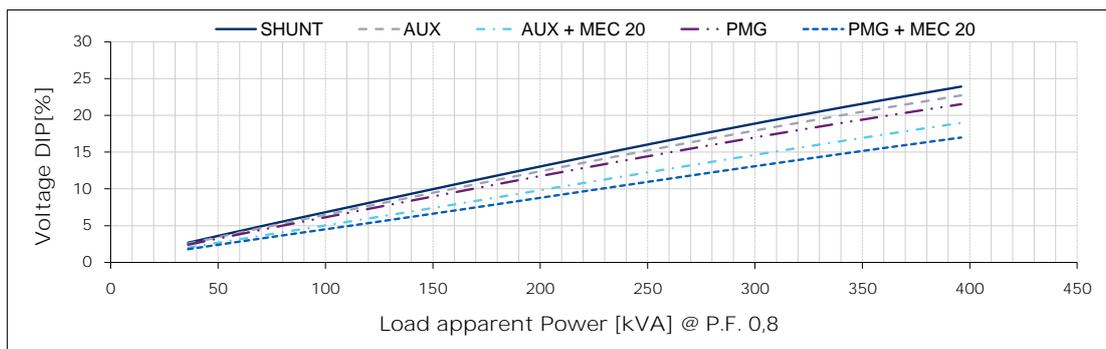
380 V



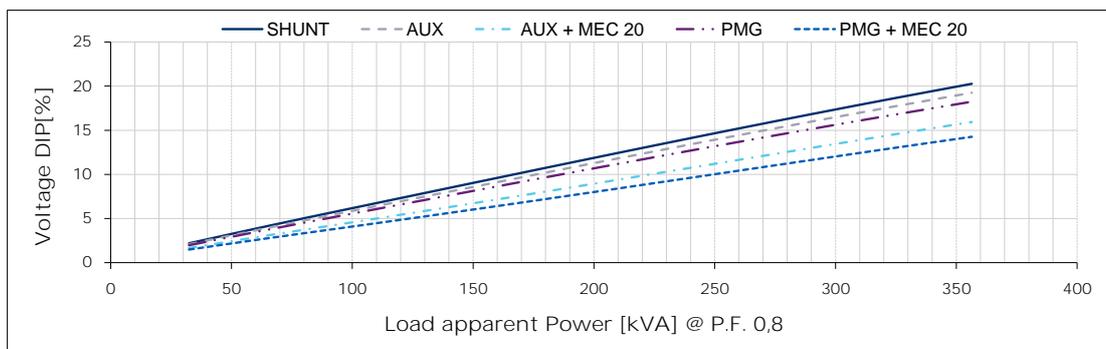
400 V



415 V



440 V





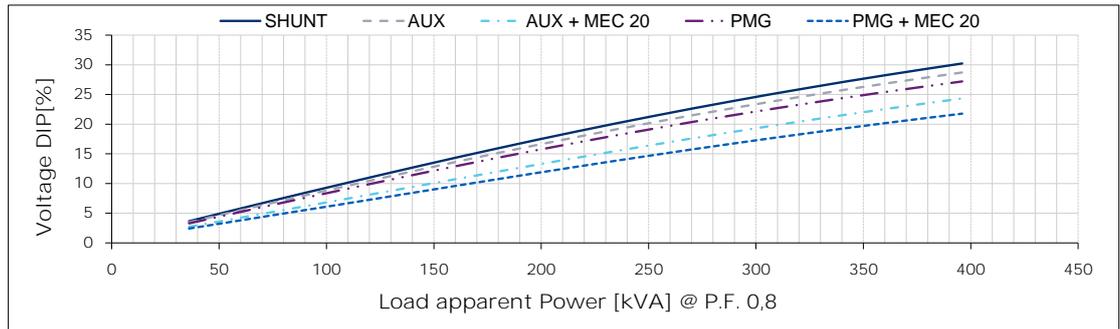
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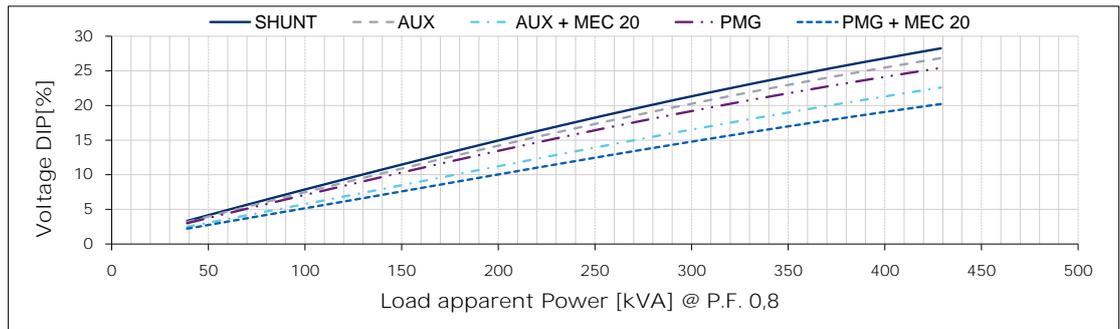
Typical voltage DIP curves

