

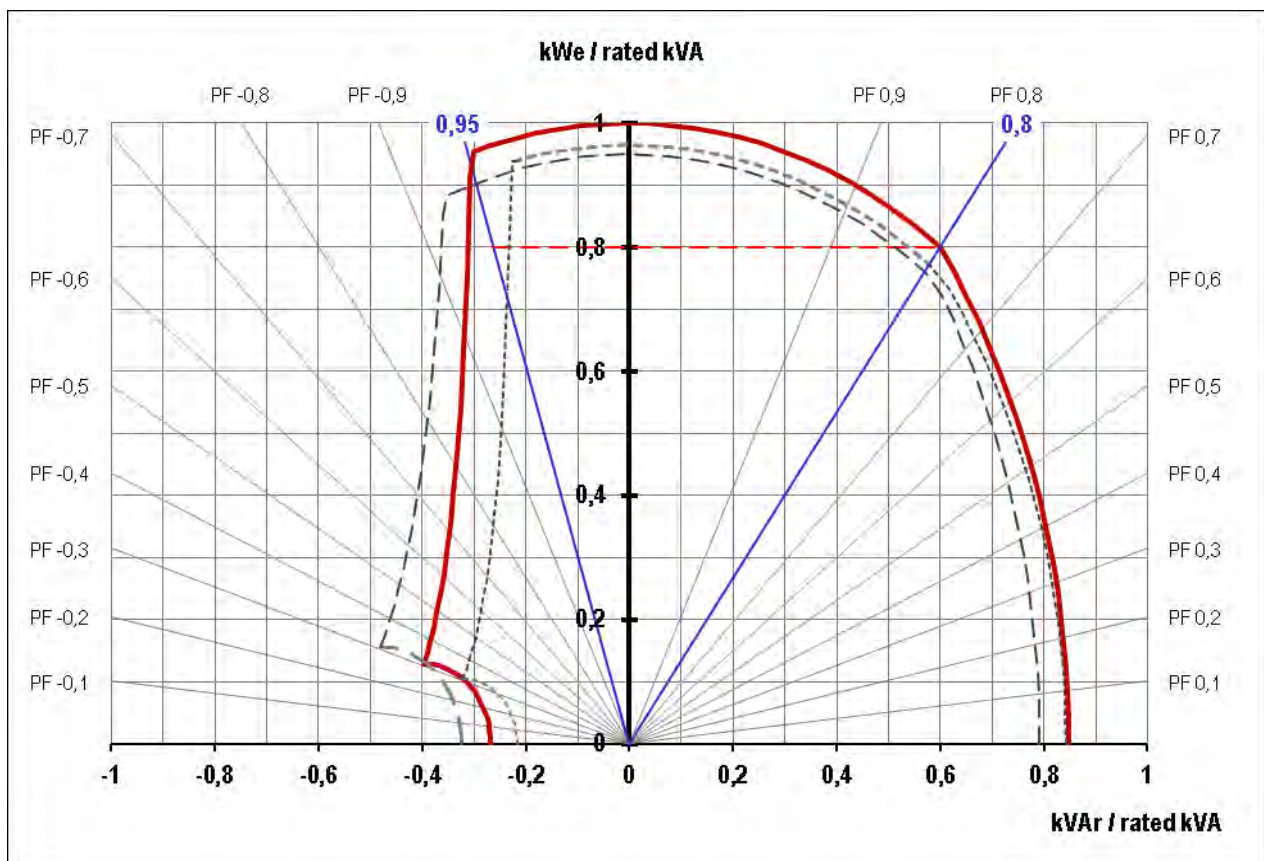
LSA 50.2 M6 / 4p - 1050kVA - 690V - 1500 rpm - 50Hz

### Main Machine Parameters

Typ	LSA 50.2 M6 / 4p	
Leistung	1050	kVA
Leistung	840	kWe
Leistung	883	kWm
Spannung	690	V
Nennstrom	879	A

PF	0,8	
Frequenz	50	Hz
Drehzahl	1 500	1/min
Isolation/Erwärmung	H / F	
Schrittwicklung	n° 52S (p2/3)	

### PQ Diagram



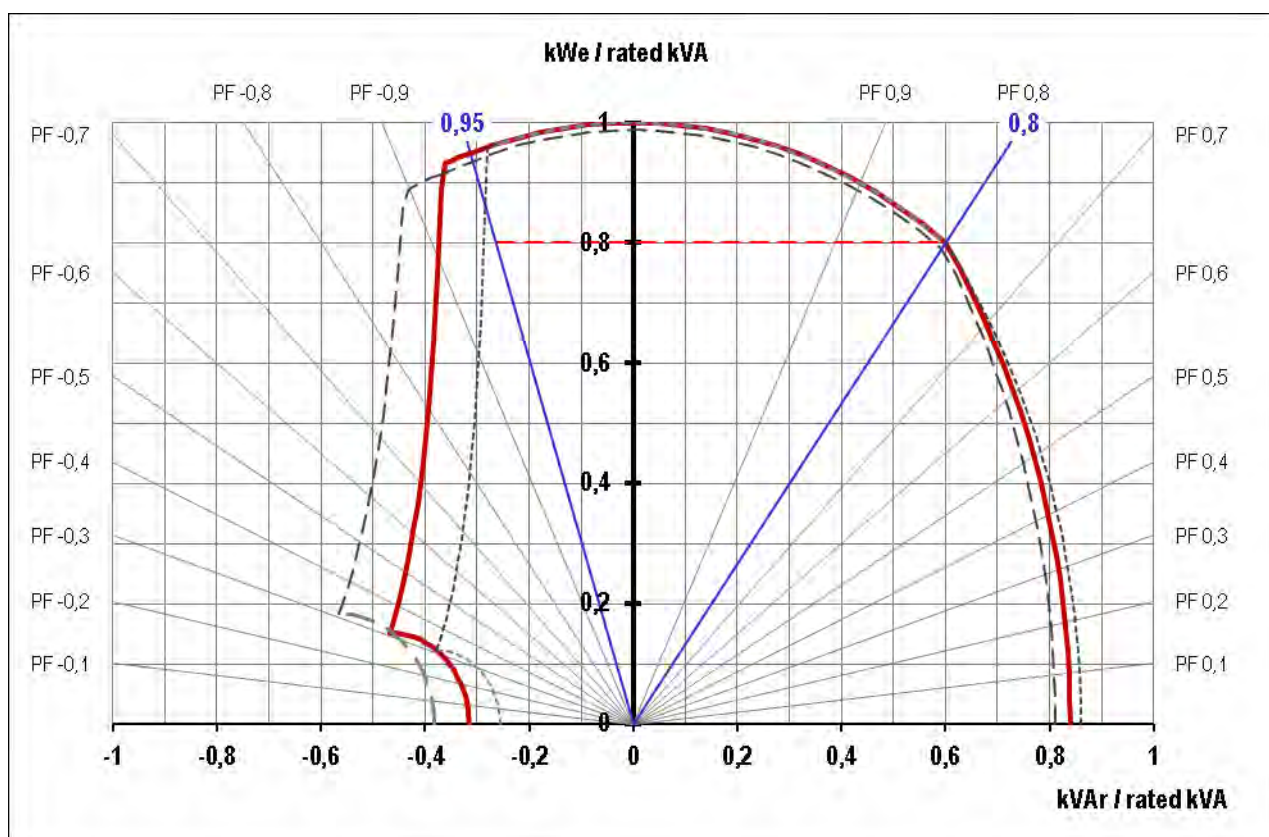
LSA 52.2 M60 / 4p - 1870kVA - 400V - 1500 rpm - 50Hz

### Main Machine Parameters

Typ	LSA 52.2 M60	
Leistung	1870	kVA
Leistung	1496	kWe
Leistung	1560	kWm
Spannung	400	V
Nennstrom	2 699	A

PF	0,8	
Frequenz	50	Hz
Drehzahl	1500	1/min
Isolation/Erwärmung	H / F	
Schrittwicklung	p2/3	

### PQ Diagramm



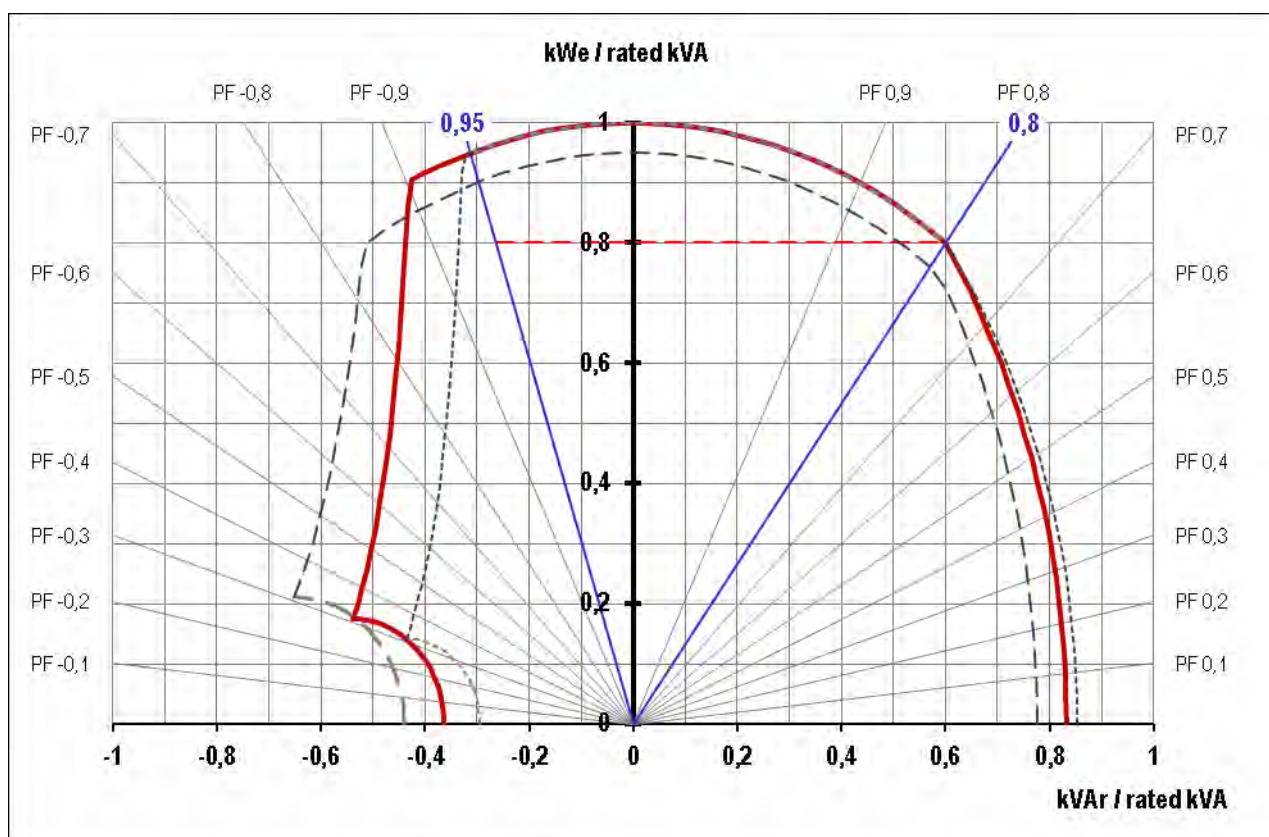
LSA 52.2 M60 / 4p - 1870kVA - 415V - 1500 rpm - 50Hz

### Main Machine Parameters

Typ	LSA 52.2 M60	
Leistung	1870	kVA
Leistung	1496	kWe
Leistung	1560	kWm
Spannung	415	V
Nennstrom	2 602	A

PF	0,8	
Frequenz	50	Hz
Drehzahl	1500	1/min
Isolation/Erwärmung	H / F	
Schrittwicklung	p2/3	

### PQ Diagramm



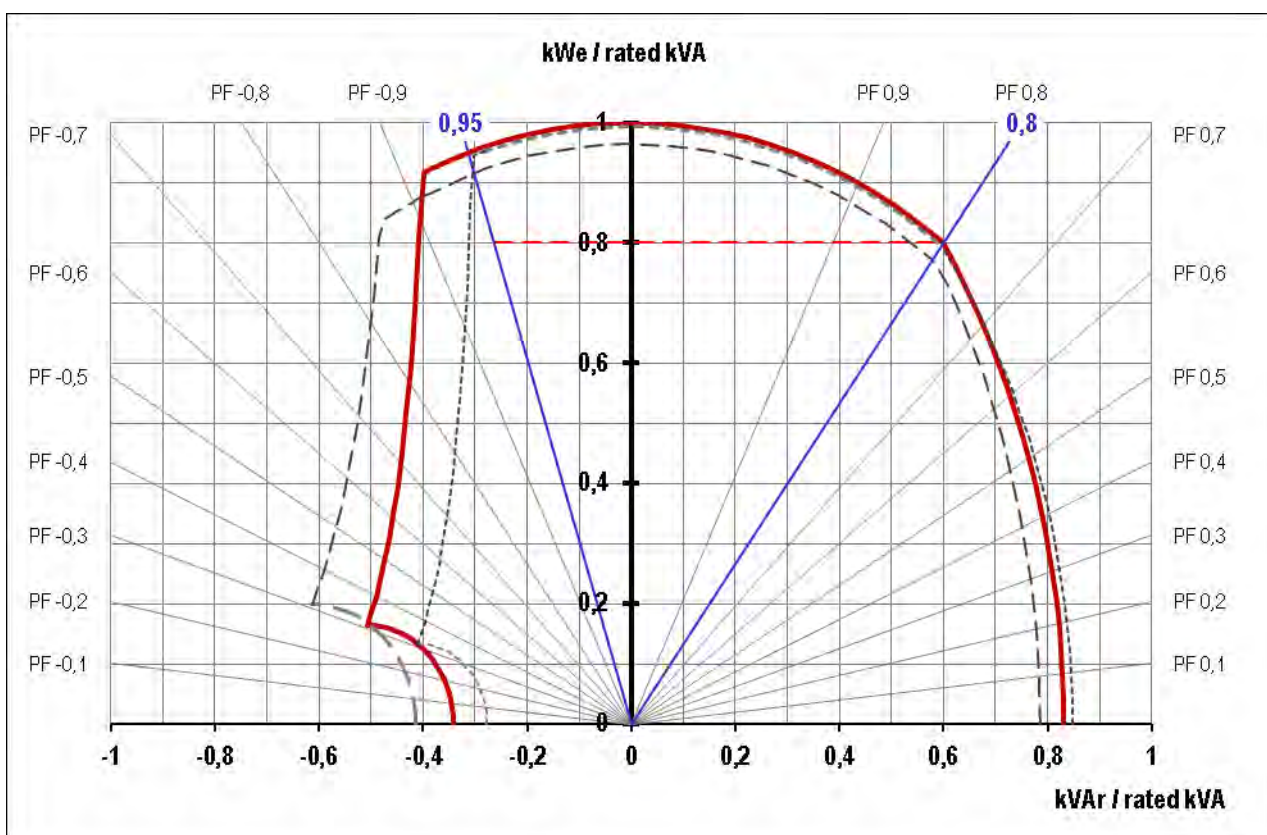
LSA 52.2 M60 / 4p - 1733kVA - 690V - 1500 rpm - 50Hz

### Main Machine Parameters

Typ	LSA 52.2 M60	
Leistung	1733	kVA
Leistung	1386	kWe
Leistung	1443	kWm
Spannung	690	V
Nennstrom	1 450	A

PF	0,8	
Frequenz	50	Hz
Drehzahl	1 500	1/min
Isolation/Erwärmung	H / F	
Schrittwicklung	p2/3	

### PQ Diagramm





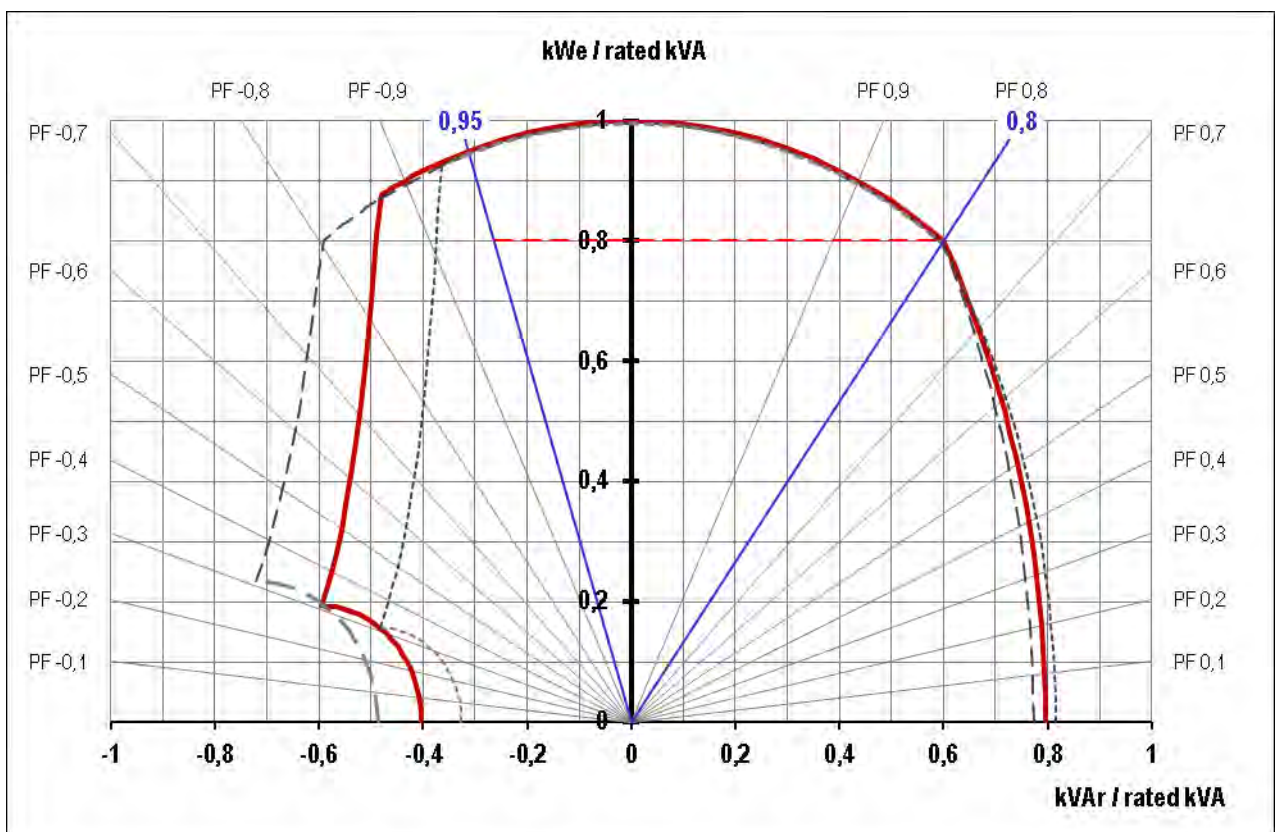
LSA 52.2 XL65 / 4p - 1600kVA - 3300V - 1500 rpm - 50Hz

