

AMBIENT TEMPERATURE TEMPERATURE RISE INSULATION CLASS POWER FACTOR		40°C H H 0,8						WINDING DATA Winding code Number of leads Winding pitch			M0 12 2/3	
FREQUENCY		Hz	50				60					
VOLTAGE		Star series Star parallel	V	380 190	400 200	415 208	440 220	380 190	416 208	440 220	460 230	480 240
RATING		kVA kW	67 54	70 56	70 56	63 50	70 56	76 61	80 64	84 67	88 70	
EFFICIENCY (%) @ 0,8 p.f.		4/4	88,5	89,0	89,2	90,0	88,1	88,8	89,2	89,5	89,7	
		3/4	90,2	90,5	90,7	91,0	89,7	90,3	90,6	90,8	91,0	
		2/4	91,5	91,7	91,7	91,5	90,8	91,2	91,5	91,7	91,8	
EFFICIENCY (%) @ 1,0 p.f.		4/4	91,2	91,7	92,0	92,9	90,6	91,3	91,7	92,0	92,2	
		3/4	92,7	93,0	93,2	93,7	92,0	92,5	92,8	93,1	93,3	
		2/4	93,7	94,0	94,0	93,9	93,0	93,4	93,6	93,7	93,9	
STAND-BY RATING (163/27)		kVA	74	77	77	69	77	83	88	92	97	
STAND-BY EFFICIENCY (%) @ 0,8 p.f.			87,9	88,3	88,6	89,5	87,4	88,3	88,7	89,0	89,2	
SHORT CIRCUIT RATIO (referred to class H rating)			0,33	0,35	0,38	0,48	0,27	0,29	0,31	0,33	0,34	
REACTANCES (%) (referred to class H rating)												
Direct axis synchronous		x _d	401	378	352	282	503	455	430	412	396	
Quadrature axis synchronous		x _q	168	159	147	118	211	191	180	173	166	
Direct axis transient		x' _d	26,8	25,3	23,5	18,8	33,6	30,4	28,8	27,5	26,5	
Direct axis subtransient		x'' _d	16,3	15,3	14,2	11,4	20,4	18,4	17,4	16,7	16,1	
Quadrature axis subtransient		x'' _q	17,9	16,9	15,7	12,5	22,4	20,3	19,2	18,3	17,7	
Negative sequence		x ₂	17,1	16,1	15,0	12,0	21,4	19,3	18,3	17,5	16,9	
Zero sequence		x ₀	8,4	7,9	7,4	5,9	10,5	9,5	9,0	8,6	8,3	

TIME CONSTANTS [s]

Open circuit (T' _{do})	0,871	Subtransient (T'' _d)	0,010
Transient (T' _d)	0,087	Armature (T _a)	0,009

MECHANICAL CHARACTERISTICS

D-end bearing/Lubrication	Available on double bearing configuration (on request)
N-end bearing/Lubrication	6309 2RS1 C3 WT / Prelubricated
Weight [kg]	283
Inertia (J) [kgm ²]	0,73
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	0,105
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)

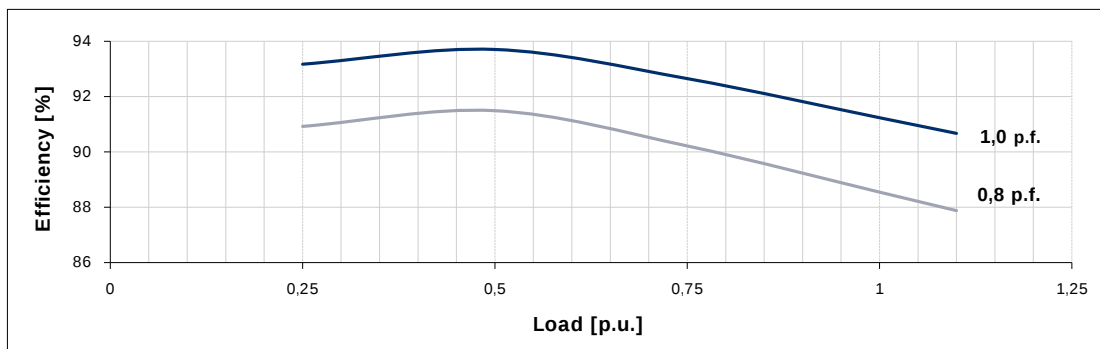
STANDARDS

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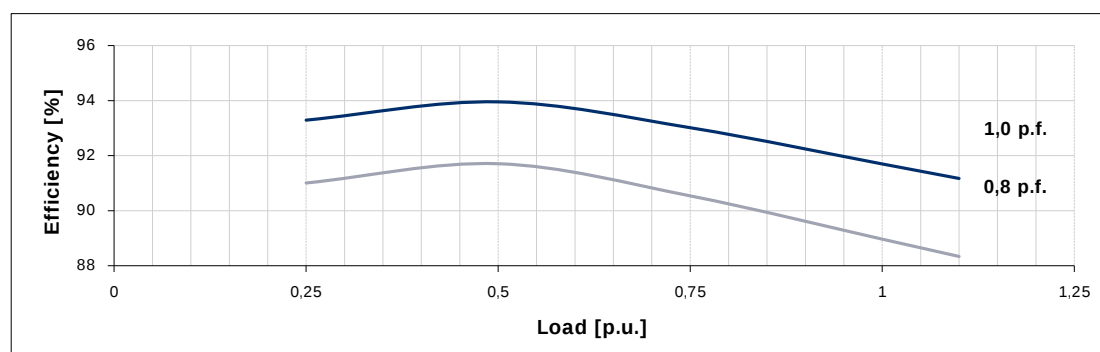
Typical efficiency curves