60 Hz - 1800 min⁻¹

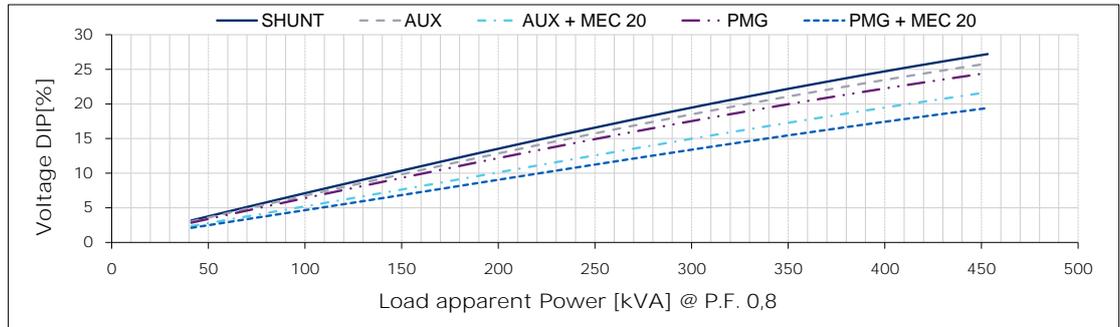
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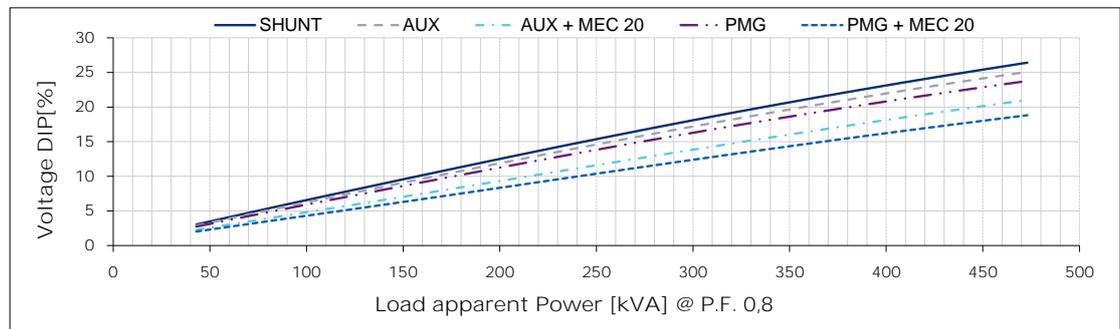
416 V