### Main Machine Parameters

Typ	LSA 52.2 XL65	
Leistung	1600	kVA
Leistung	1280	kWe
Leistung	1336	kWm
Spannung	3300	V
Nennstrom	280	A

PF	0,8	
Frequenz	50	Hz
Drehzahl	1500	1/min
Isolation/Erwärmung	H / F	
Schrittwicklung	p5/6	

### PQ Diagramm



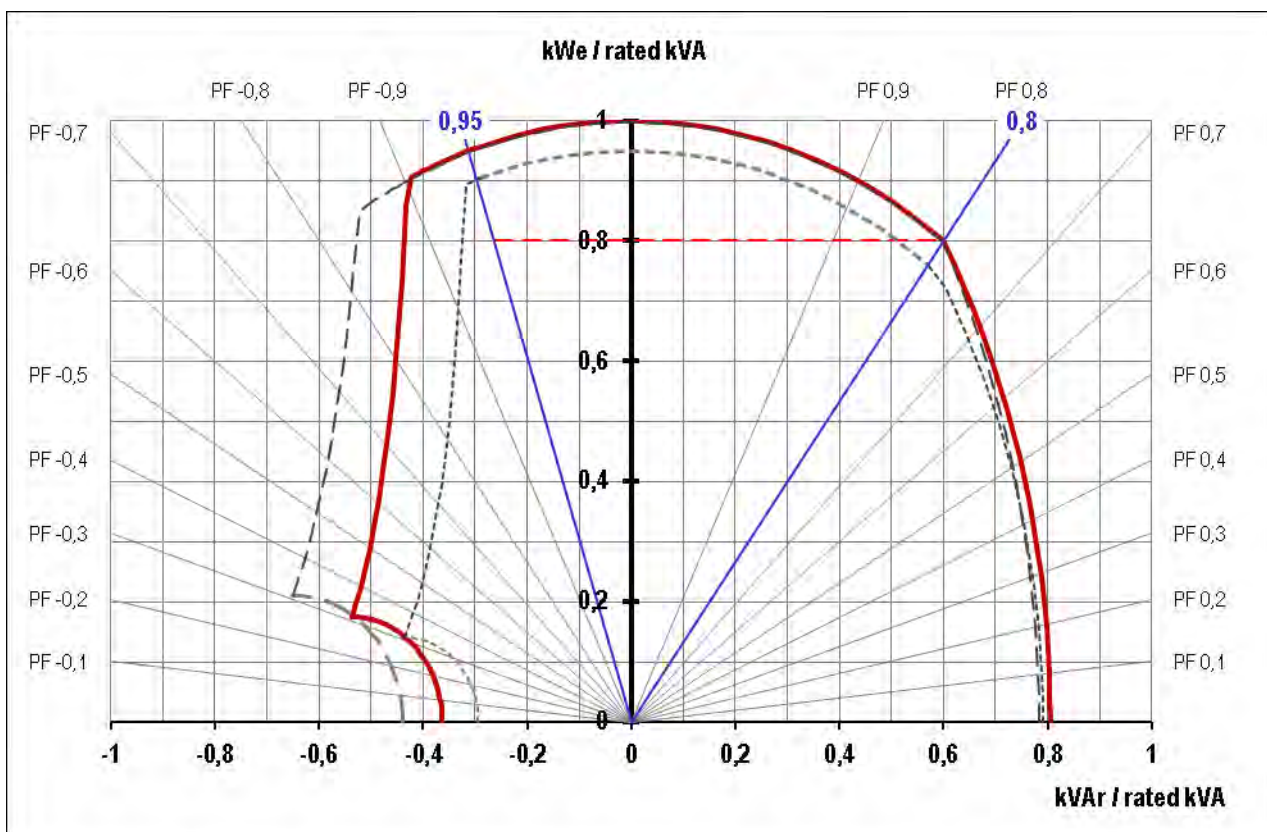
LSA 52.2 XL65 / 4p - 1600kVA - 6300V - 1500 rpm - 50Hz

### Main Machine Parameters

Typ	LSA 52.2 XL65	
Leistung	1600	kVA
Leistung	1280	kWe
Leistung	1337	kWm
Spannung	6300	V
Nennstrom	147	A

PF	0,8	
Frequenz	50	Hz
Drehzahl	1500	1/min
Isolation/Erwärmung	H / F	
Schrittwicklung	p5/6	

### PQ Diagramm



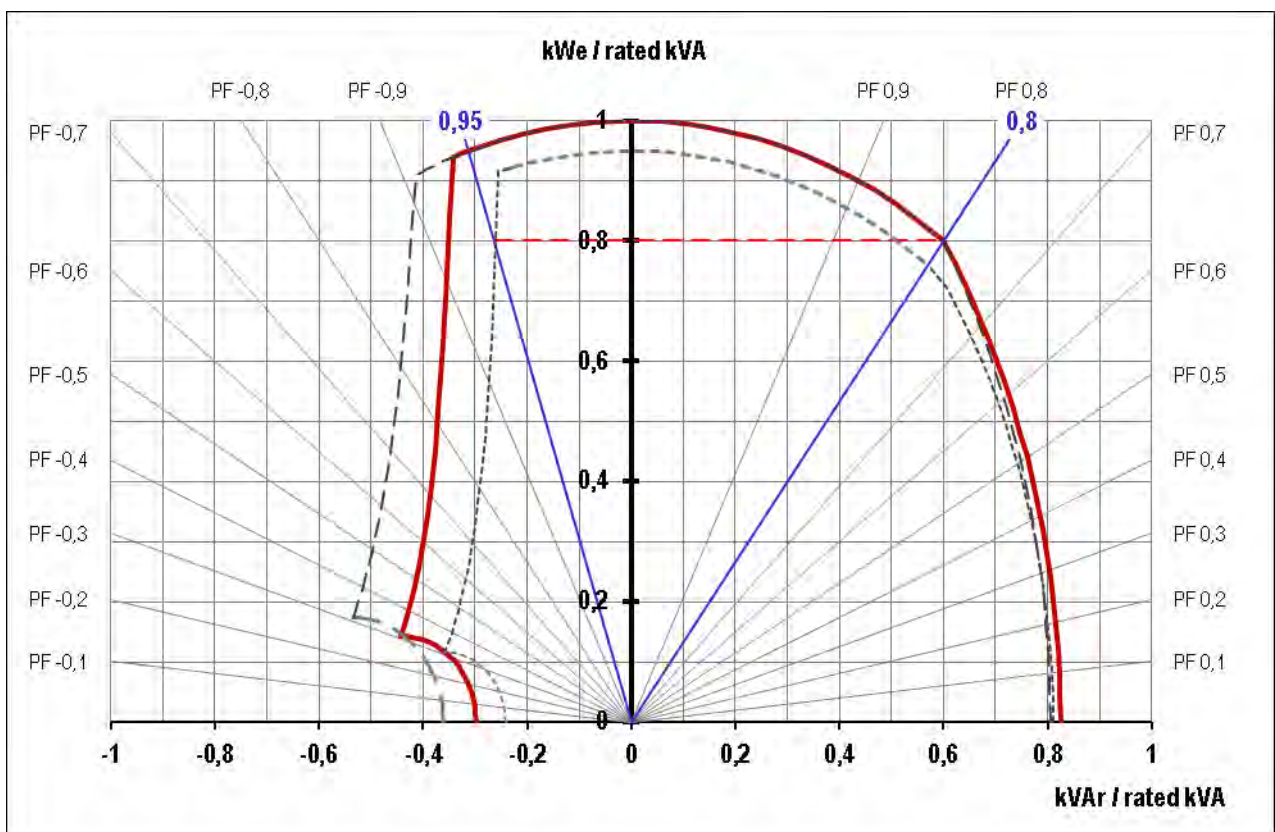
LSA 52.2 ZL60 / 4p - 1250kVA - 10500V - 1500 rpm - 50Hz

### Main Machine Parameters

Typ	LSA 52.2 ZL60	
Leistung	1250	kVA
Leistung	1000	kWe
Leistung	1054	kWm
Spannung	10500	V
Nennstrom	69	A

PF	0,8	
Frequenz	50	Hz
Drehzahl	1500	1/min
Isolation/Erwärmung	H / F	
Schrittwicklung	p5/6	

### PQ Diagramm



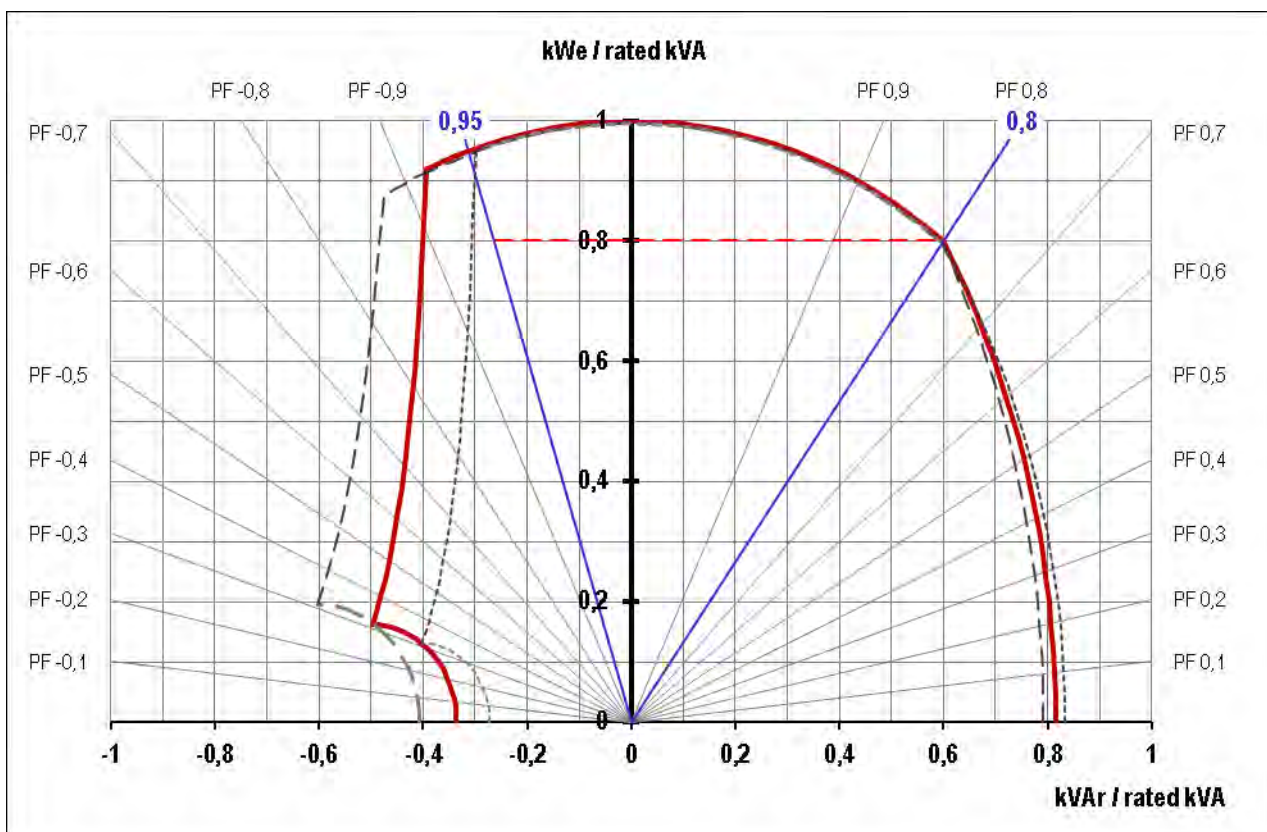
LSA 52.2 ZL60 / 4p - 1250kVA - 11000V - 1500 rpm - 50Hz

### Main Machine Parameters

Typ	LSA 52.2 ZL60	
Leistung	1250	kVA
Leistung	1000	kWe
Leistung	1054	kWm
Spannung	11000	V
Nennstrom	66	A

PF	0,8	
Frequenz	50	Hz
Drehzahl	1500	1/min
Isolation/Erwärmung	H / F	
Schrittwicklung	p5/6	

### PQ Diagramm





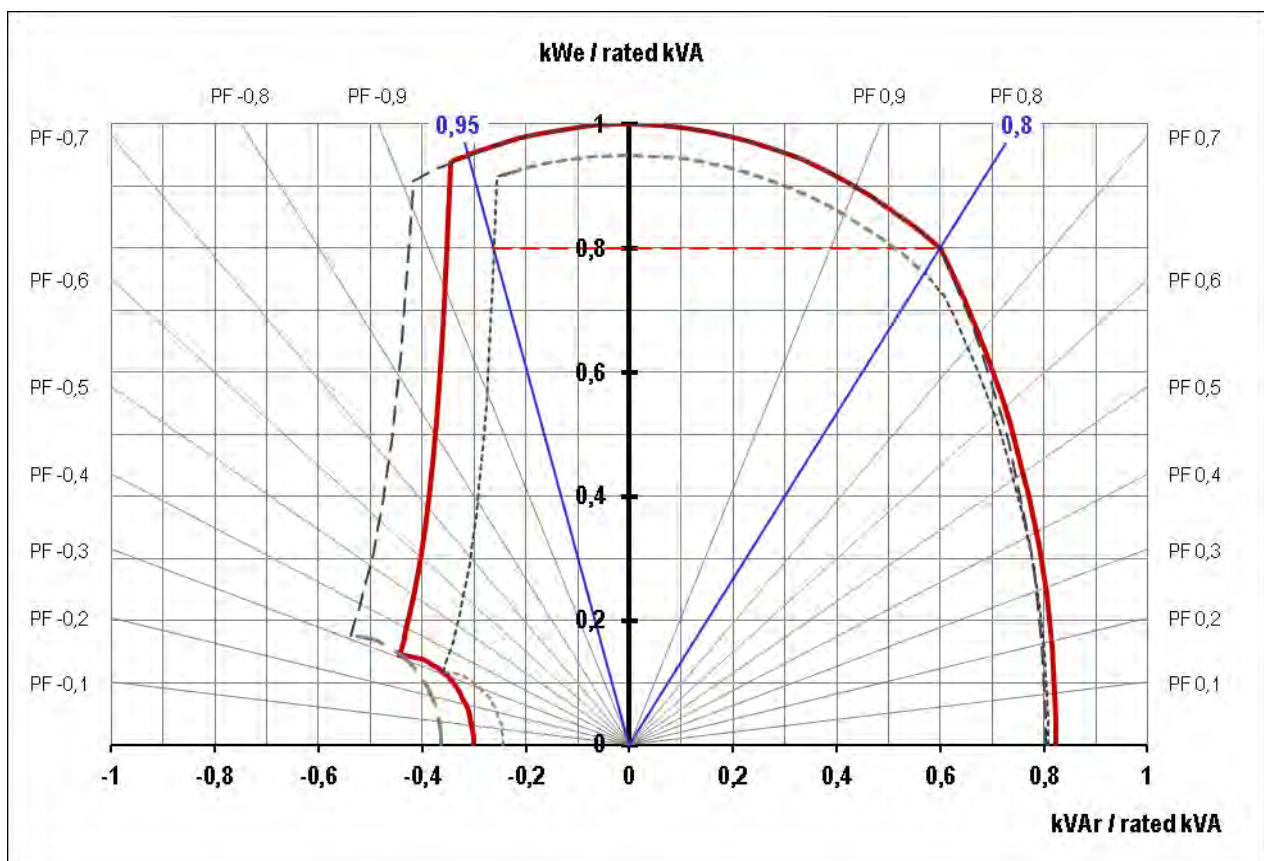
LSA 52.2 ZL70 / 4p - 1500kVA - 10500V - 1500 rpm - 50Hz

### Main Machine Parameters

Typ	LSA 52.2 ZL70 / 4p	
Leistung	1500	kVA
Leistung	1200	kWe
Leistung	1258	kWm
Spannung	10500	V
Nennstrom	82	A

PF	0,80	
Frequenz	50	Hz
Drehzahl	1500	1/min
Isolation/Erwärmung	H / F	
Schrittwicklung	p5/6	