50 Hz - 1500 min⁻¹

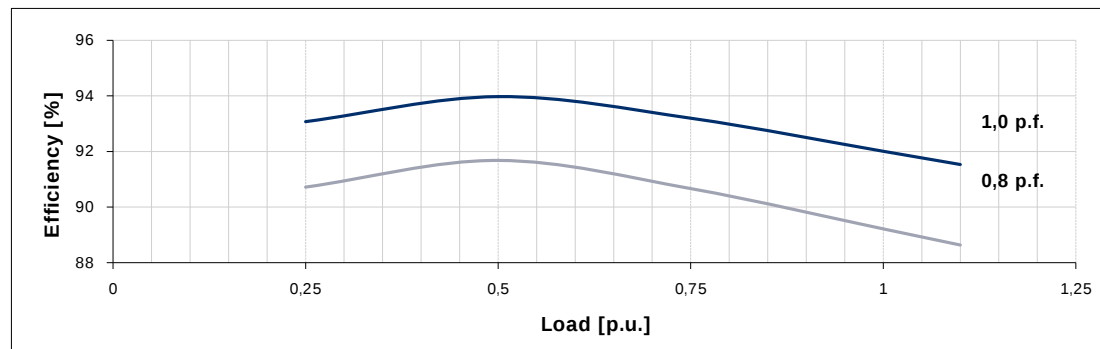
380 V



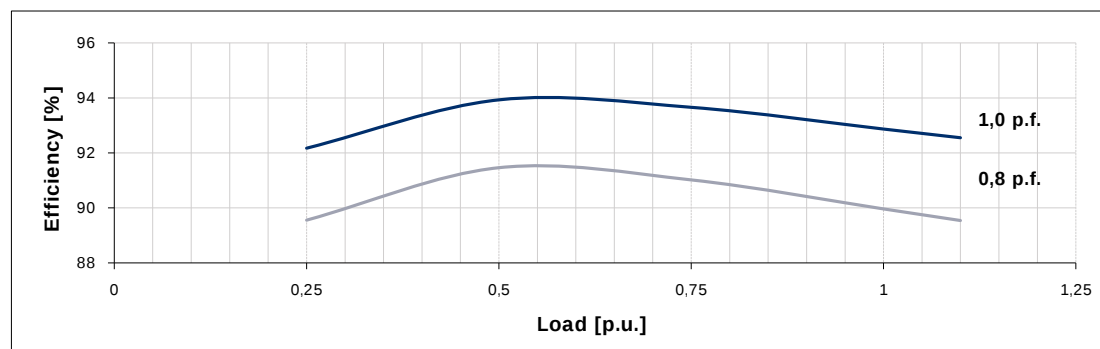
400 V



415 V



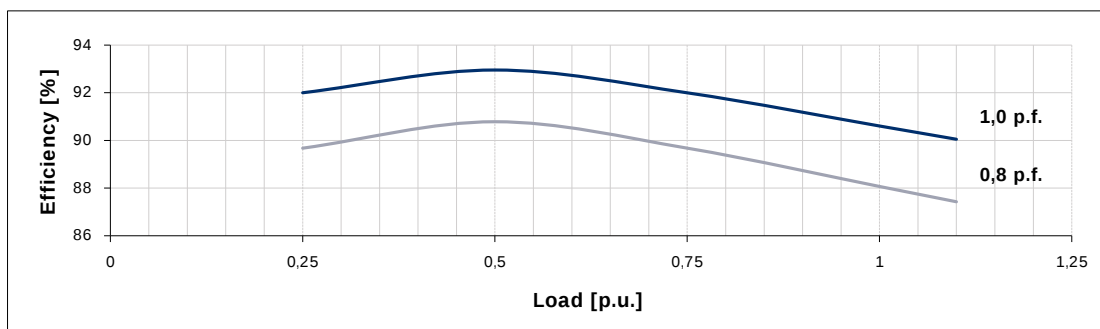
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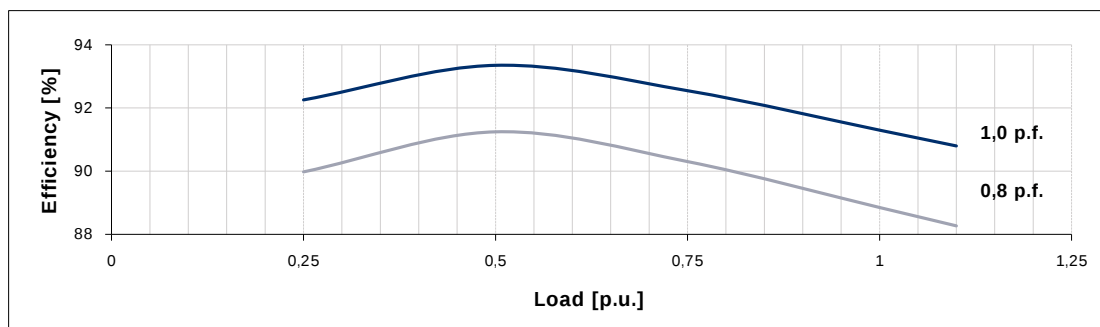
Typical efficiency curves

60 Hz - 1800 min⁻¹

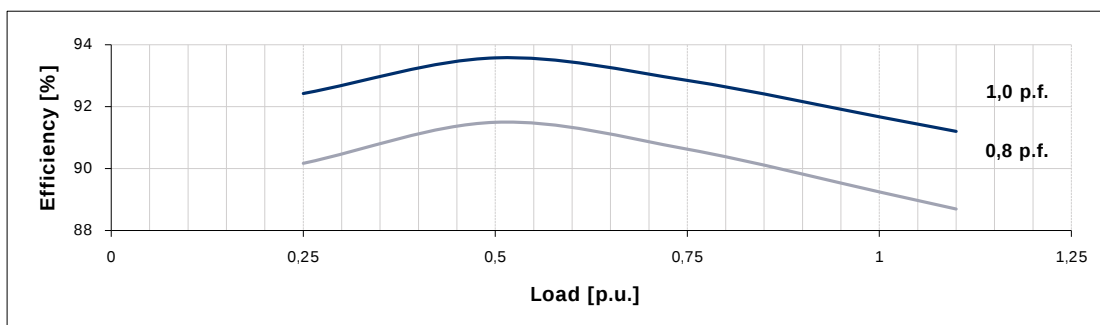
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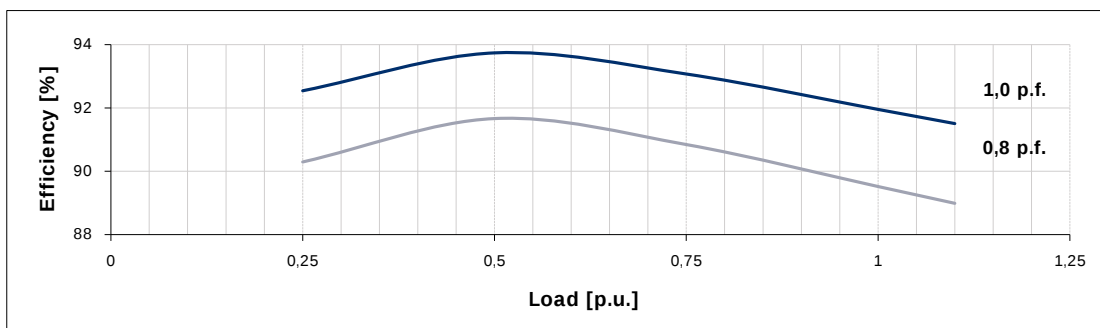
416 V