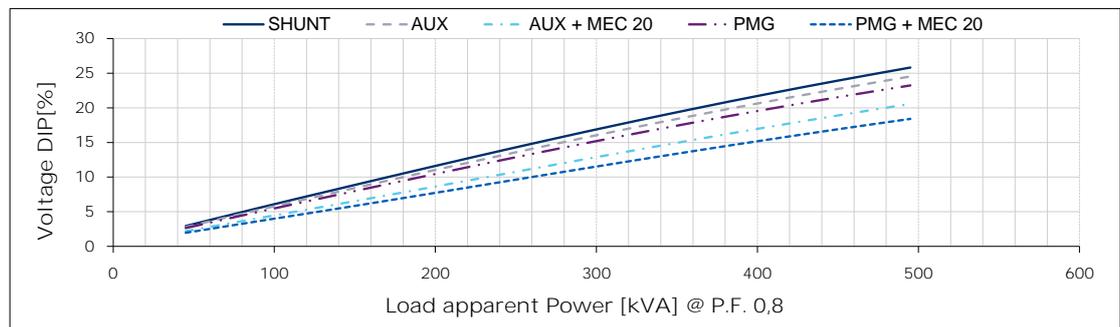
440 V



460 V



480 V

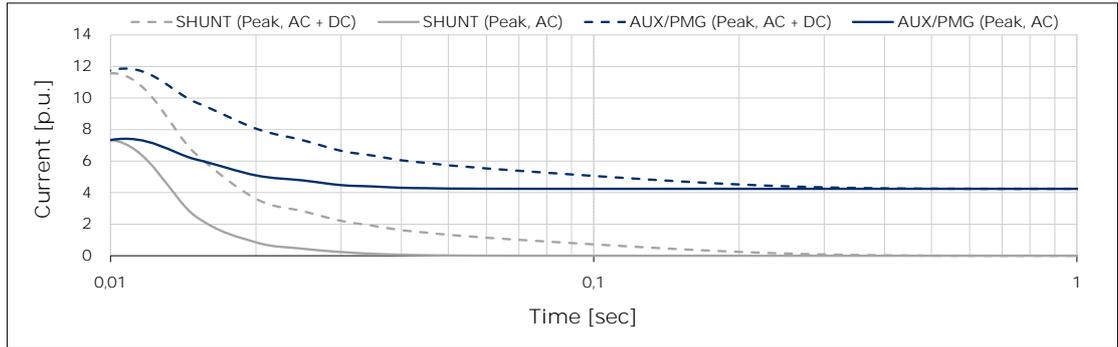


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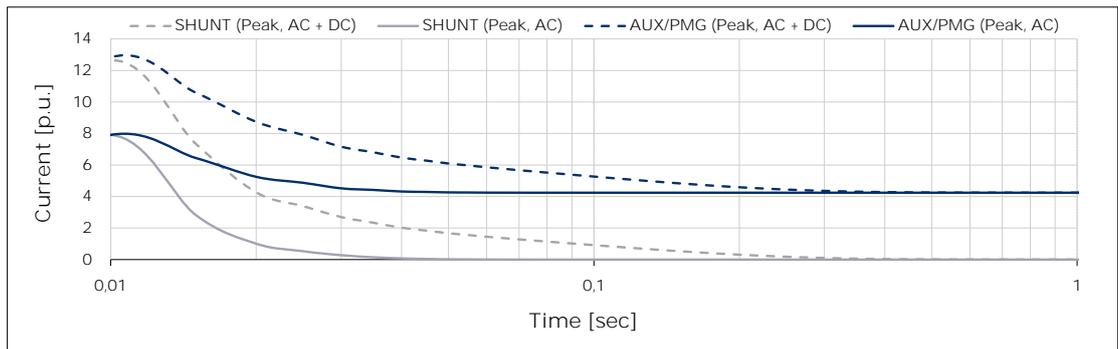
Typical 3-phase short circuit decrement curves