### PQ Diagram



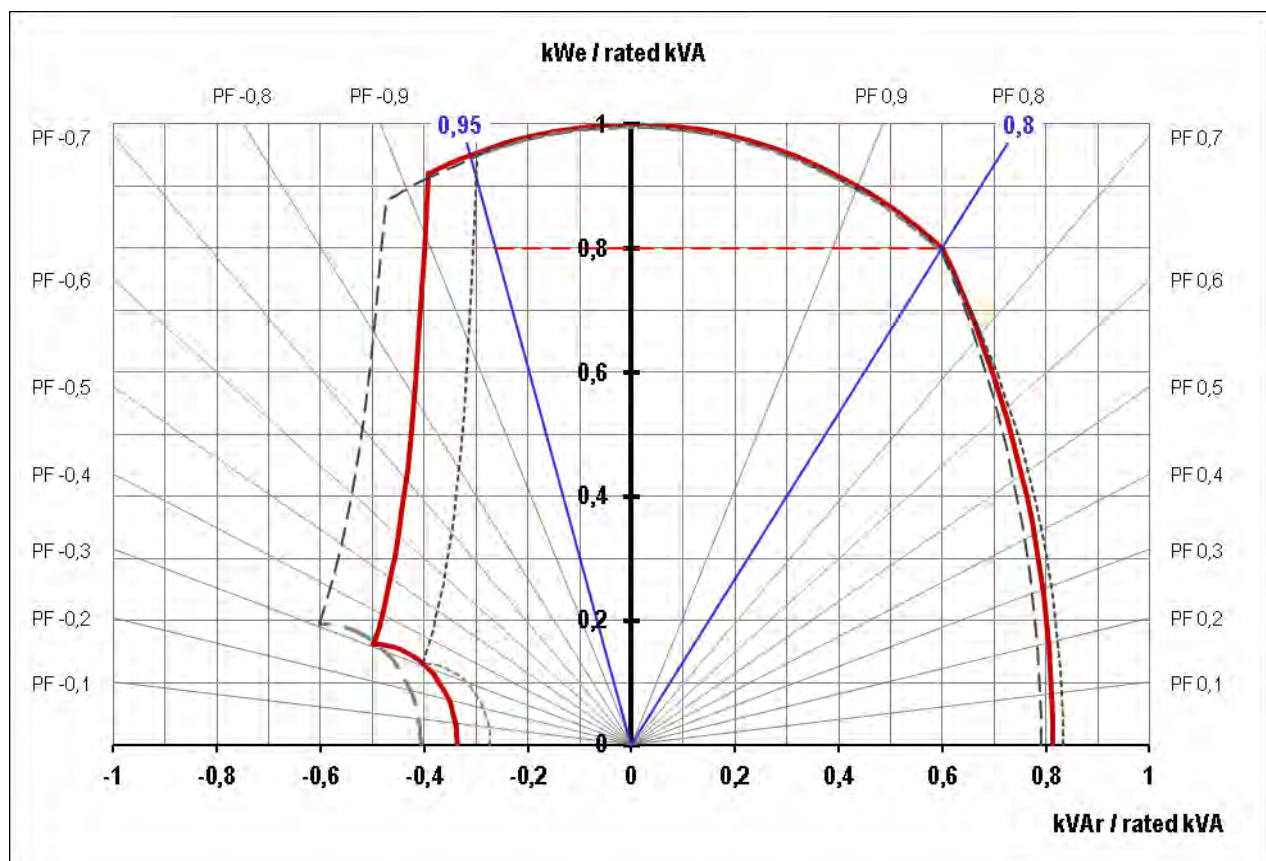
LSA 52.2 ZL70 / 4p - 1500kVA - 11000V - 1500 rpm - 50Hz

### Main Machine Parameters

Typ	LSA 52.2 ZL70 / 4p	
Leistung	1500	kVA
Leistung	1200	kWe
Leistung	1258	kWm
Spannung	11000	V
Nennstrom	79	A

PF	0,80	
Frequenz	50	Hz
Drehzahl	1500	1/min
Isolation/Erwärmung	H / F	
Schrittwicklung	p5/6	

### PQ Diagram



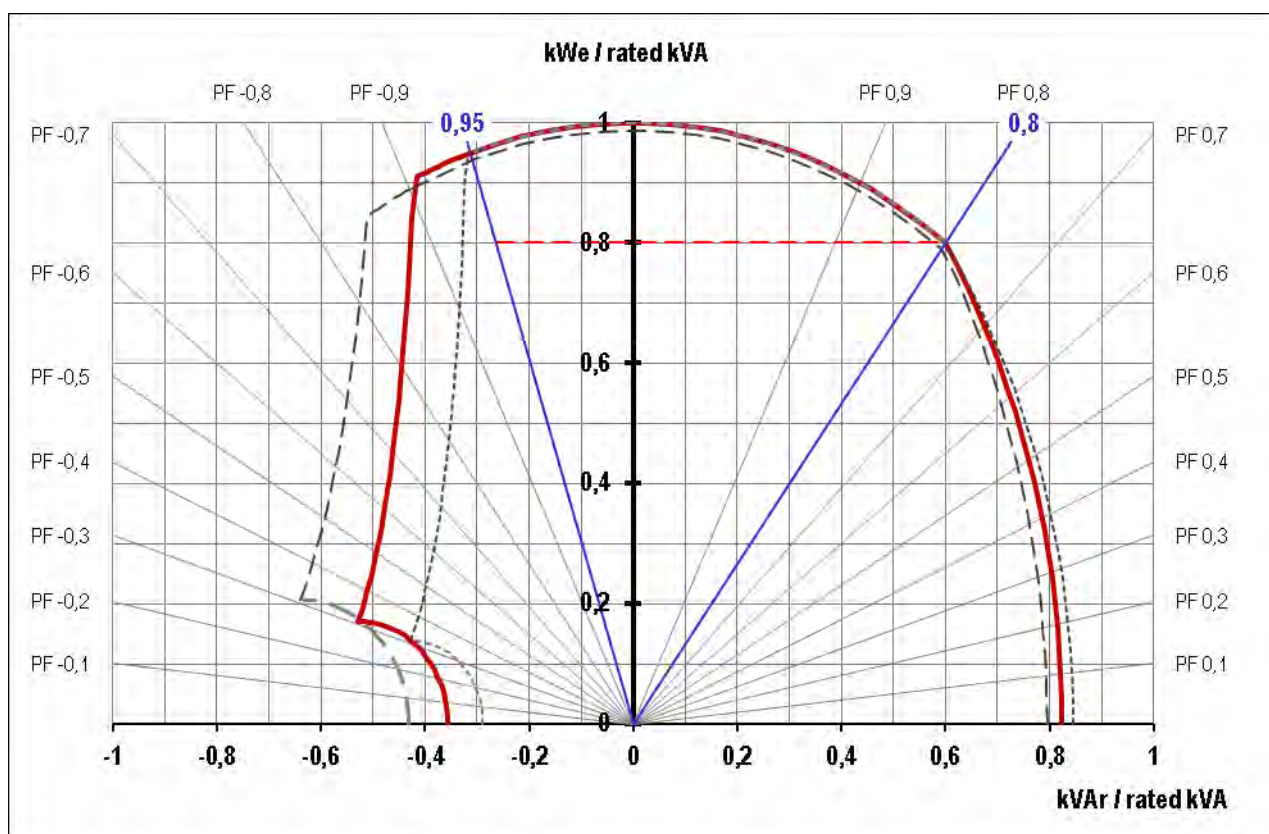
LSAC 47.2 L9 / 4p - 498kVA - 400V - 1500 rpm - 50Hz

Main Machine Parameters

Typ	LSAC 47.2 L9	
Leistung	498	kVA
Leistung	398	kWe
Leistung	420	kWm
Spannung	400	V
Nennstrom	719	A

PF	0,8	
Frequenz	50	Hz
Drehzahl	1500	1/min
Isolation/Erwärmung	H / F	
Schrittwicklung	n° 6 (p2/3)	

PQ Diagram



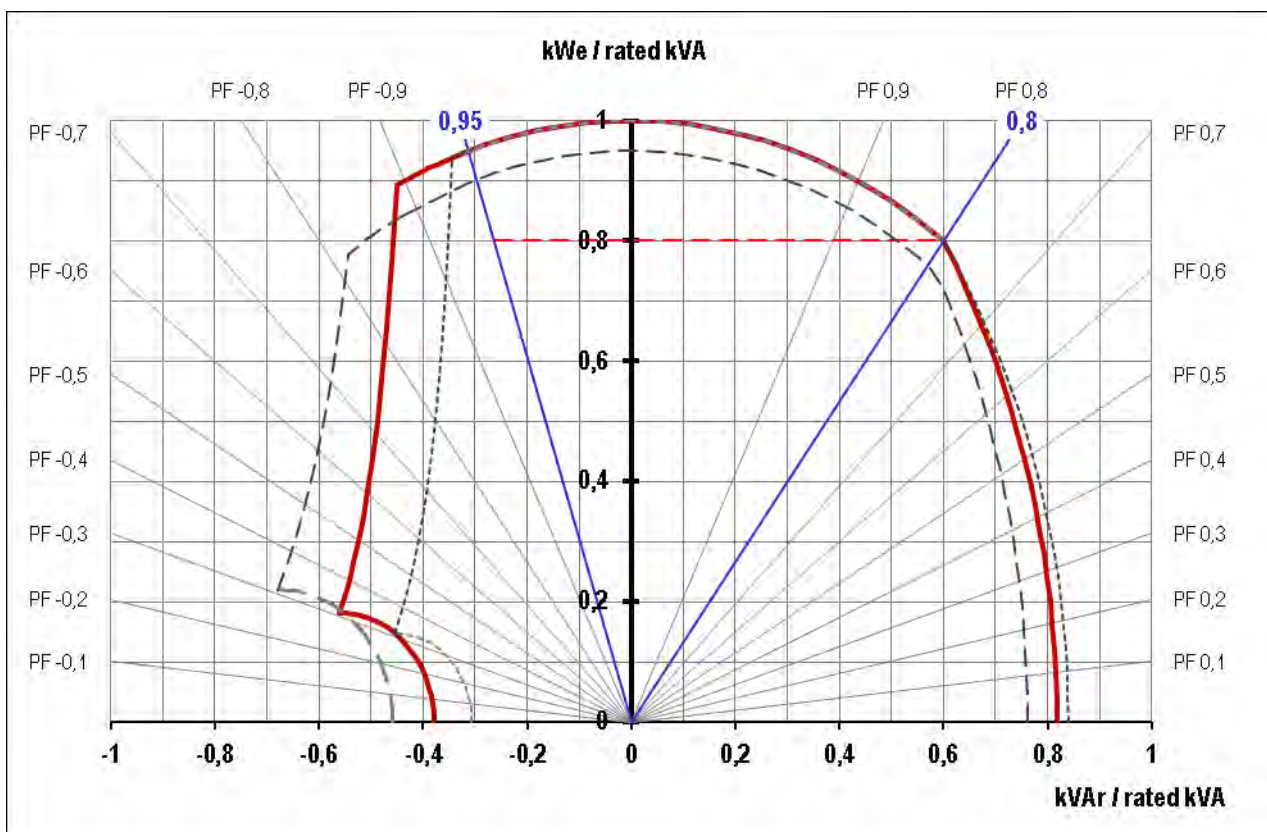
LSAC 47.2 L9 / 4p - 505kVA - 415V - 1500 rpm - 50Hz

### Main Machine Parameters

Typ	LSAC 47.2 L9	
Leistung	505	kVA
Leistung	404	kWe
Leistung	426	kWm
Spannung	415	V
Nennstrom	703	A

PF	0,8	
Frequenz	50	Hz
Drehzahl	1500	1/min
Isolation/Erwärmung	H / F	
Schrittwicklung	n° 6 (p2/3)	

### PQ Diagram





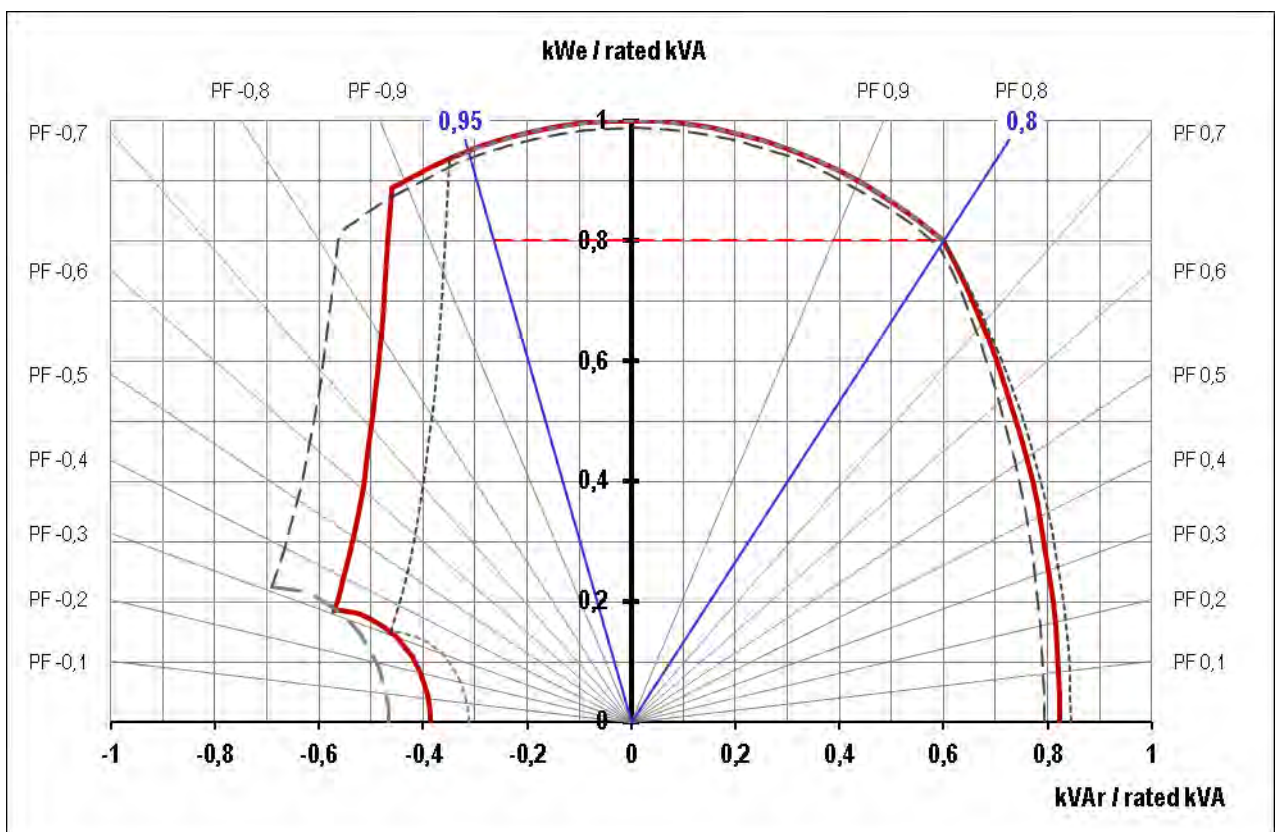
LSAC 49.1 L9 / 4p - 785kVA - 400V - 1500 rpm - 50Hz

Main Machine Parameters

Typ	LSAC 49.1 L9	
Leistung	785	kVA
Leistung	628	kWe
Leistung	659	kWm
Spannung	400	V
Nennstrom	1 133	A

PF	0,8	
Frequenz	50	Hz
Drehzahl	1500	1/min
Isolation/Erwärmung	H / F	
Schrittwicklung	n° 6S (p2/3)	

PQ Diagram



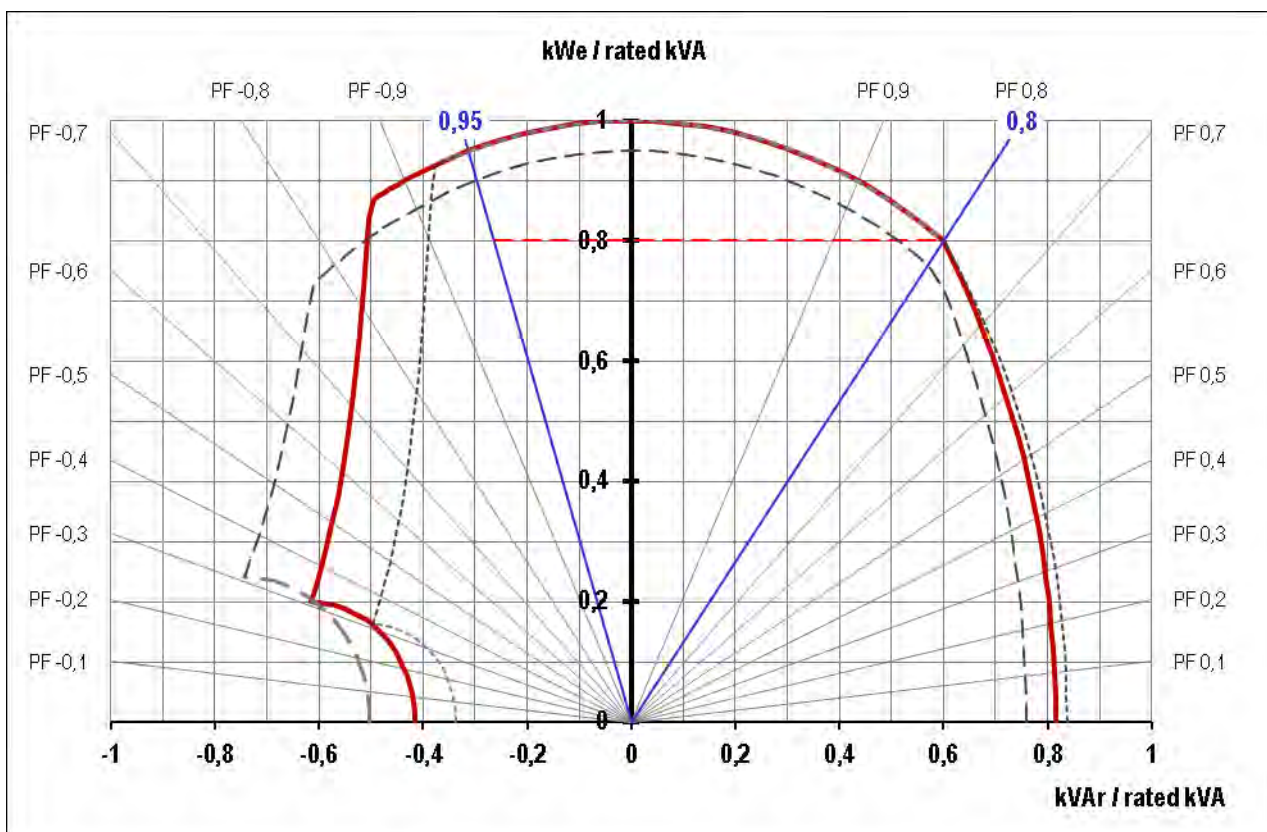
LSAC 49.1 L9 / 4p - 785kVA - 415V - 1500 rpm - 50Hz

Main Machine Parameters

Typ	LSAC 49.1 L9	
Leistung	785	kVA
Leistung	628	kWe
Leistung	659	kWm
Spannung	415	V
Nennstrom	1 092	A