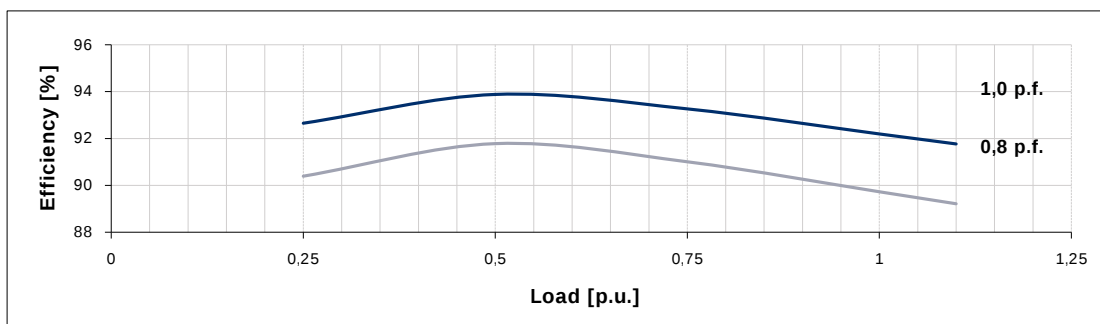
440 V



460 V



480 V

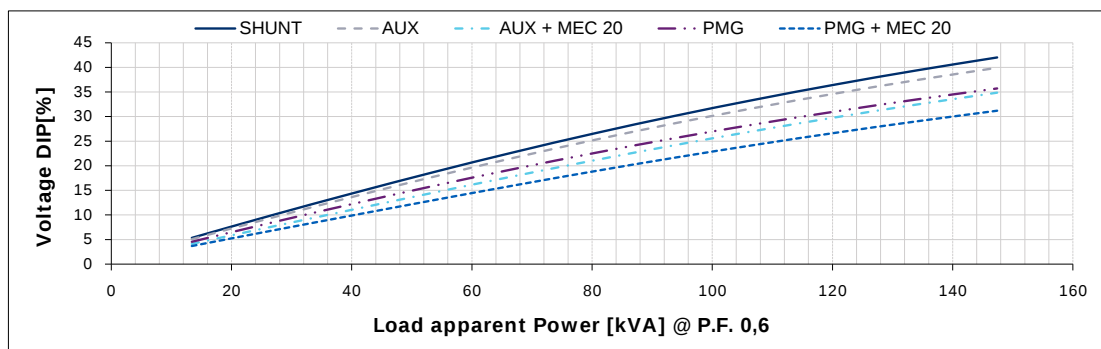


THREE-PHASE SYNCHRONOUS GENERATOR MXB-E 225 XA 4

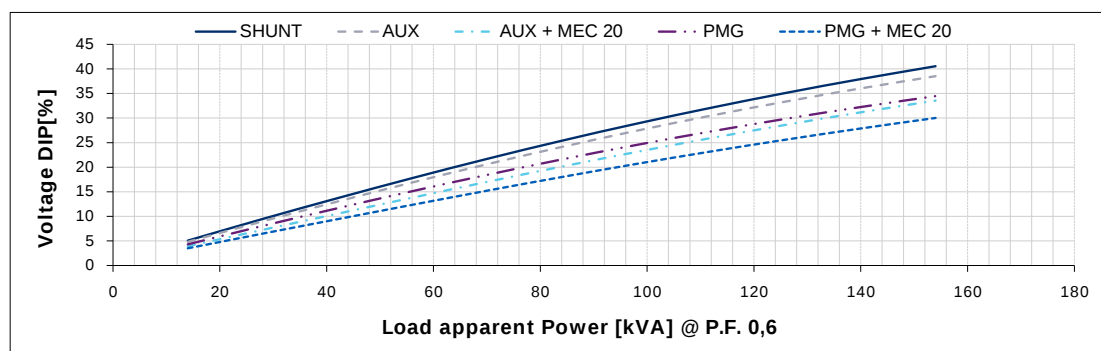
Typical voltage DIP curves

50 Hz - 1500 min⁻¹

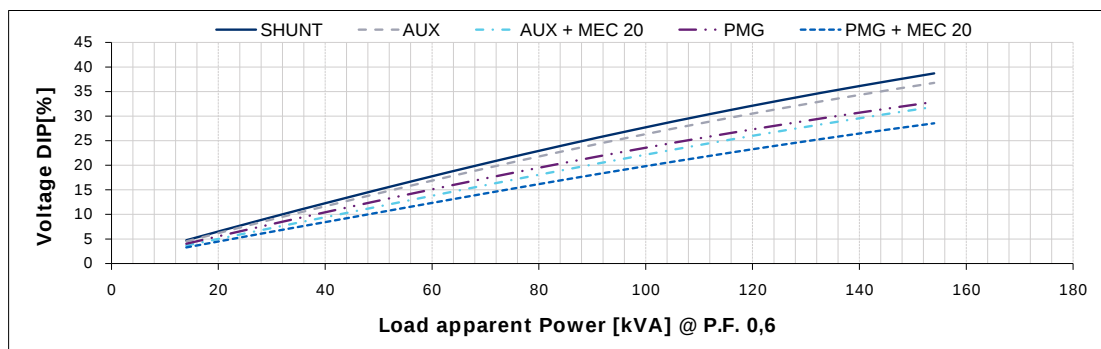
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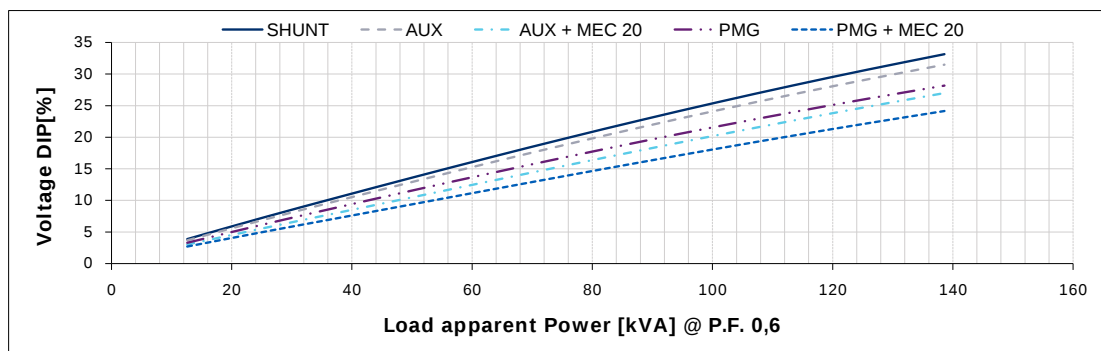
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415 V