50 Hz - 1500 min⁻¹

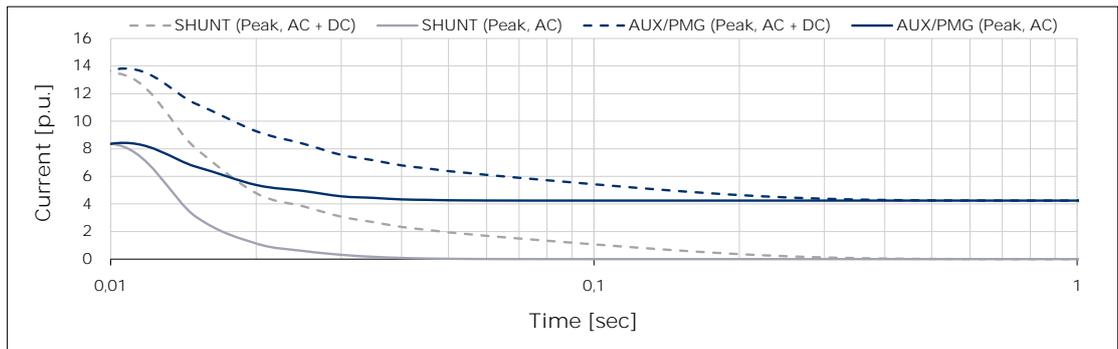
380 V



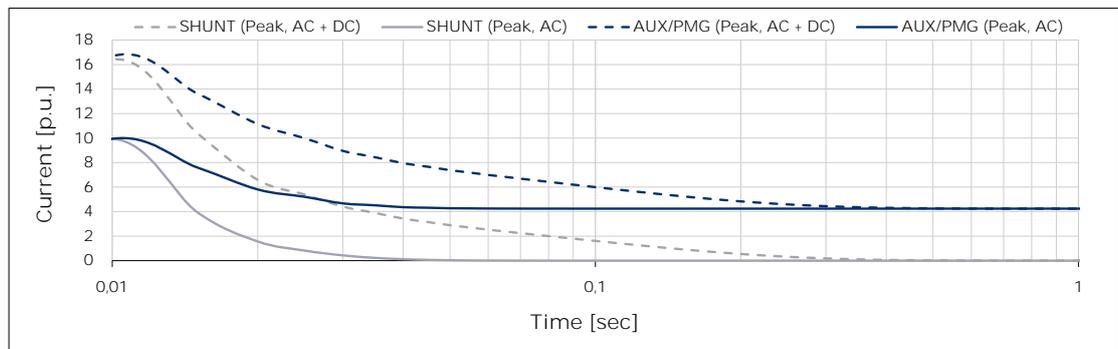
400 V



415 V



440 V

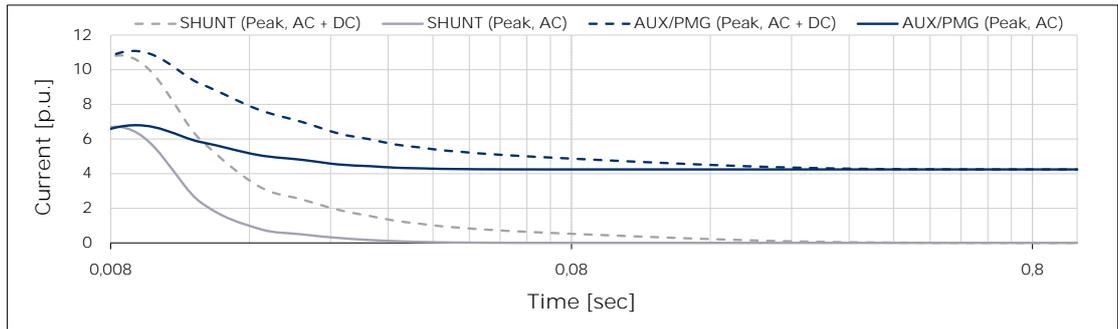


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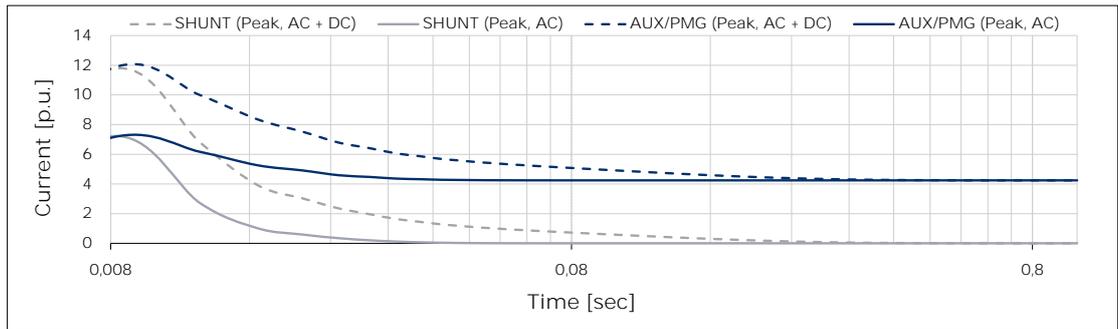
Typical 3-phase short circuit decrement curves