PF	0,8	
Frequenz	50	Hz
Drehzahl	1500	1/min
Isolation/Erwärmung	H / F	
Schrittwicklung	n° 6S (p2/3)	

PQ Diagram



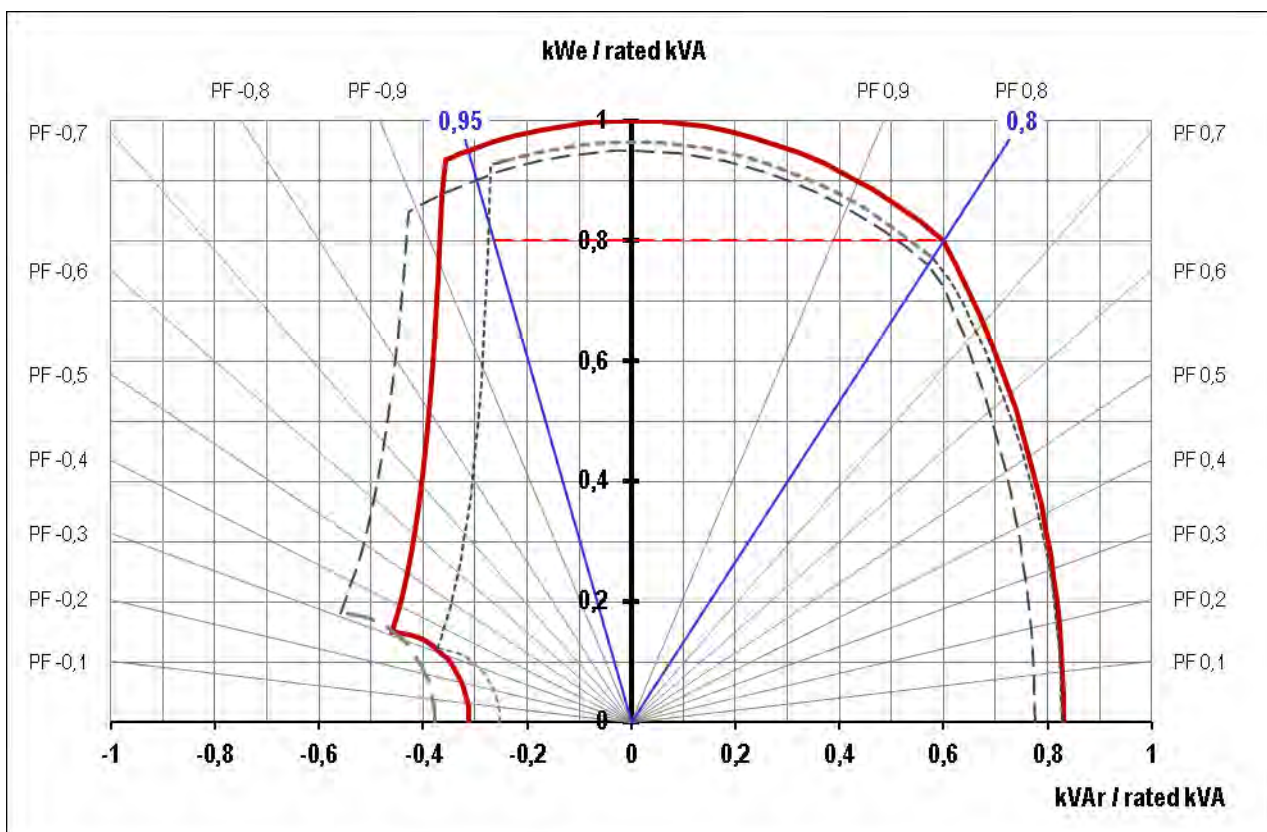
LSAC 50.2 L7 / 4p - 995kVA - 690V - 1500 rpm - 50Hz

Main Machine Parameters

Typ	LSAC 50.2 L7	
Leistung	995	kVA
Leistung	796	kWe
Leistung	834	kWm
Spannung	690	V
Nennstrom	833	A

PF	0,8	
Frequenz	50	Hz
Drehzahl	1500	1/min
Isolation/Erwärmung	H / F	
Schrittwicklung	n° 52S (p2/3)	

PQ Diagram



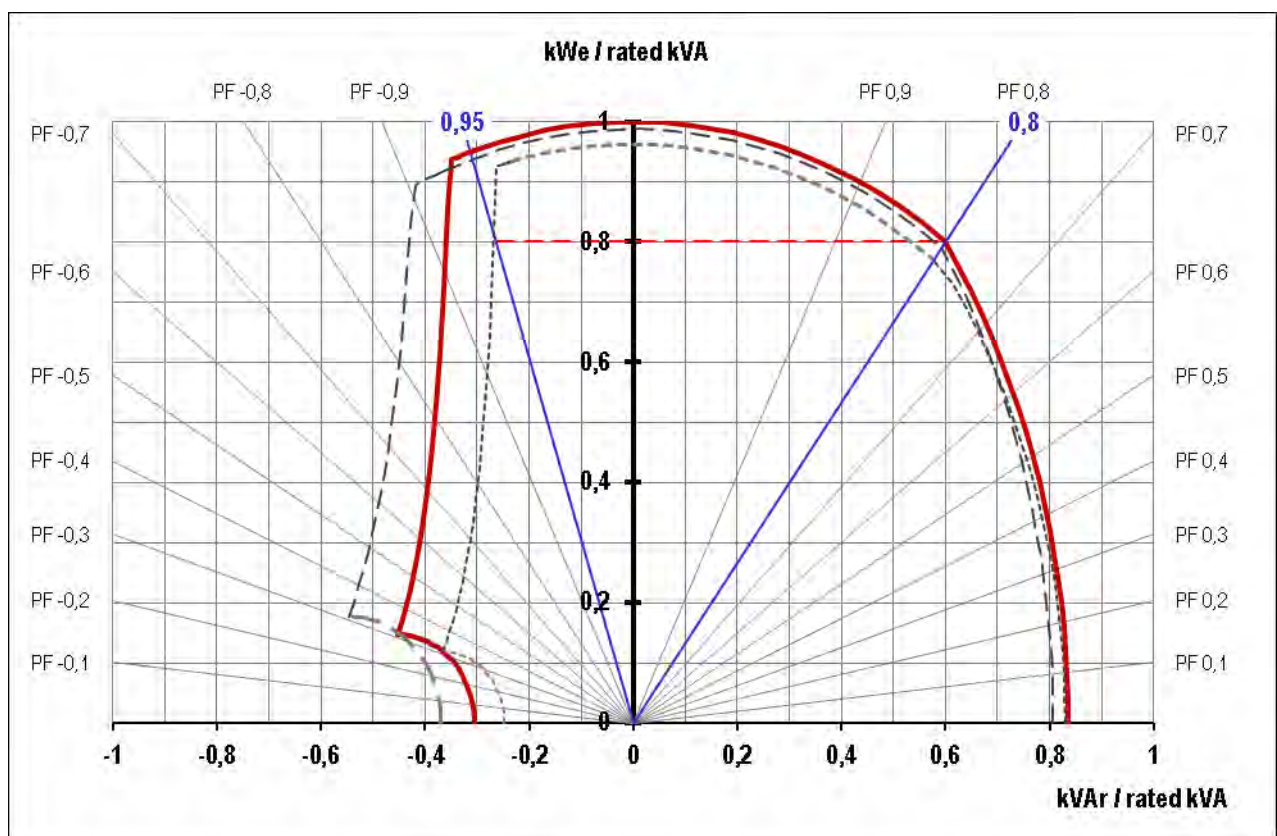
LSAC 50.2 L8 / 4p - 1220kVA - 400V - 1500 rpm - 50Hz

### Main Machine Parameters

Typ	LSAC 50.2 L8	
Leistung	1220	kVA
Leistung	976	kWe
Leistung	1020	kWm
Spannung	400	V
Nennstrom	1 761	A

PF	0,8	
Frequenz	50	Hz
Drehzahl	1 500	1/min
Isolation/Erwärmung	H / F	
Schrittwicklung	n° 6S (p2/3)	

### PQ Diagram





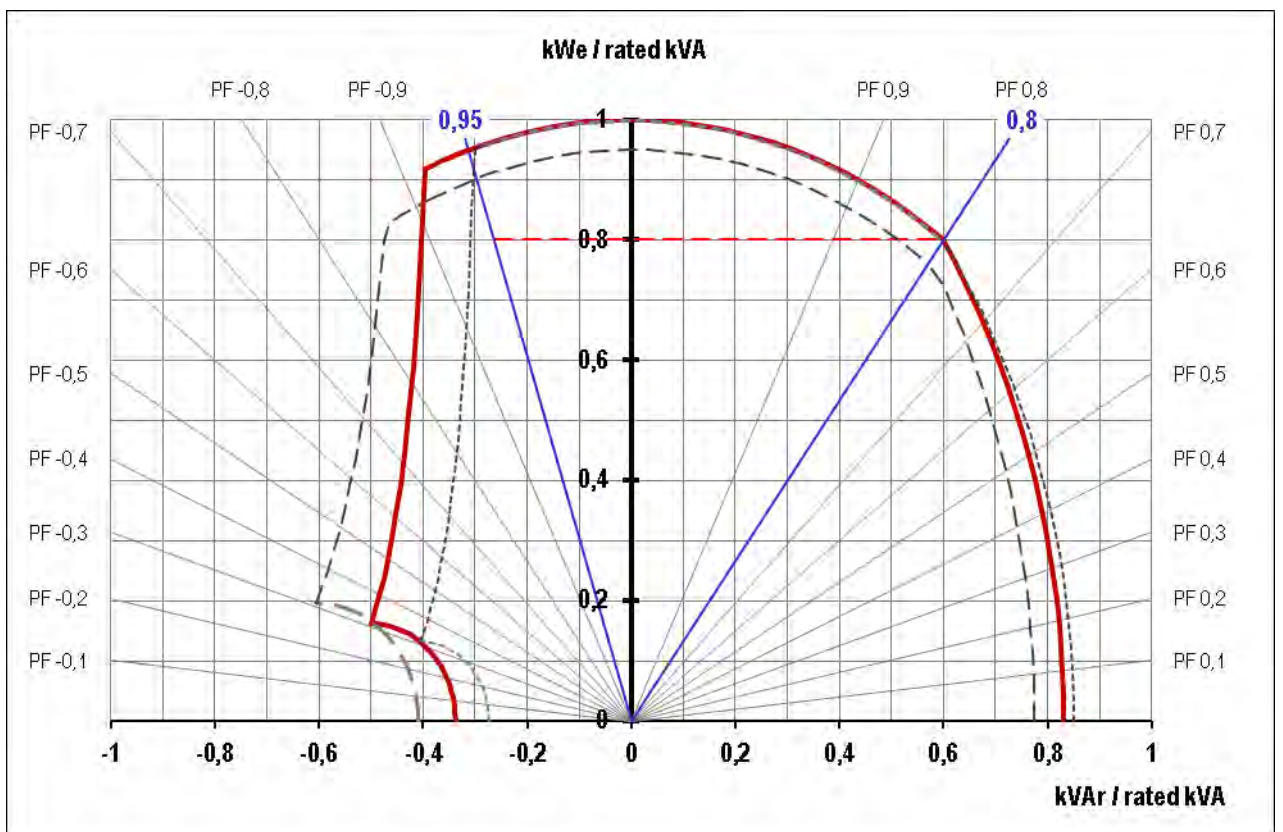
**LSAC 50.2 L8 / 4p - 1250kVA - 415V - 1500 rpm - 50Hz**

**Main Machine Parameters**

Typ	LSAC 50.2 L8	
Leistung	1250	kVA
Leistung	1000	kWe
Leistung	1045	kWm
Spannung	415	V
Nennstrom	1 739	A

PF	0,8	
Frequenz	50	Hz
Drehzahl	1500	1/min
Isolation/Erwärmung	H / F	
Schrittwicklung	n° 6S (p2/3)	

**PQ Diagram**



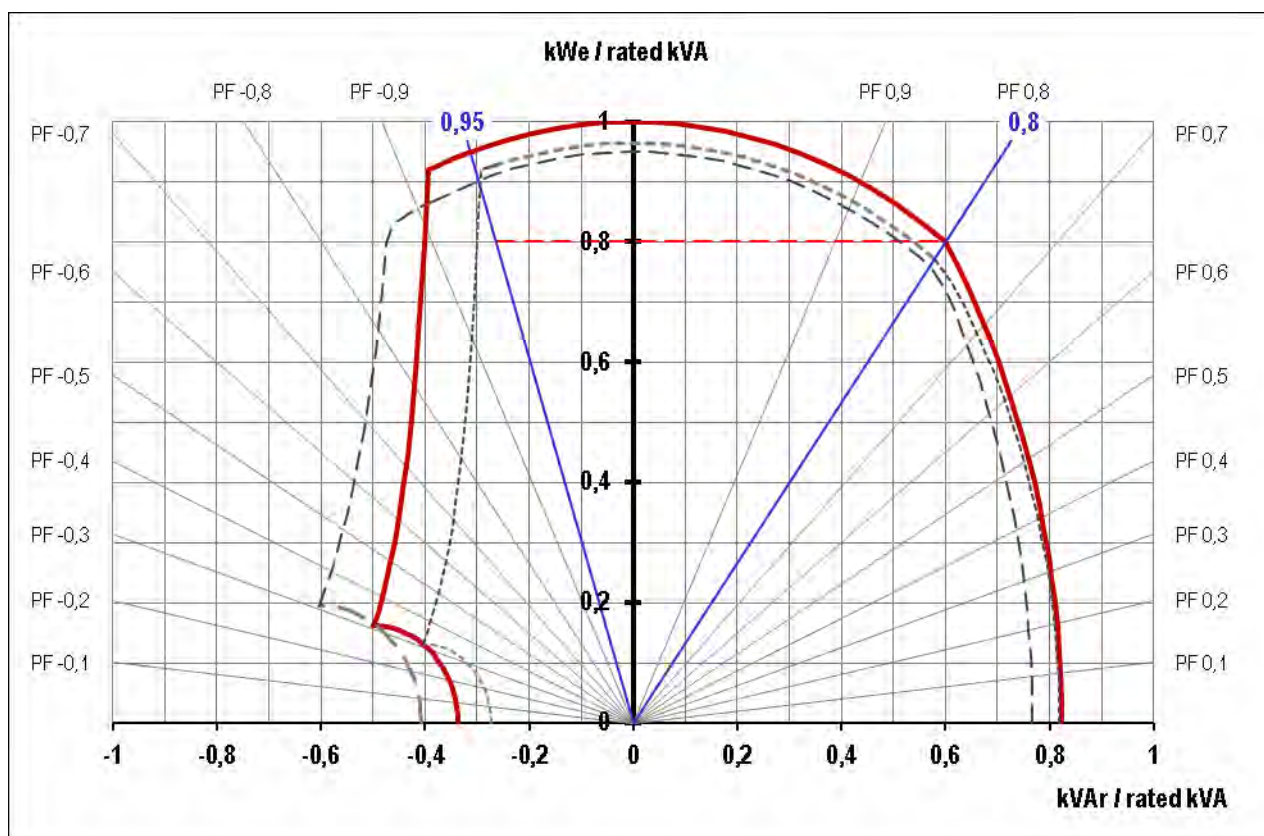
**LSAC 50.2 L8 / 4p - 1050kVA - 690V - 1500 rpm - 50Hz**

**Main Machine Parameters**

Typ	LSAC 50.2 L8	
Leistung	1050	kVA
Leistung	840	kWe
Leistung	877	kWm
Spannung	690	V
Nennstrom	879	A

PF	0,8	
Frequenz	50	Hz
Drehzahl	1500	1/min
Isolation/Erwärmung	H / F	
Schrittwicklung	n° 52S (p2/3)	

**PQ Diagram**



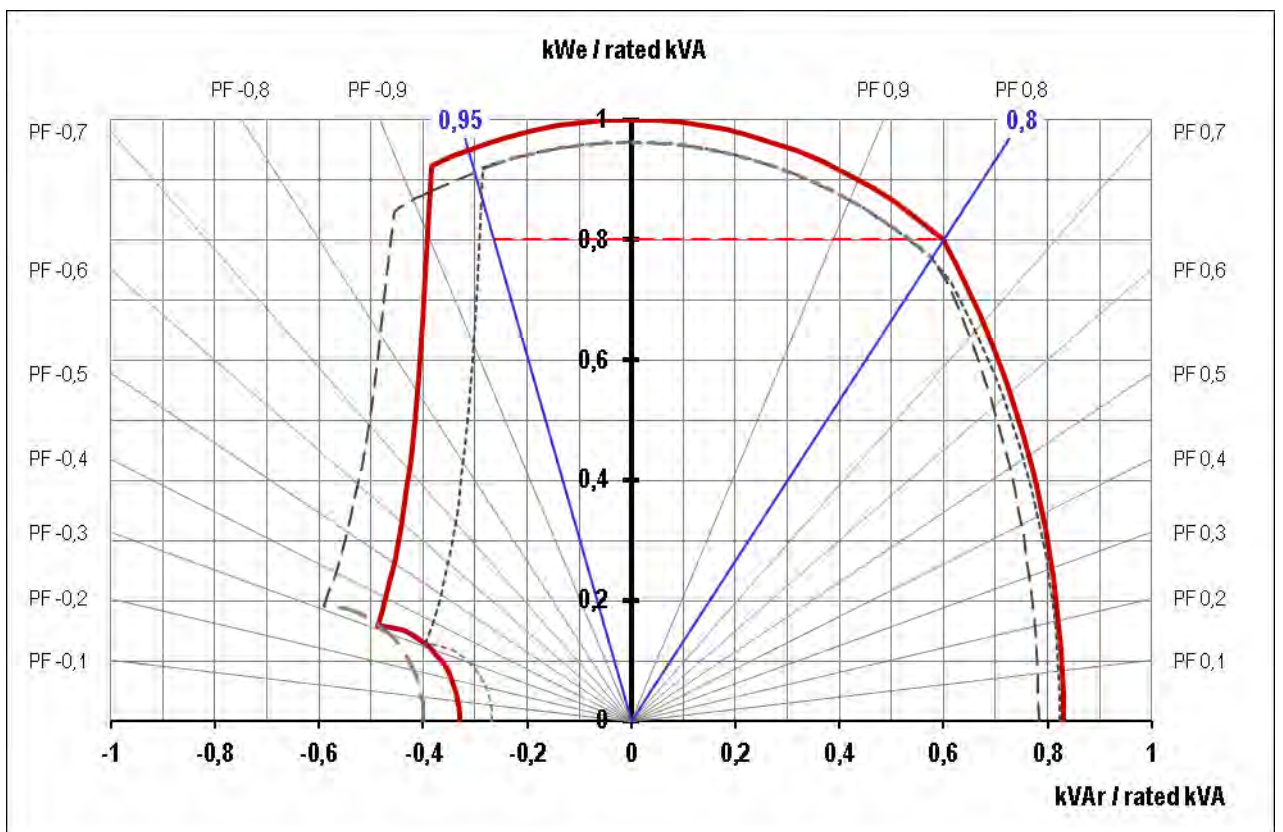
LSAC 50.2 VL10 / 4p - 1315kVA - 400V - 1500 rpm - 50Hz