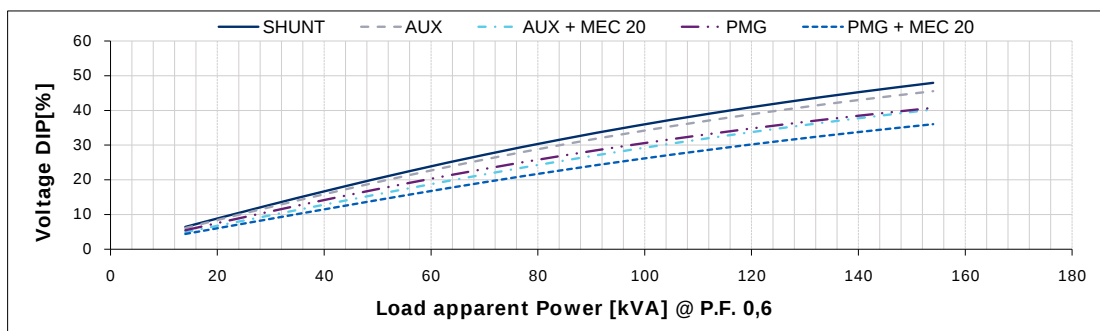
440 V



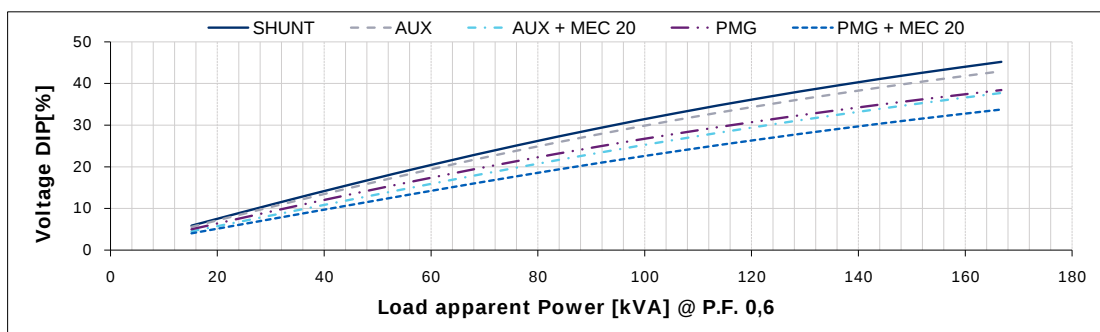
Typical voltage DIP curves

60 Hz - 1800 min⁻¹

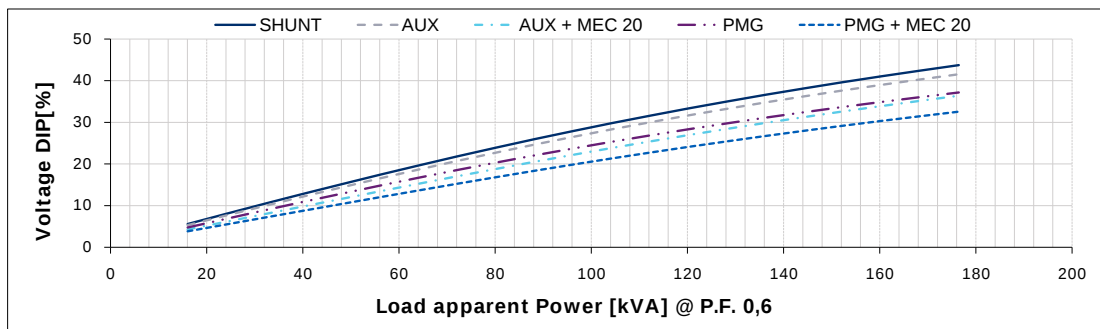
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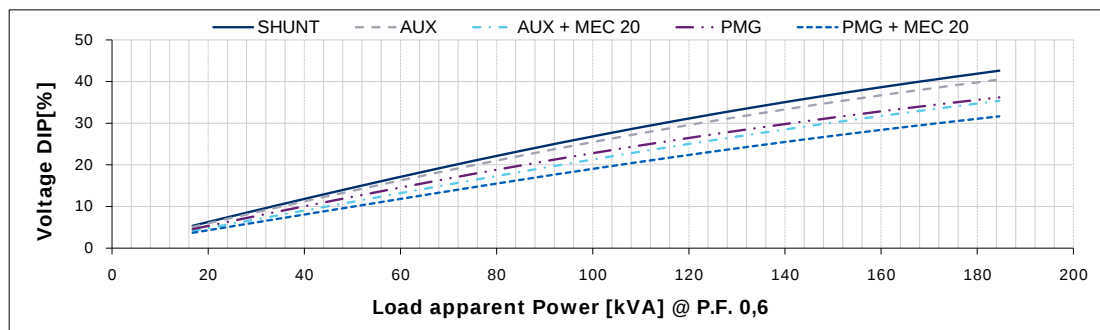
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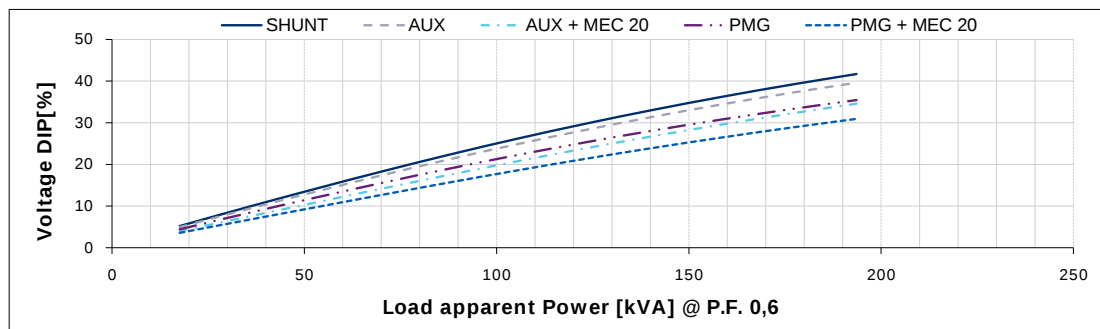
440 V