60 Hz - 1800 min⁻¹

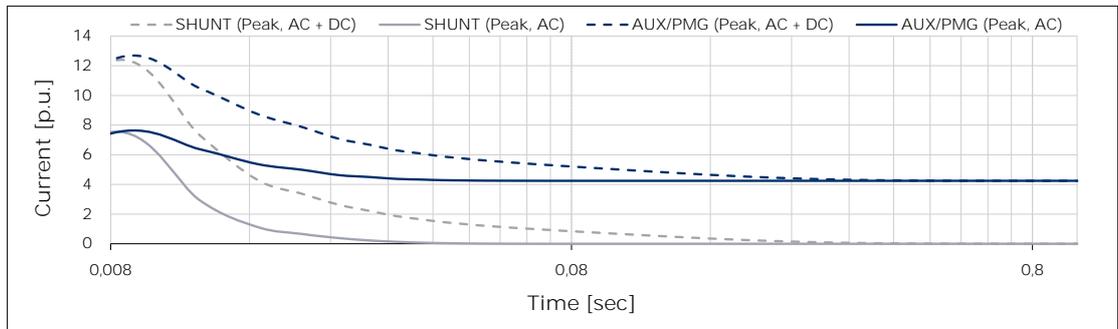
380 V



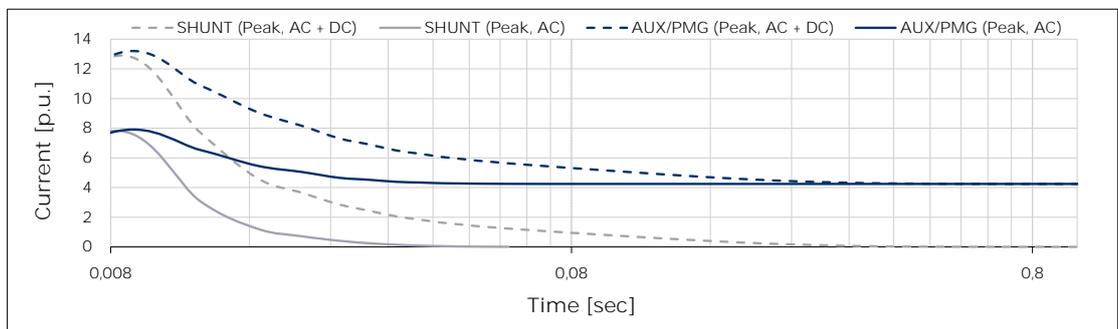
416 V



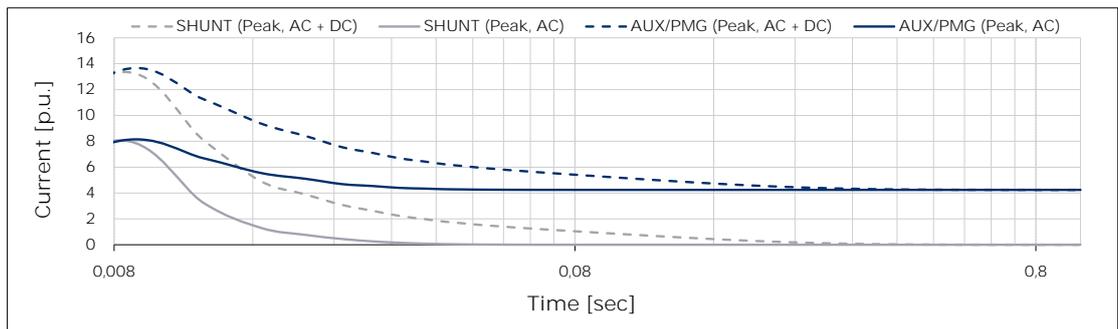
440 V



460 V



480 V

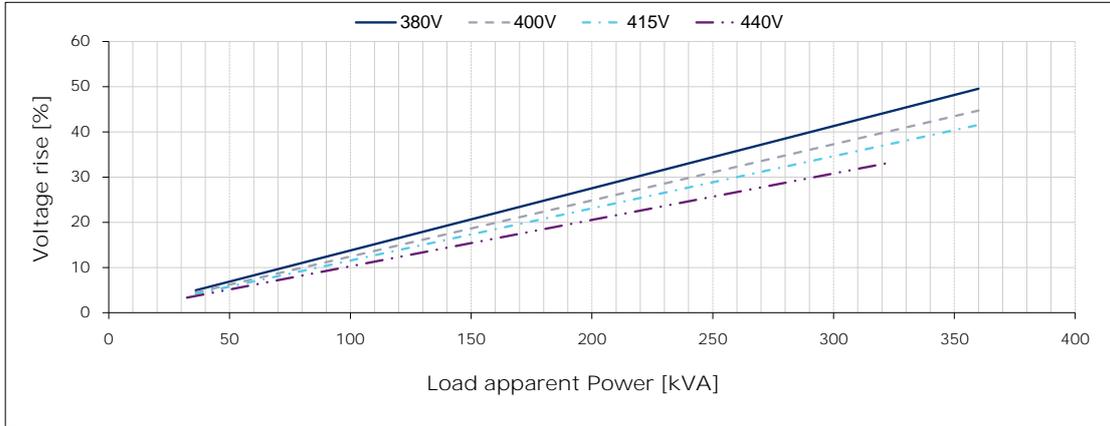


Above curves are based on a three-phase short circuit