### Main Machine Parameters

Typ	LSAC 50.2 VL10	
Leistung	1315	kVA
Leistung	1052	kWe
Leistung	1097	kWm
Spannung	400	V
Nennstrom	1 898	A

PF	0,8	
Frequenz	50	Hz
Drehzahl	1500	1/min
Isolation/Erwärmung	H / F	
Schrittwicklung	n° 6S (p2/3)	

### PQ Diagram



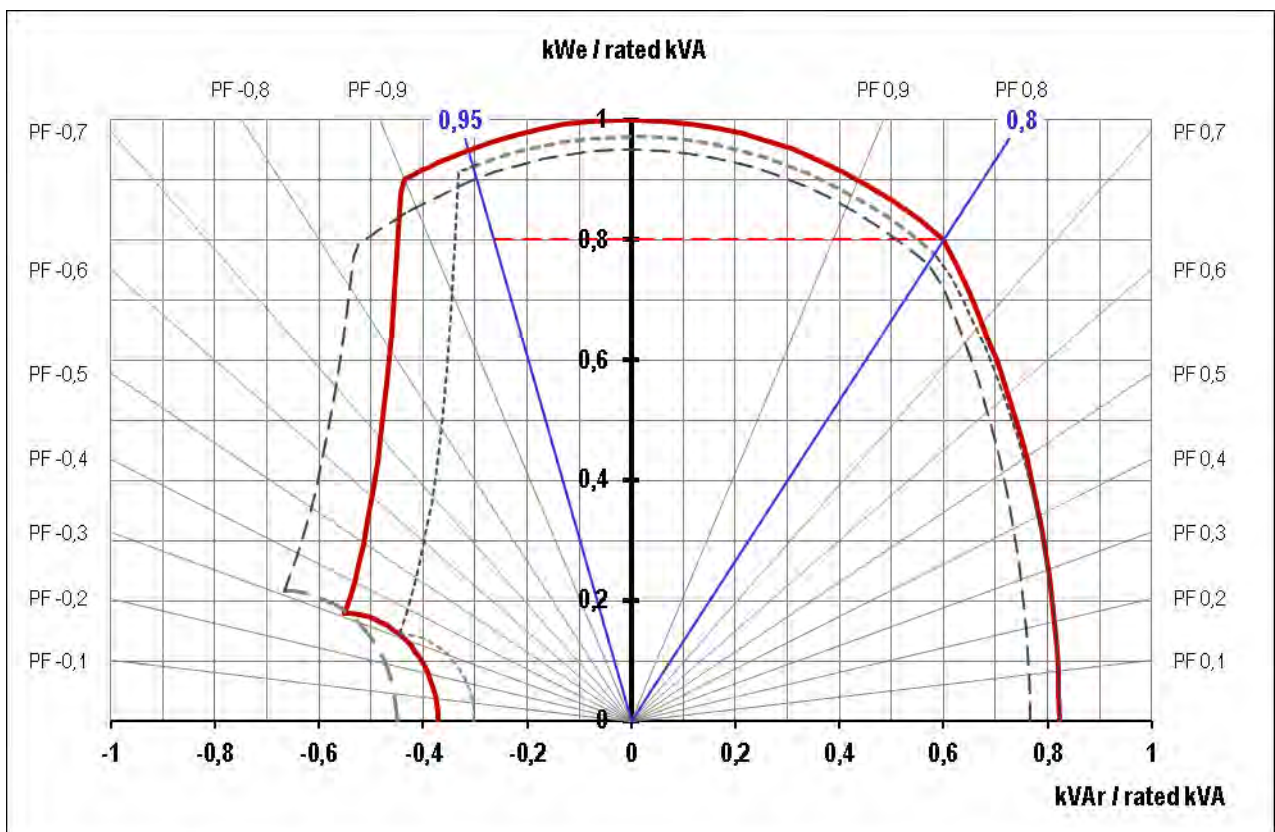
LSAC 50.2 VL10 / 4p - 1315kVA - 415V - 1500 rpm - 50Hz

### Main Machine Parameters

Typ	LSAC 50.2 VL10	
Leistung	1315	kVA
Leistung	1052	kWe
Leistung	1096	kWm
Spannung	415	V
Nennstrom	1 829	A

PF	0,8	
Frequenz	50	Hz
Drehzahl	1500	1/min
Isolation/Erwärmung	H / F	
Schrittwicklung	n° 6S (p2/3)	

### PQ Diagram





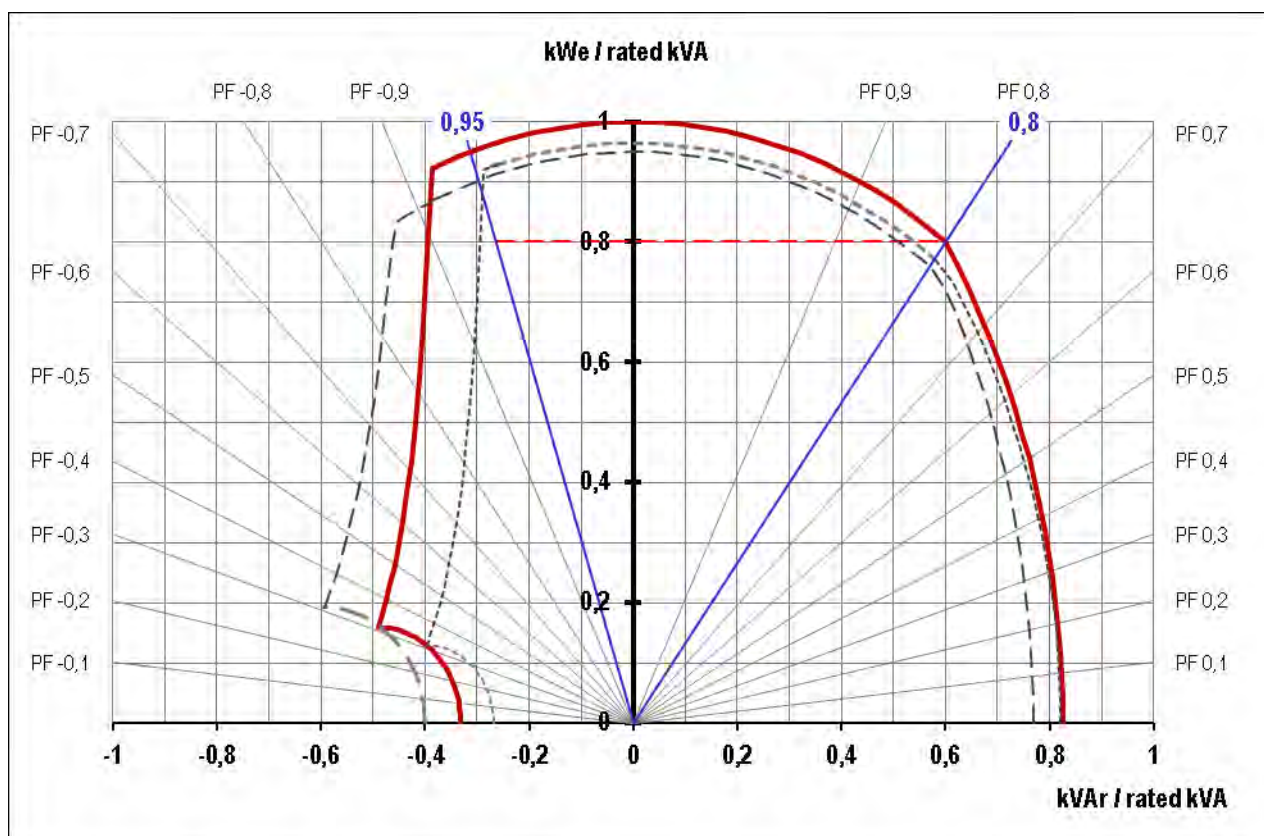
LSAC 50.2 VL10 / 4p - 1232kVA - 690V - 1500 rpm - 50Hz

### Main Machine Parameters

Typ	LSAC 50.2 VL10	
Leistung	1232	kVA
Leistung	986	kWe
Leistung	1027	kWm
Spannung	690	V
Nennstrom	1 031	A

PF	0,8	
Frequenz	50	Hz
Drehzahl	1500	1/min
Isolation/Erwärmung	H / F	
Schrittwicklung	n° 52S (p2/3)	

### PQ Diagram



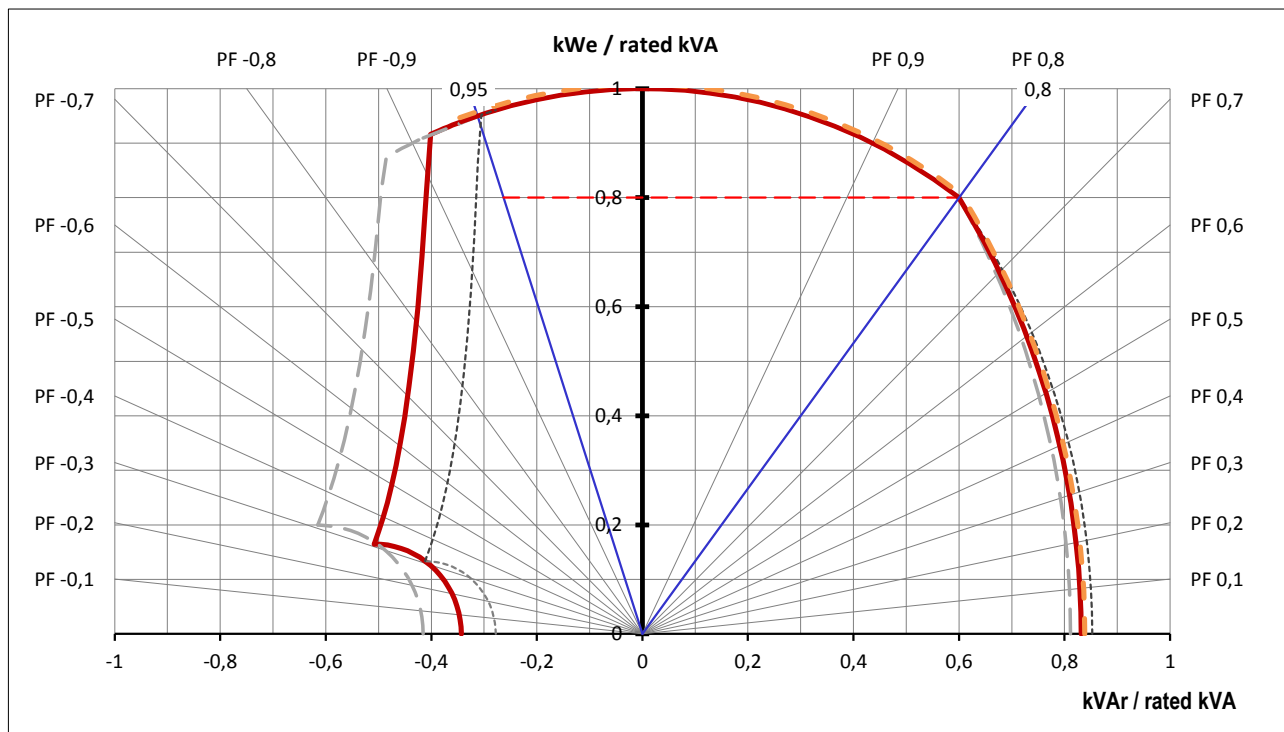
Date : 20.11.2014

1720kVA - 400V - 50 Hz

V4.02 - 11/2014

### Capability Curve

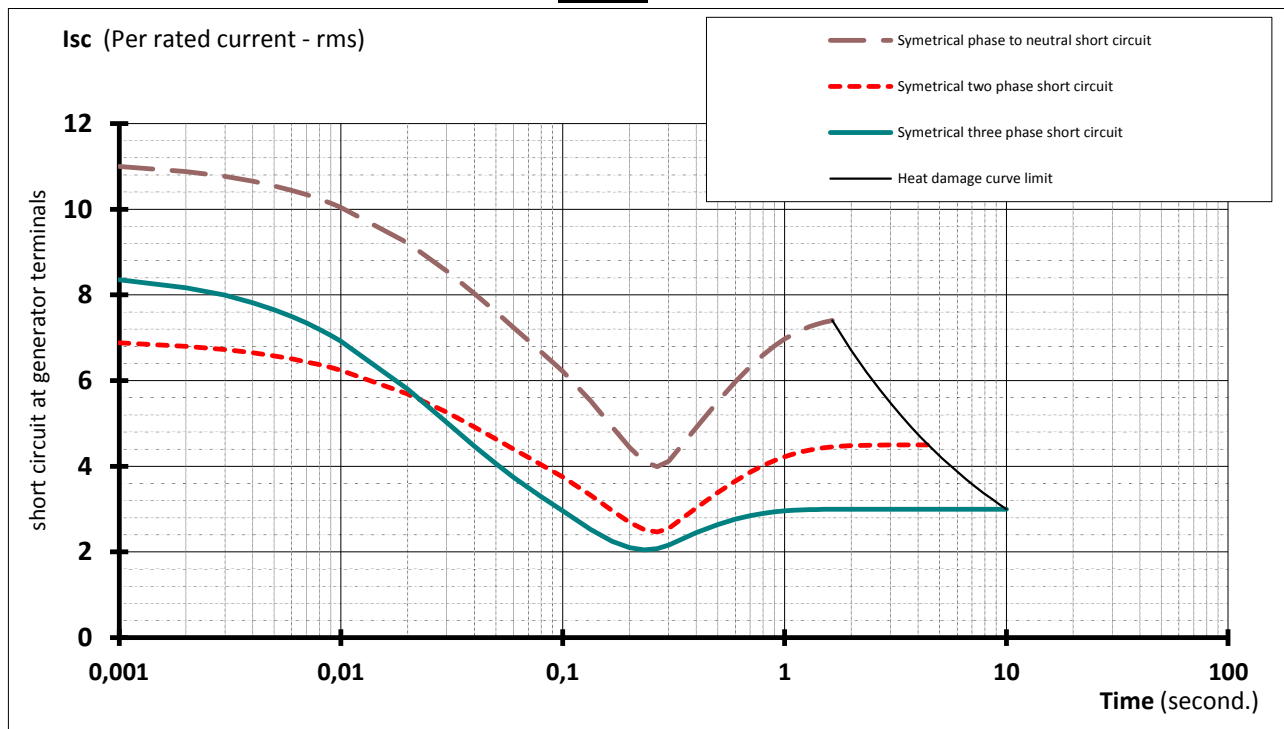
—	Umax + 10%	440	V
—	Un	400	V
- - -	Umin - 10%	360	V
- - -	Thermal Limit		



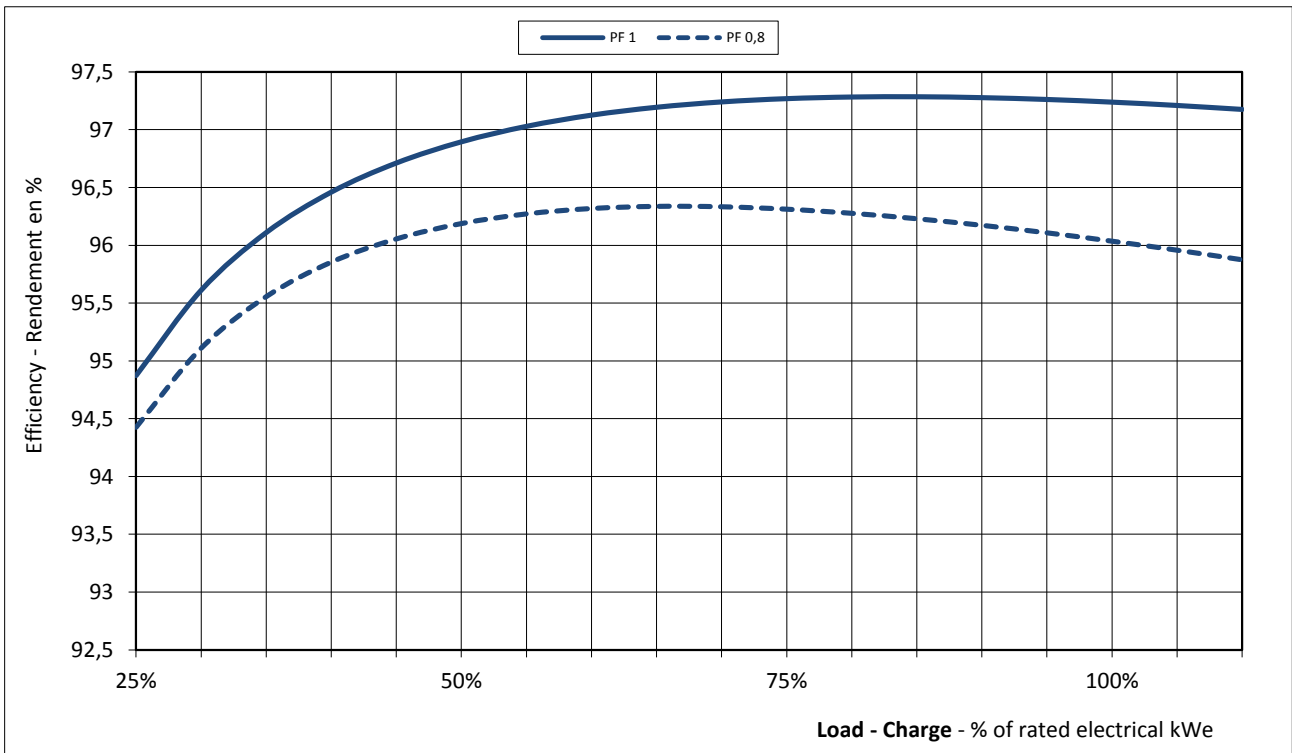
### Stator Current decrement curves

symetrical phase to neutral short circuit  
symetrical two phase short circuit  
symetrical three phase short circuit

initial	27 304	A	11 x In	
max	17 078	A	6,9 x In	In = 2483 A
value	20 748	A	8,4 x In	