460 V



480 V



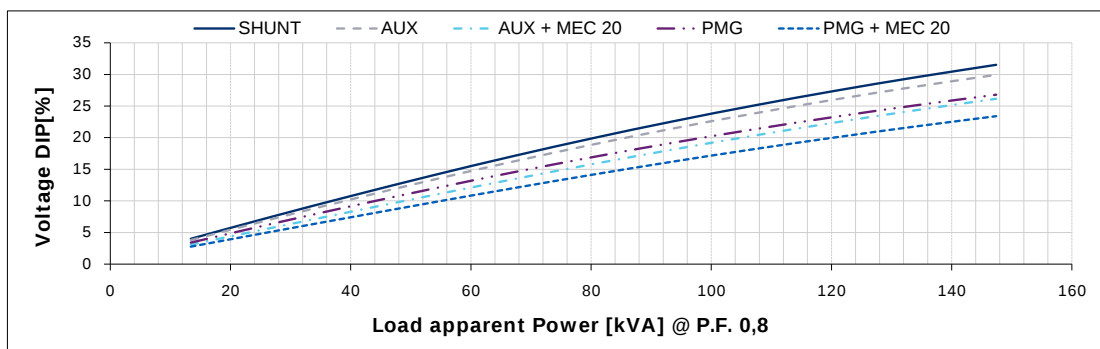
For P.F. different from 0,6 the following simplified formula can be used: $\Delta V (@ P.F.) = \Delta V (@ 0,6) \cdot \sin(\arccos(P.F.)) / 0,8$

THREE-PHASE SYNCHRONOUS GENERATOR MXB-E 225 XA 4

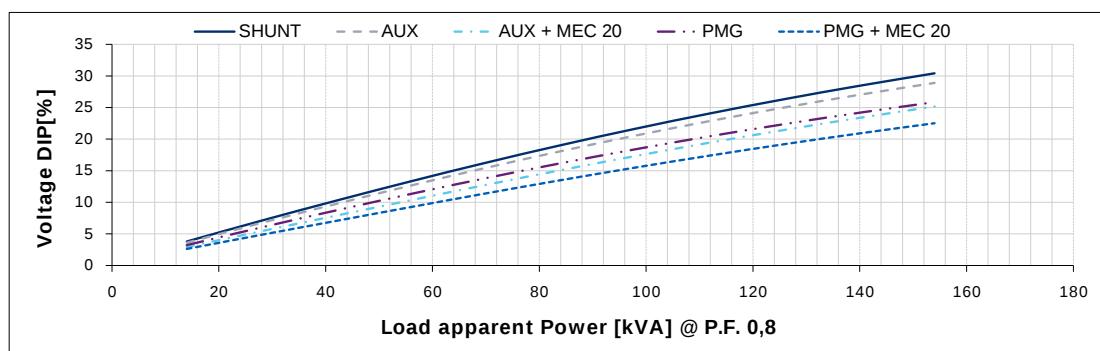
Typical voltage DIP curves

50 Hz - 1500 min⁻¹

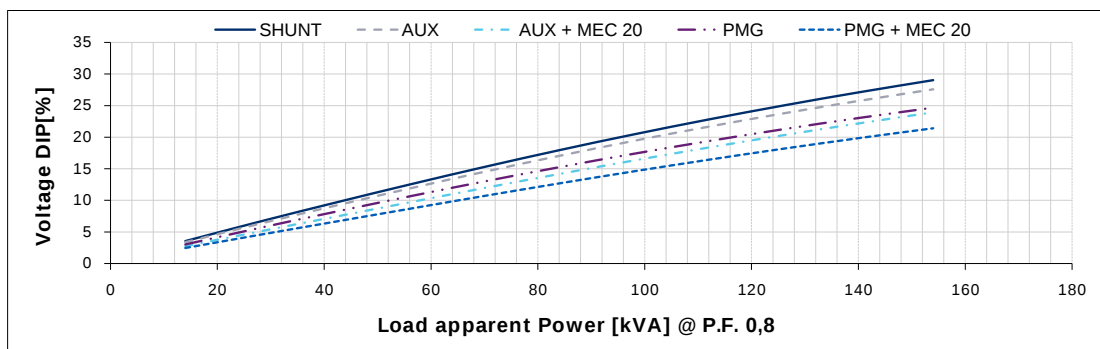
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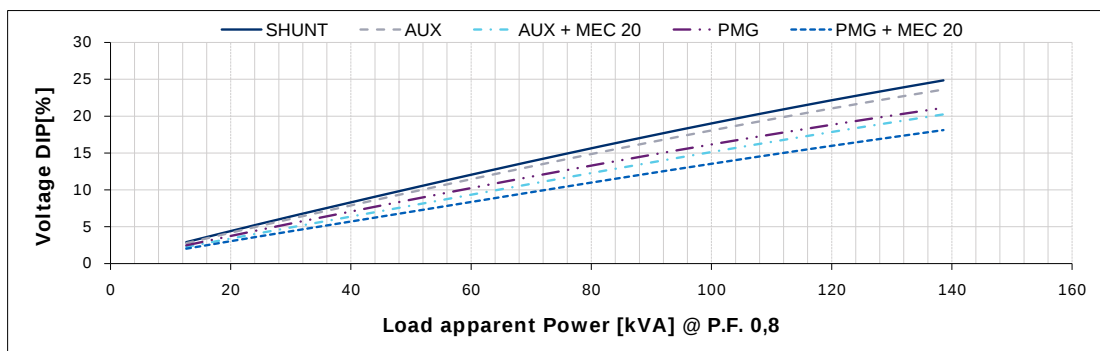
400 V