For other type of short circuit use the following multiplication factors

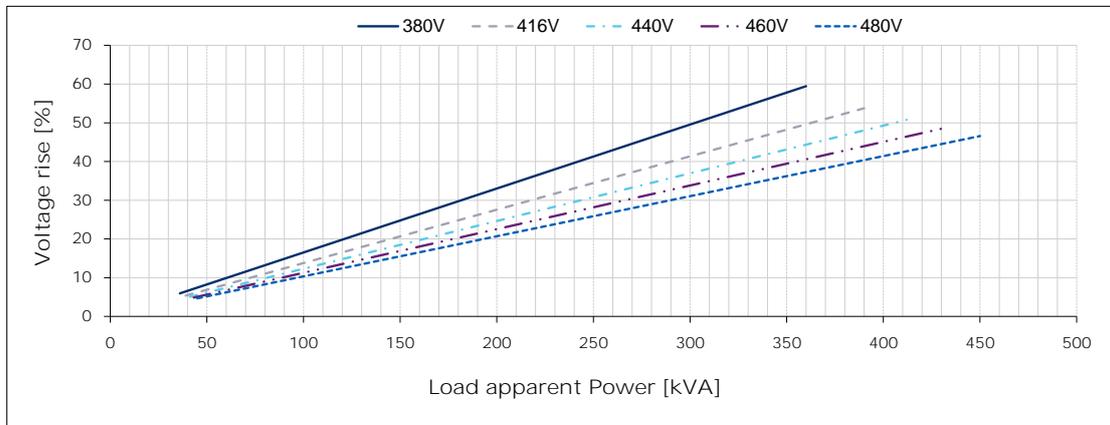
	2 phase	1 phase
Instantaneous (max)	0,92	1,15
Continuous	1,50	1,83

Typical load rejection curves

50 Hz - 1500 min-1



60 Hz - 1800 min-1



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