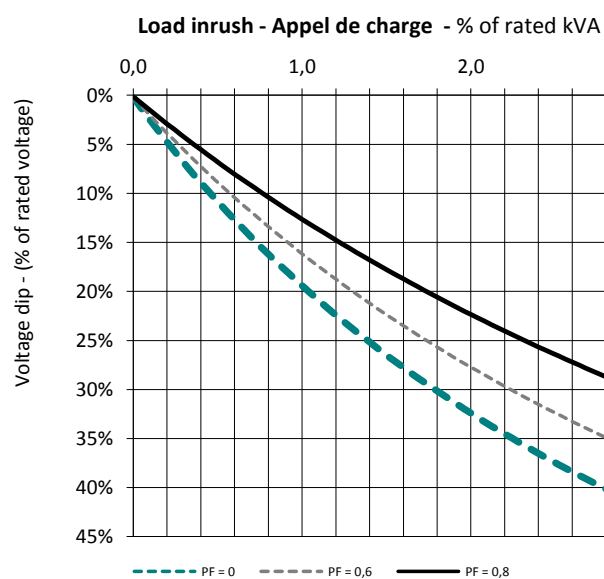


### Efficiency Curves

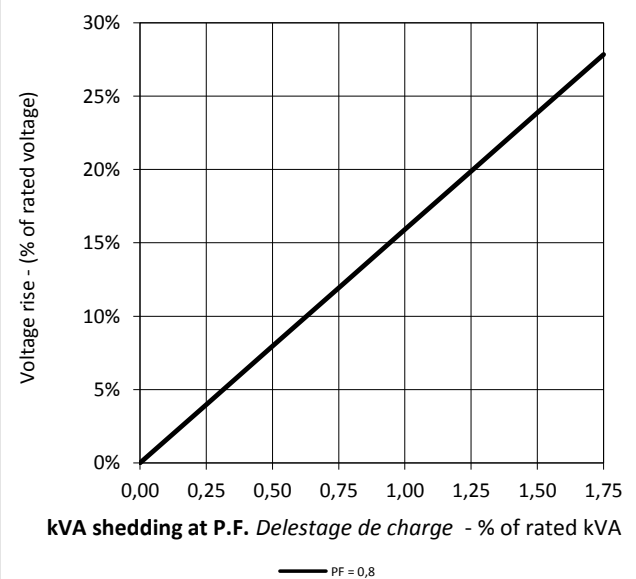


### Transient Voltage Variation

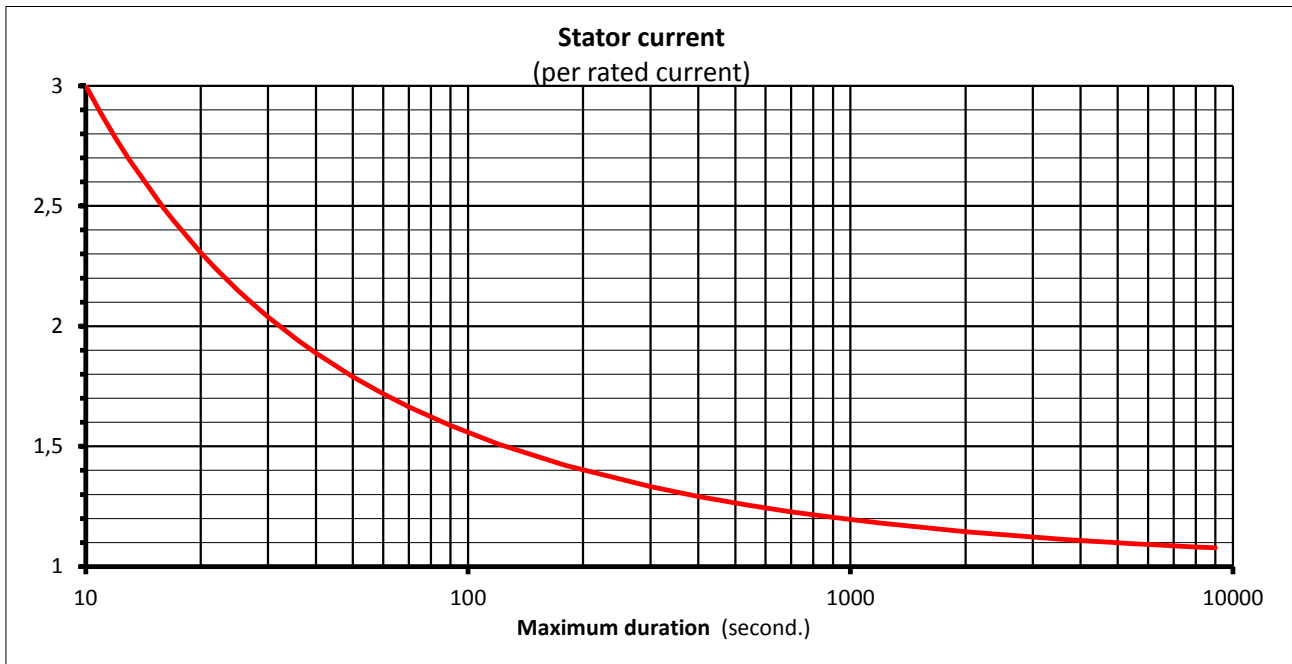
#### Transient voltage dip curve versus load impact



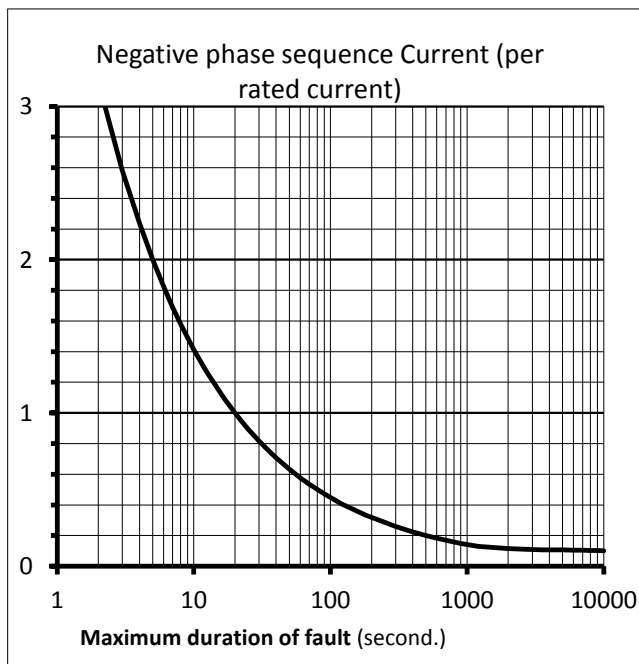
#### Transient voltage rise curve versus load rejection



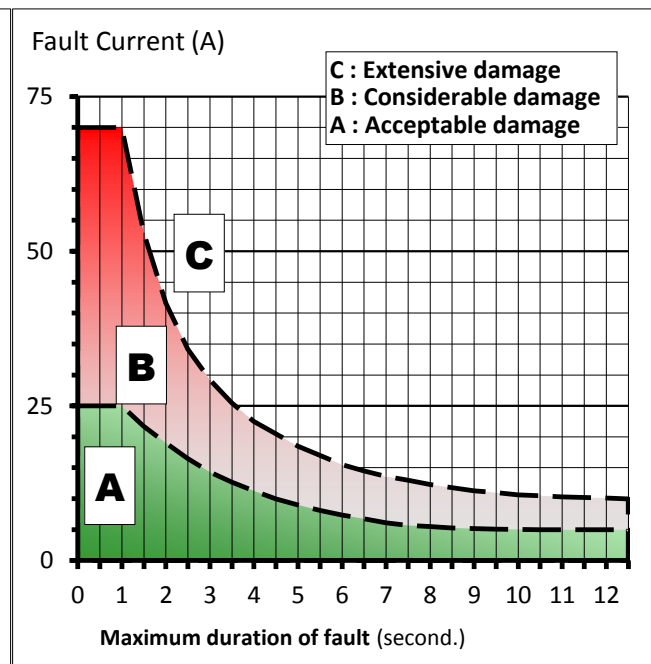
### Thermal Damage Curve



### Unbalance Load Curve



### Stator Earth Fault Current





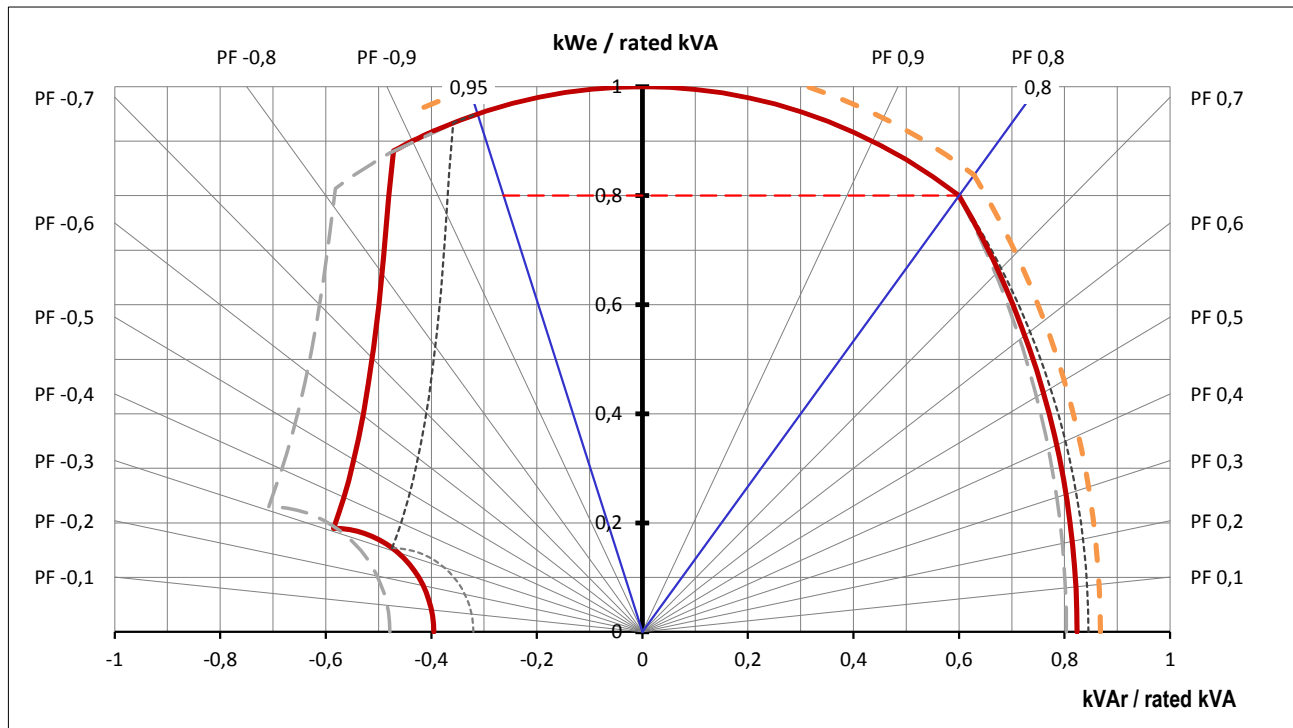
Date : 21.11.2014

1720kVA - 415V - 50 Hz

V4.02 - 11/2014

### Capability Curve

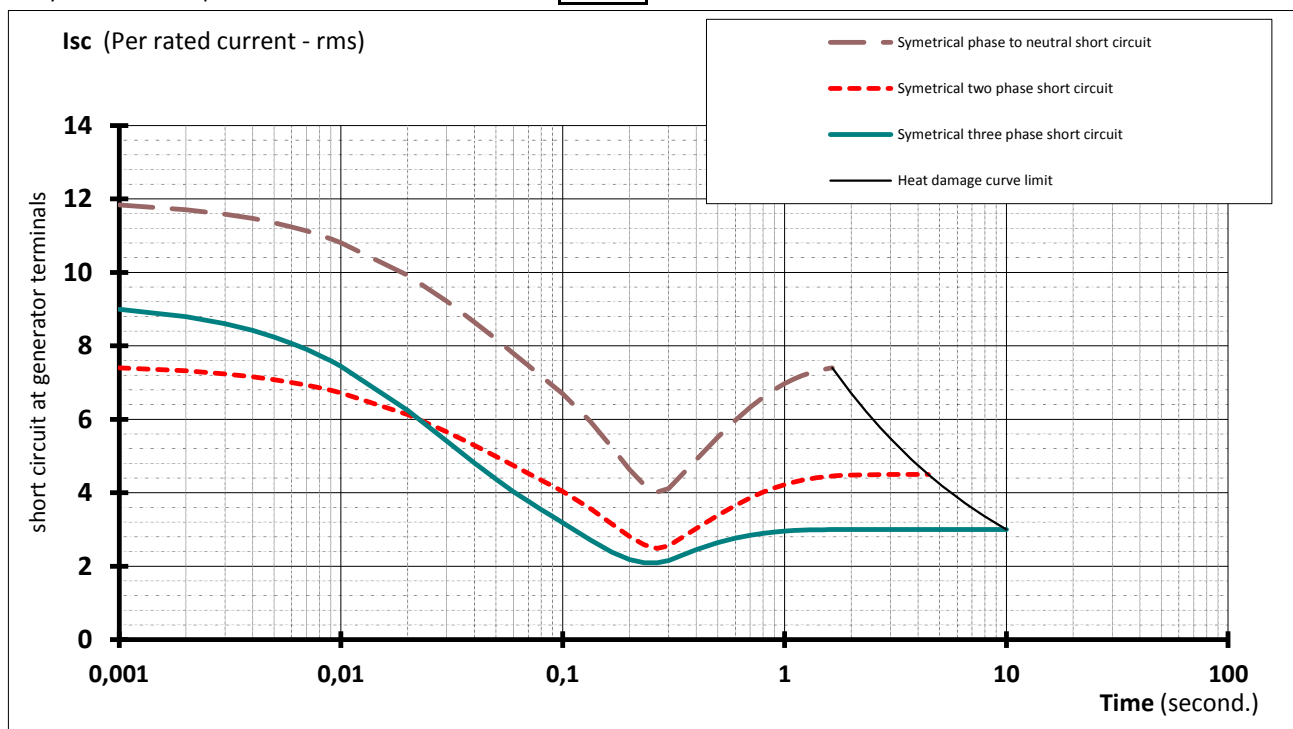
—	Umax + 10%	457	V
—	Un	415	V
- - -	Umin - 10%	374	V
- - -	Thermal Limit		



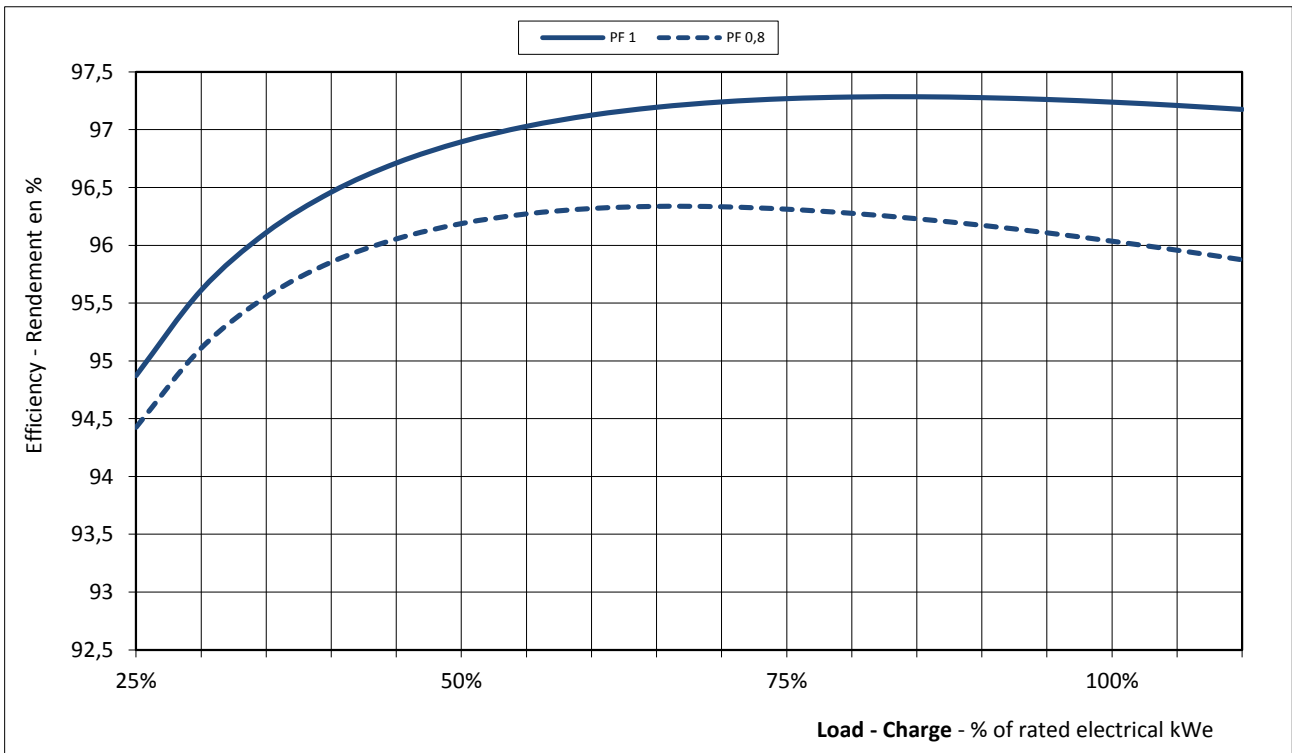
### Stator Current decrement curves

symetrical phase to neutral short circuit  
symetrical two phase short circuit  
symetrical three phase short circuit

initial	29 390	A	11,8 x In	
max	18 383	A	7,4 x In	In = 2483 A
value	22 334	A	9 x In	