415 V



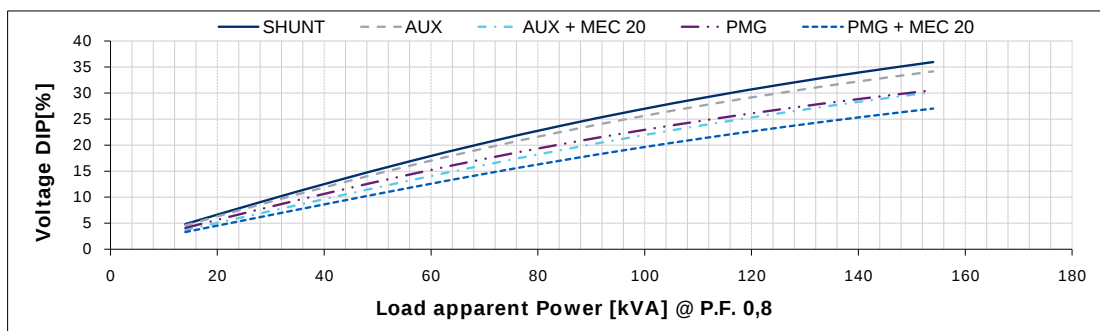
440 V



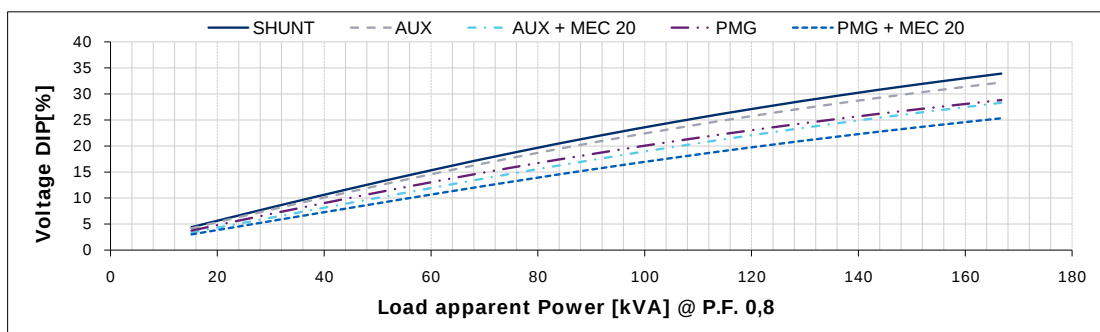
Typical voltage DIP curves

60 Hz - 1800 min⁻¹

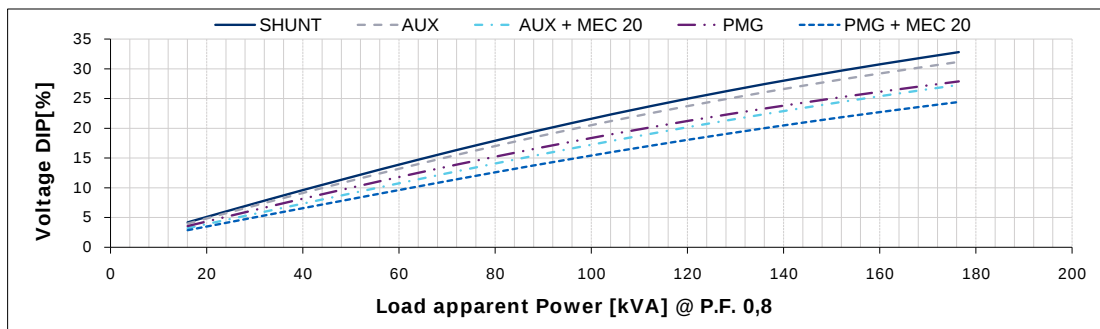
380 V



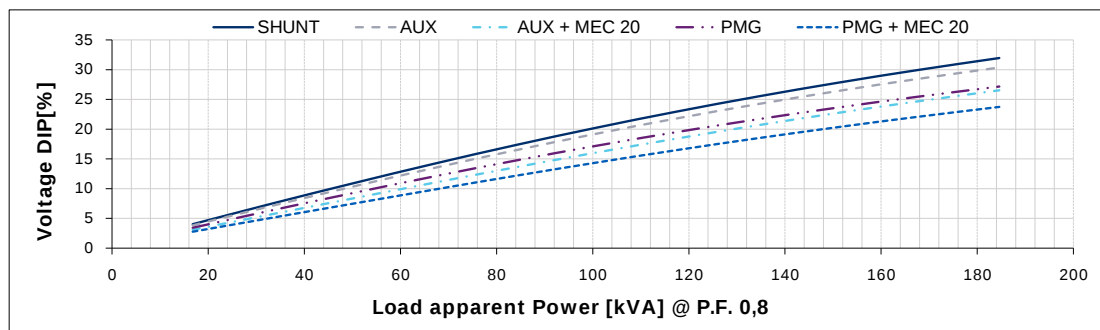
416 V



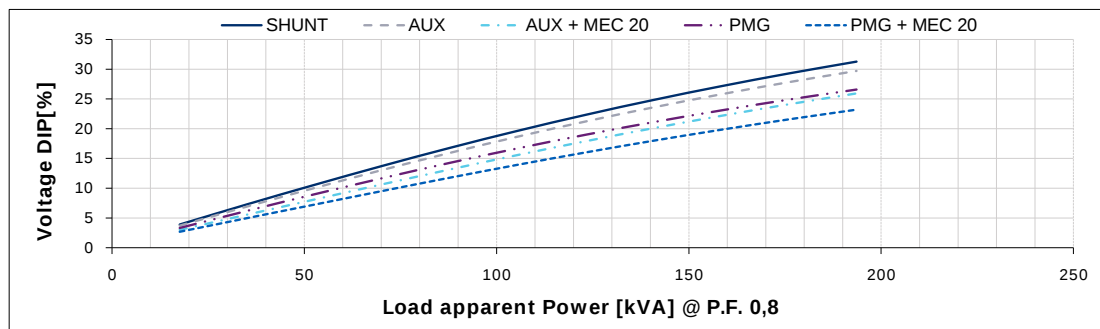
440 V



460 V



480 V

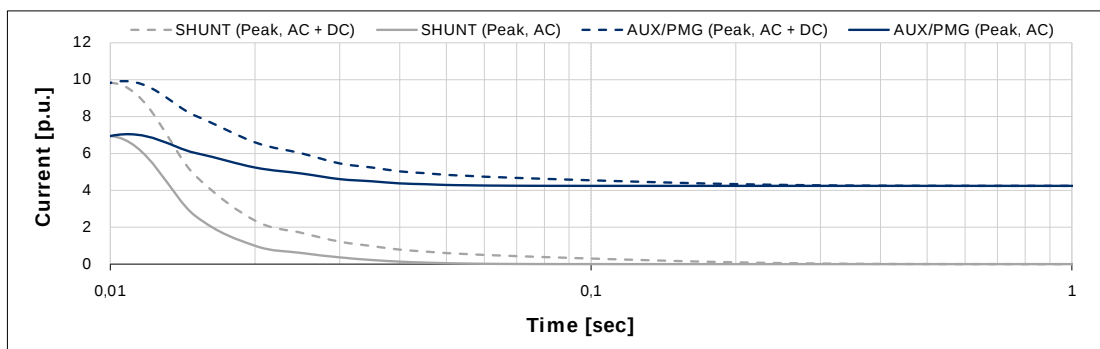


THREE-PHASE SYNCHRONOUS GENERATOR MXB-E 225 XA 4

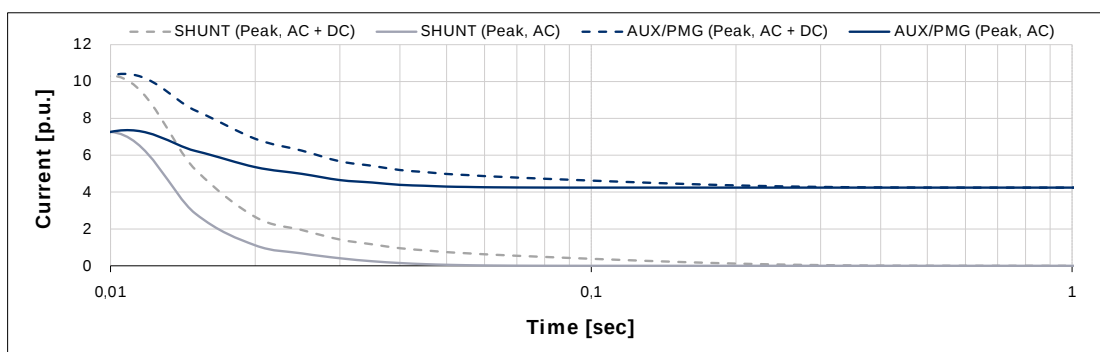
Typical 3-phase short circuit decrement curves