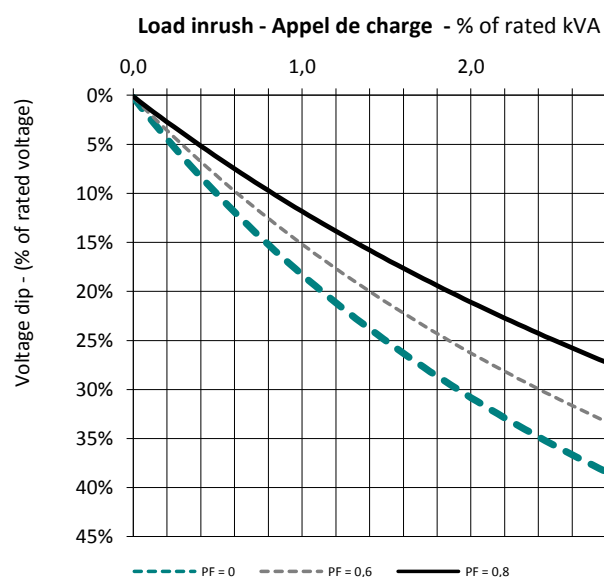


### Efficiency Curves

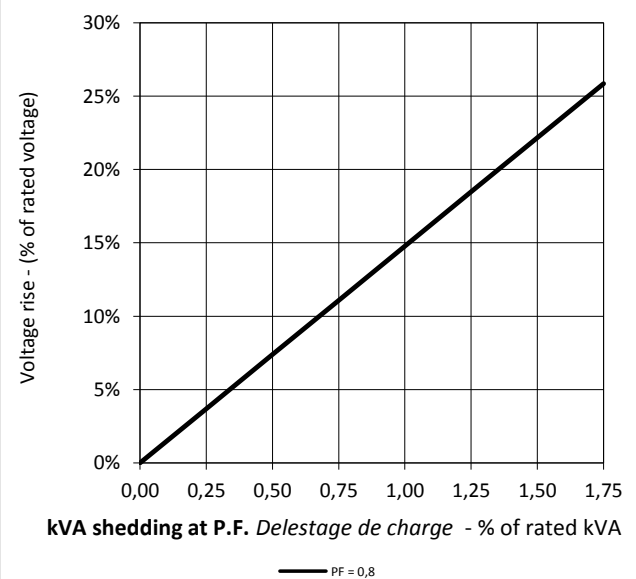


### Transient Voltage Variation

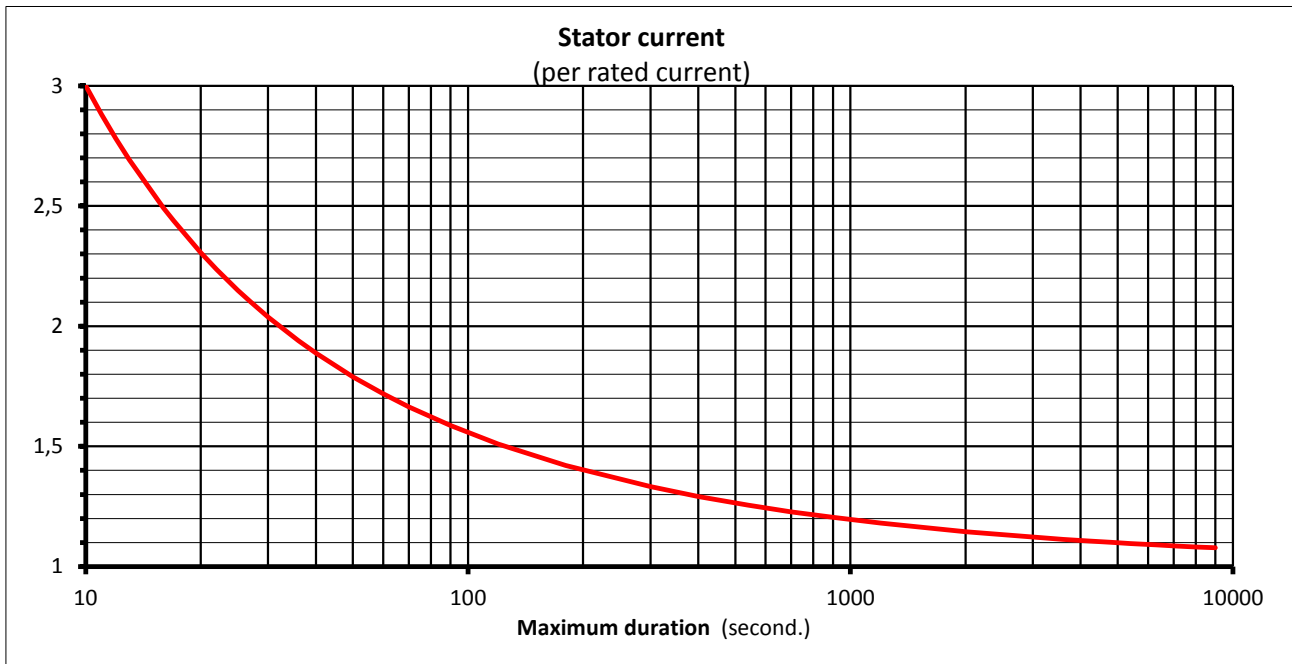
#### Transient voltage dip curve versus load impact



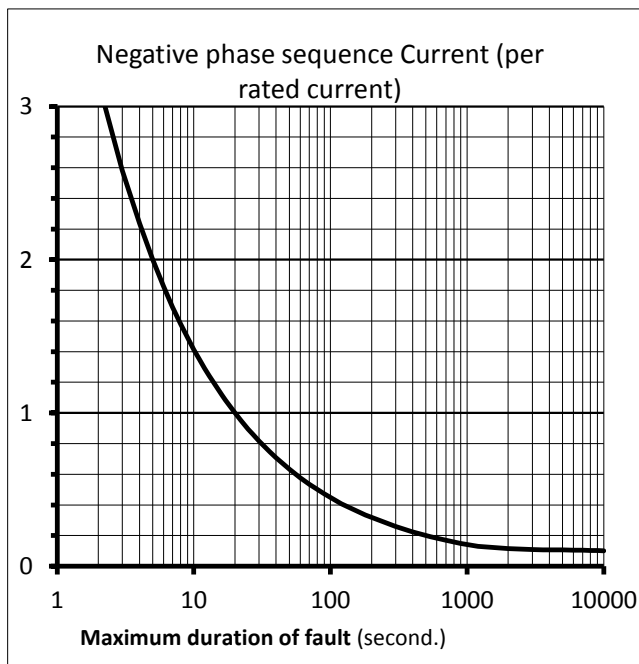
#### Transient voltage rise curve versus load rejection



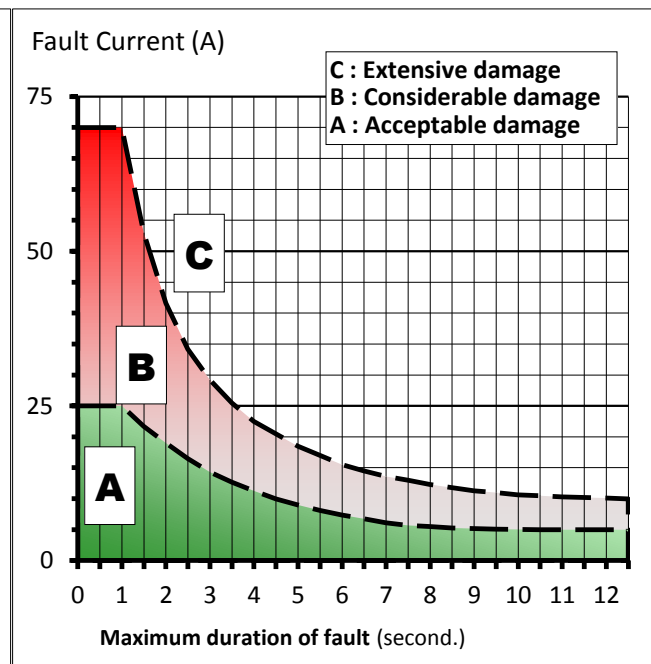
### Thermal Damage Curve



### Unbalance Load Curve



### Stator Earth Fault Current



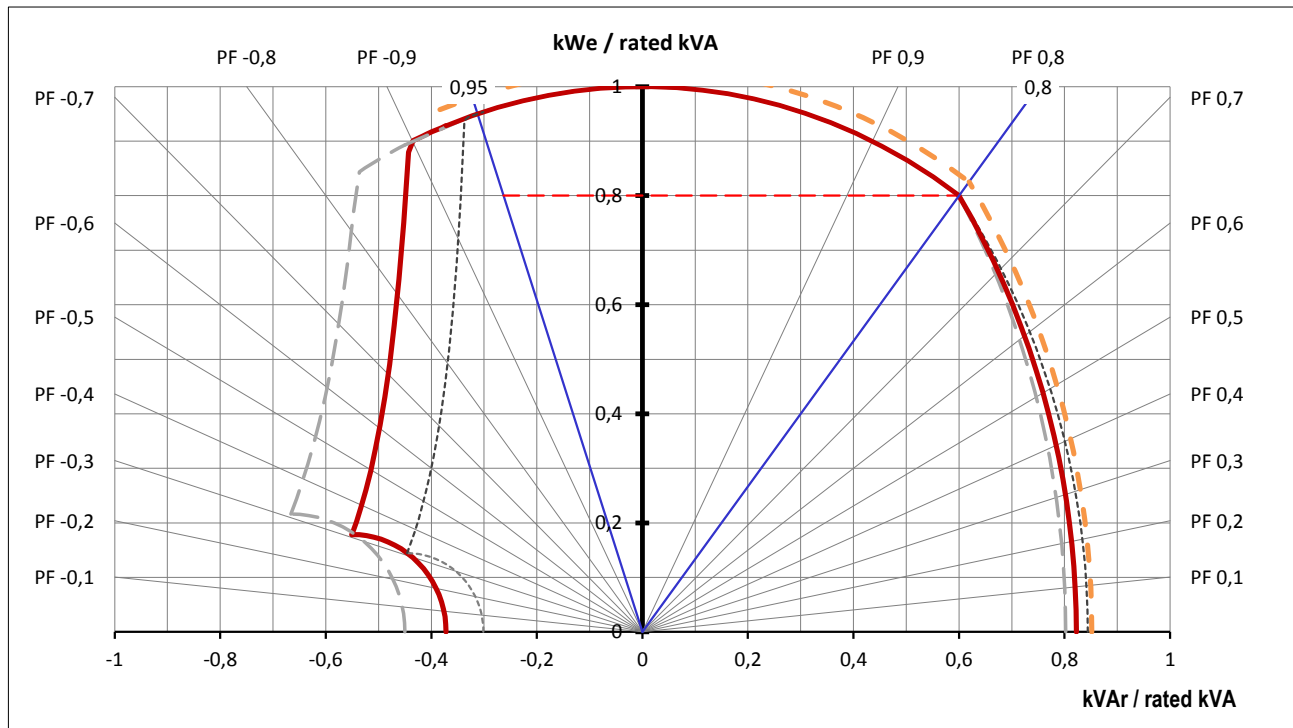
Date : 24.11.2014

1594kVA - 690V - 50 Hz

V4.02 - 11/2014

### Capability Curve

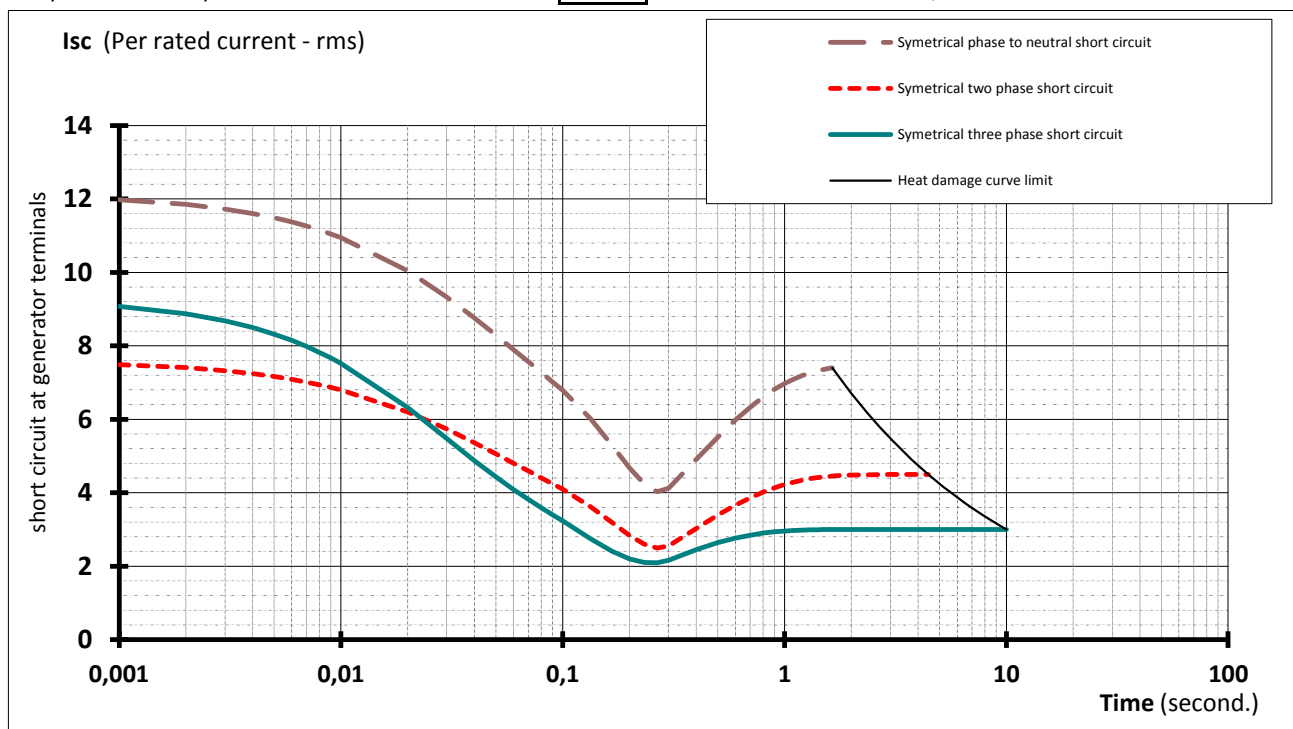
—	Umax + 10%	759	V
—	Un	690	V
- - -	Umin - 10%	621	V
- - -	Thermal Limit		



### Stator Current decrement curves

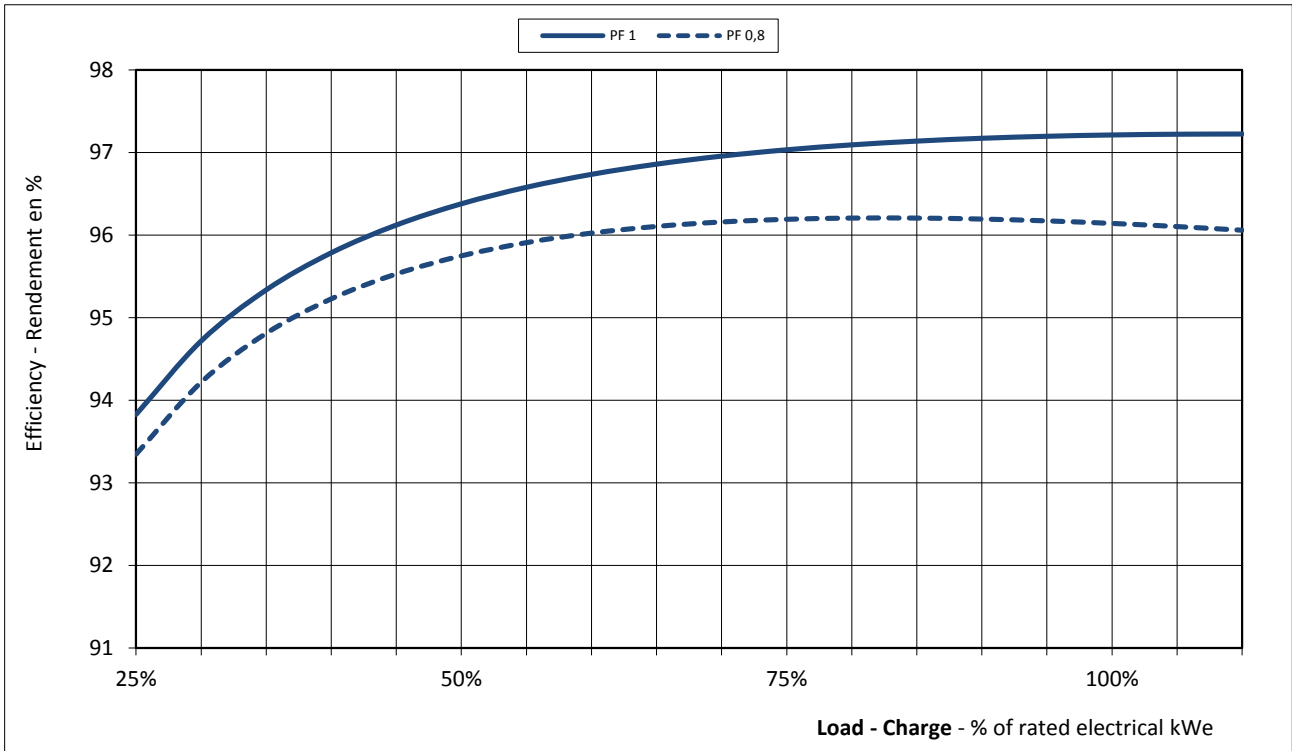
symetrical phase to neutral short circuit  
symetrical two phase short circuit  
symetrical three phase short circuit

initial	15 978	A	12 x In	
max	9 993	A	7,5 x In	In = 1334 A
value	12 110	A	9,1 x In	