50 Hz - 1500 min⁻¹

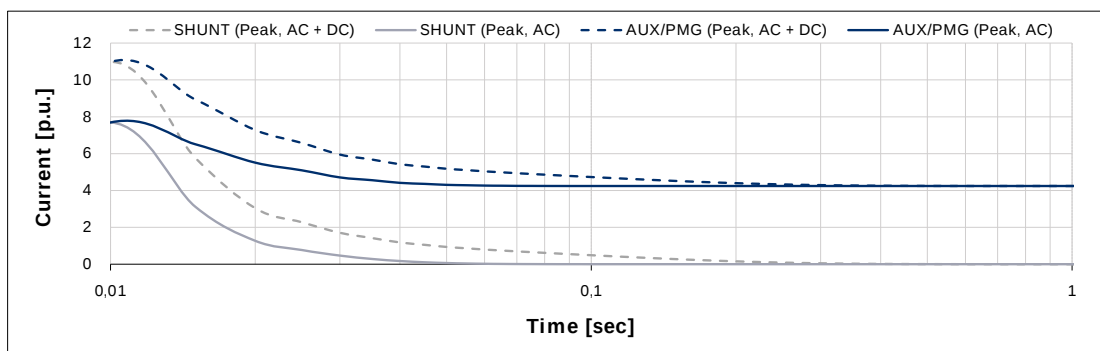
380 V



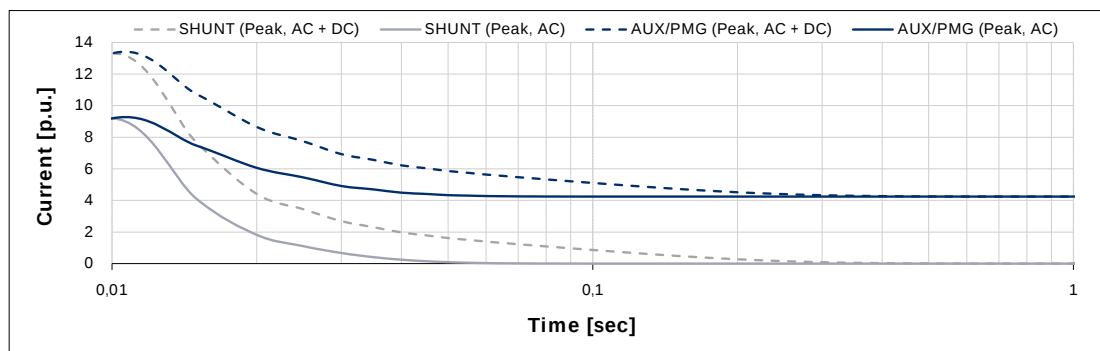
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415 V



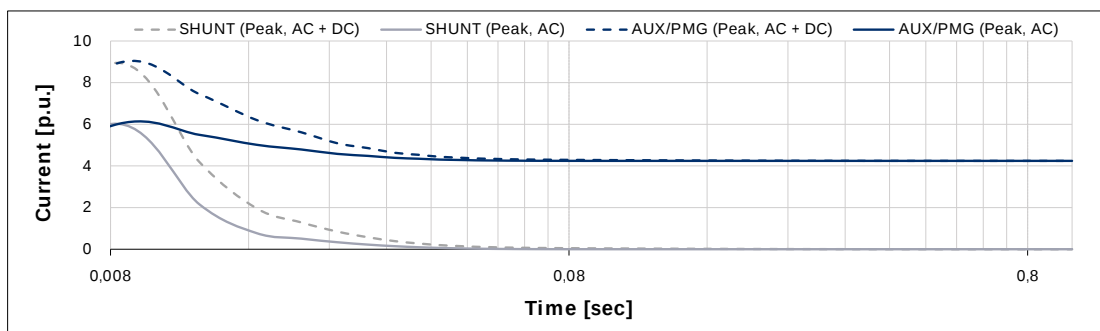
440 V



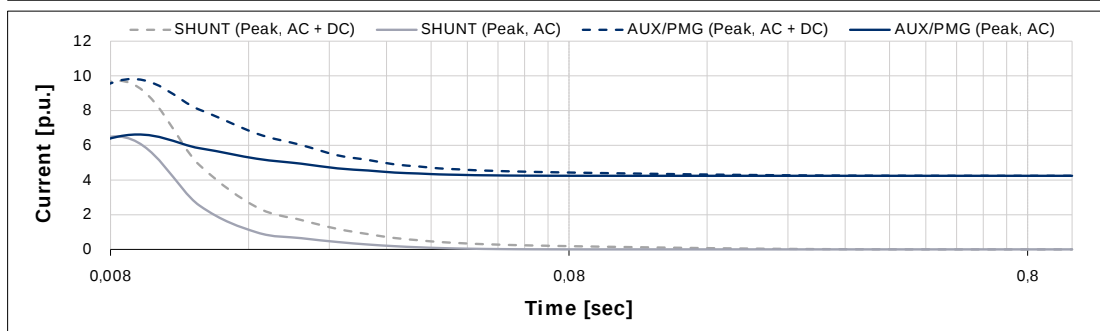
Typical 3-phase short circuit decrement curves

60 Hz - 1800 min⁻¹

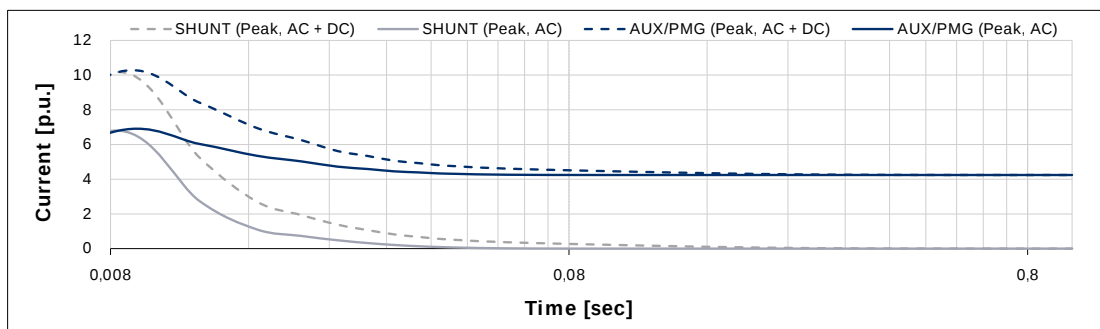
380 V



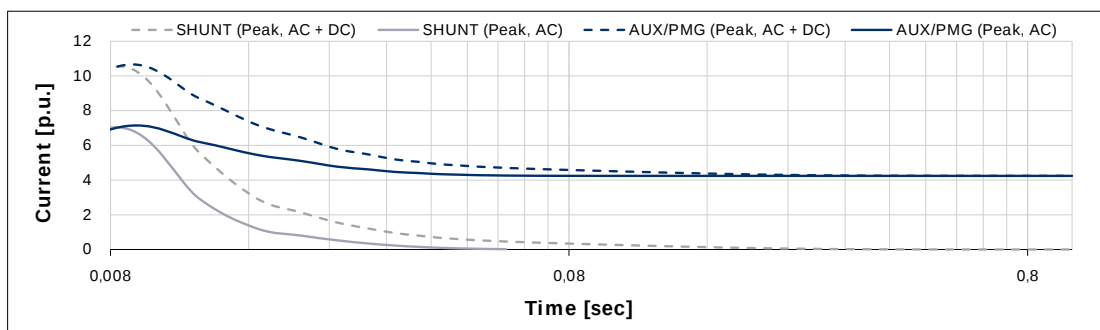
416 V



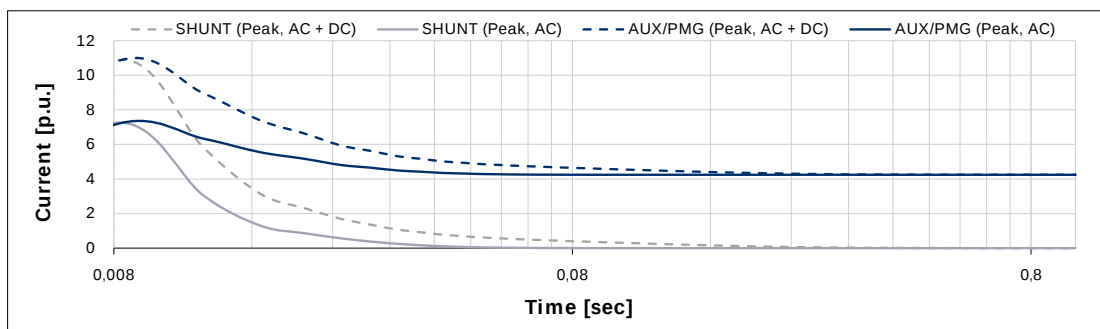
440 V



460 V



480 V



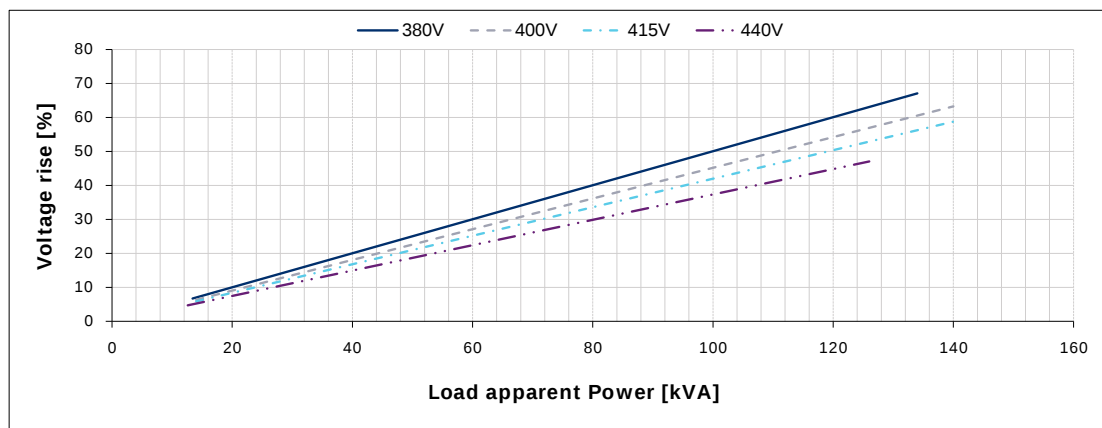
Above curves are based on a three-phase short circuit
For other type of short circuit use the following multiplication factors

	2 phase	1 phase
Instantaneous (max)	0,99	1,23
Continuous	1,50	1,83

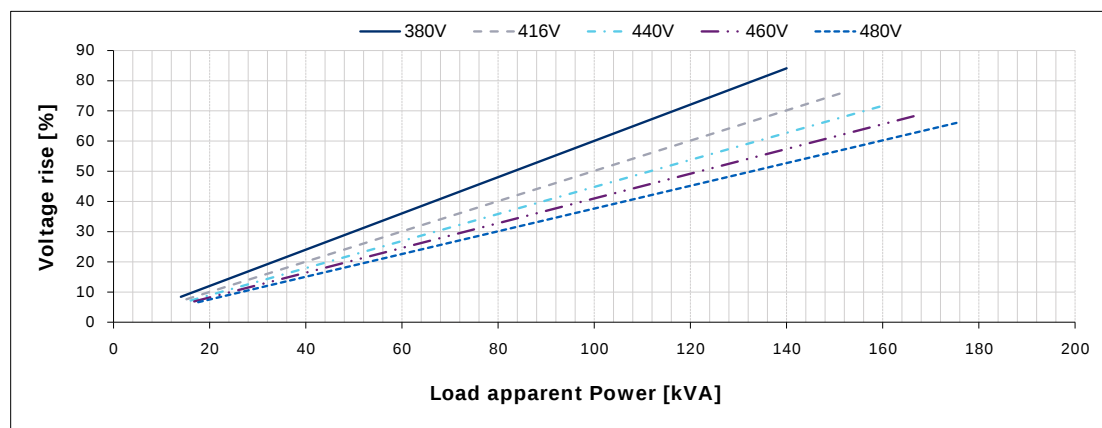
SYN.DS.0062_ =

Typical load rejection curves

50 Hz - 1500 min-1



60 Hz - 1800 min-1



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