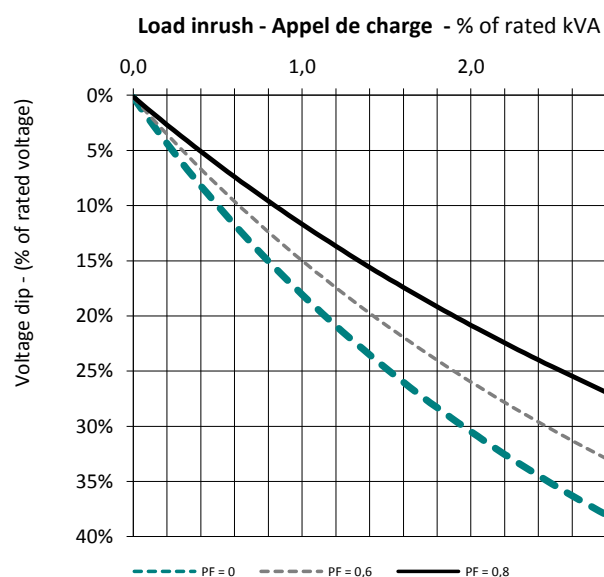


### Efficiency Curves

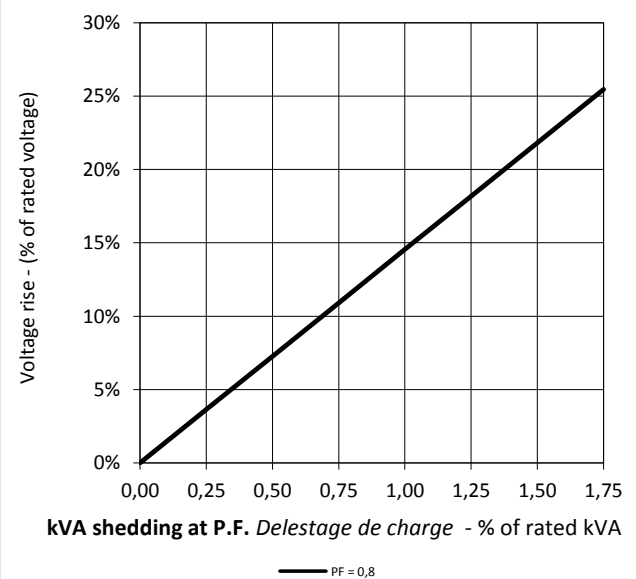


### Transient Voltage Variation

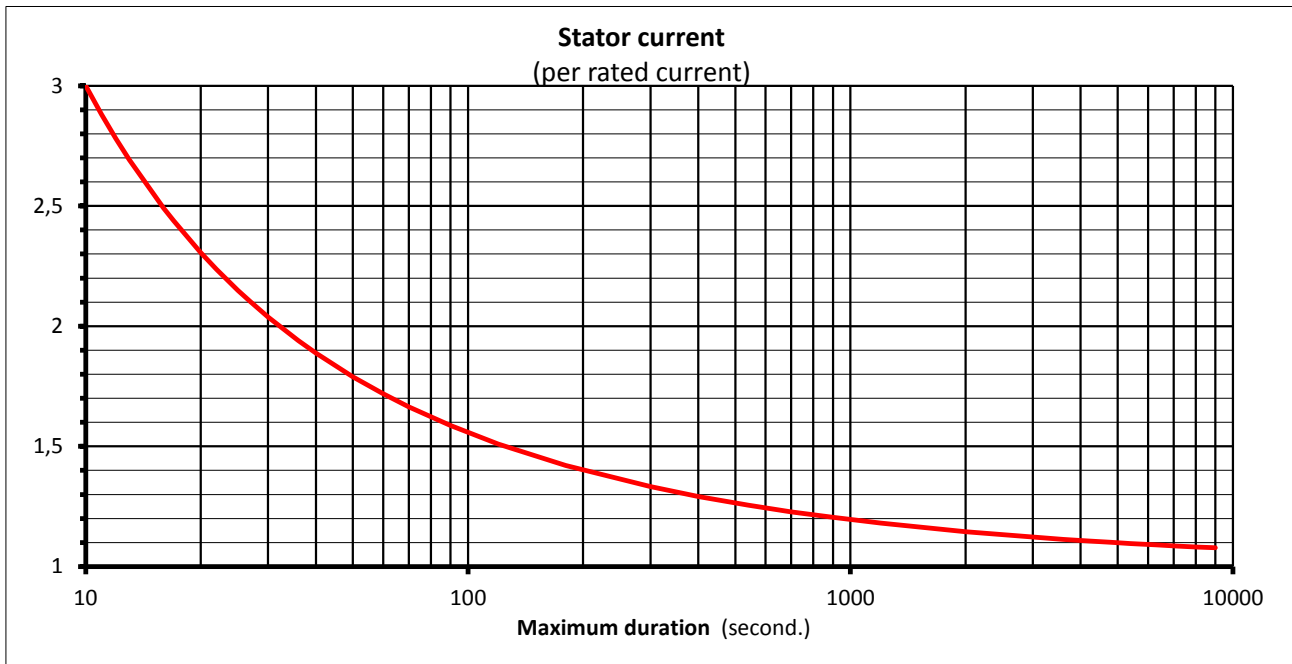
#### Transient voltage dip curve versus load impact



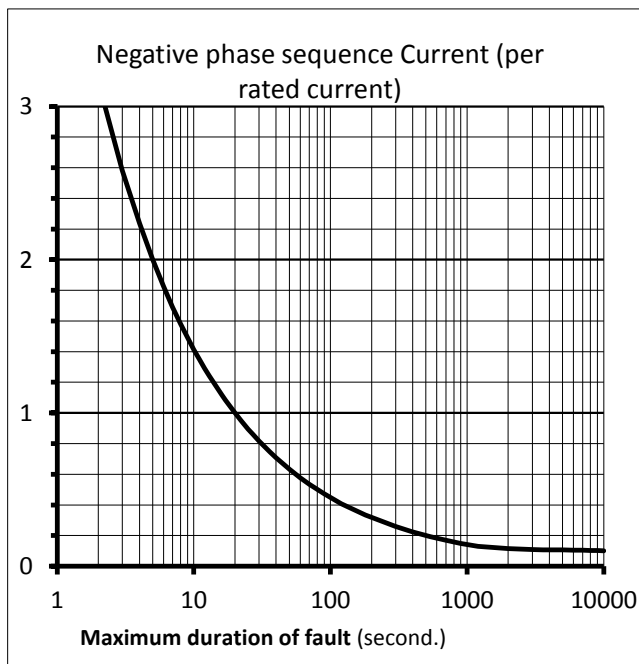
#### Transient voltage rise curve versus load rejection



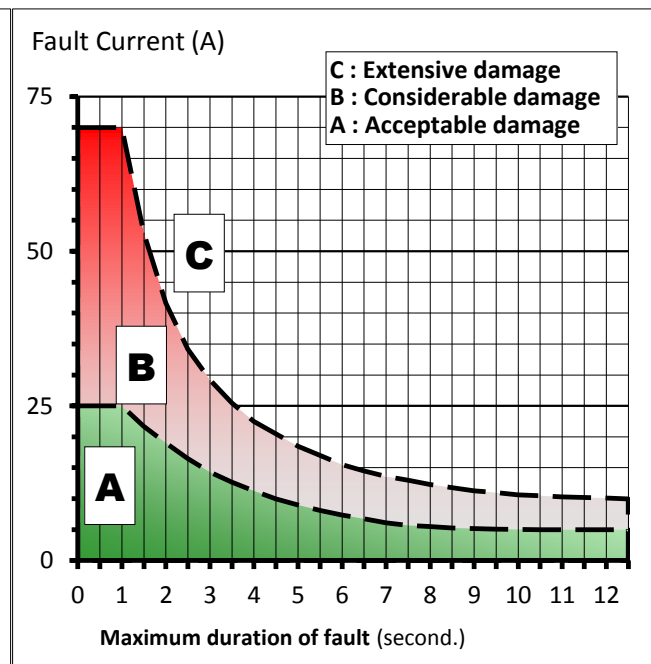
### Thermal Damage Curve



### Unbalance Load Curve



### Stator Earth Fault Current



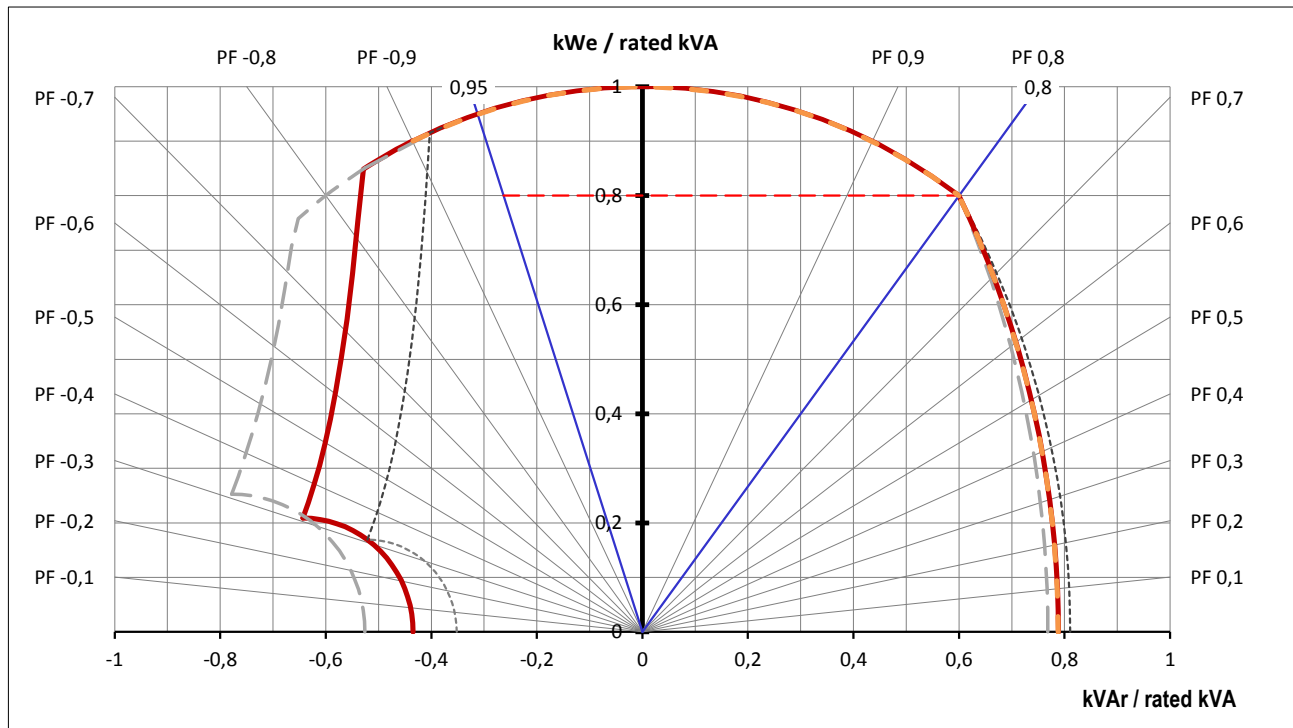
Date : 25.11.2014

1482kVA - 3300V - 50 Hz

V4.02 - 11/2014

### Capability Curve

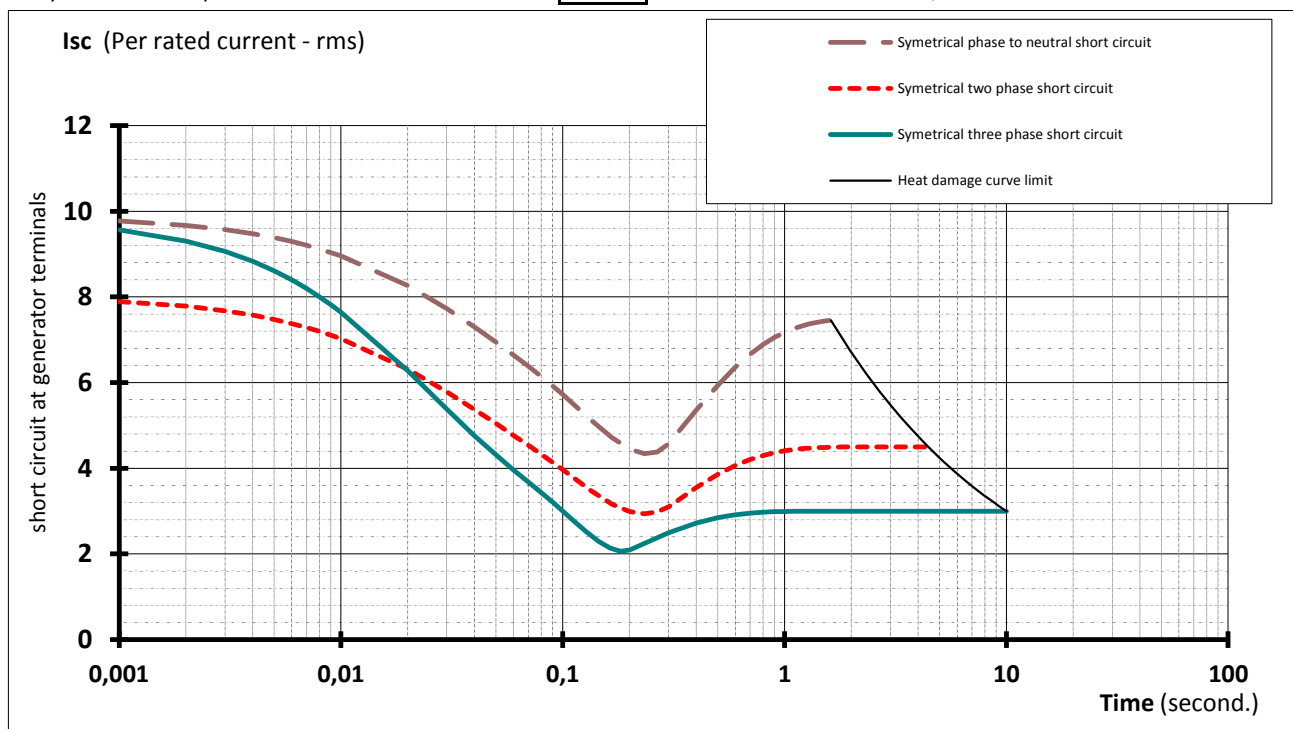
—	Umax + 10%	3 630	V
—	Un	<b>3 300</b>	V
- - -	Umin - 10%	2 970	V
- - -	Thermal Limit		



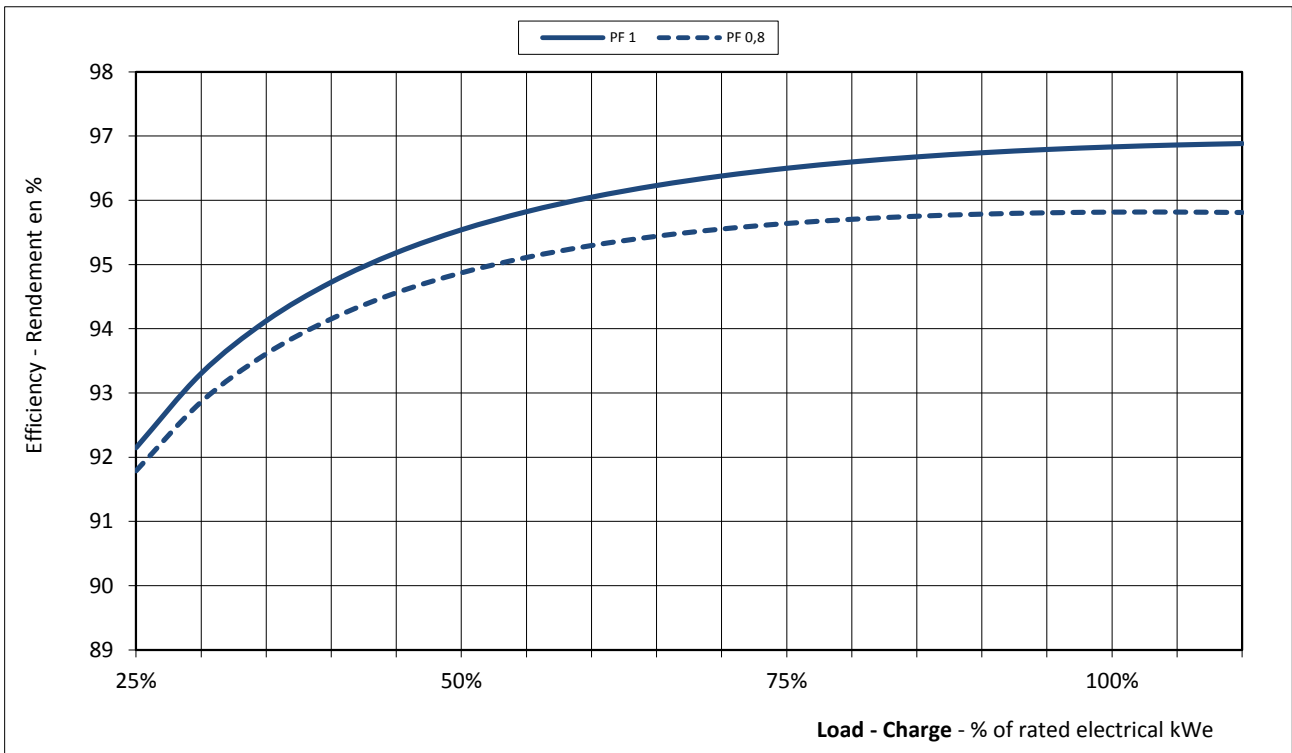
### Stator Current decrement curves

symetrical phase to neutral short circuit  
symetrical two phase short circuit  
symetrical three phase short circuit

initial	2 531	A	9,8 x In	In =	<b>259</b>	A
max	2 044	A	7,9 x In			
value	2 476	A	9,6 x In			

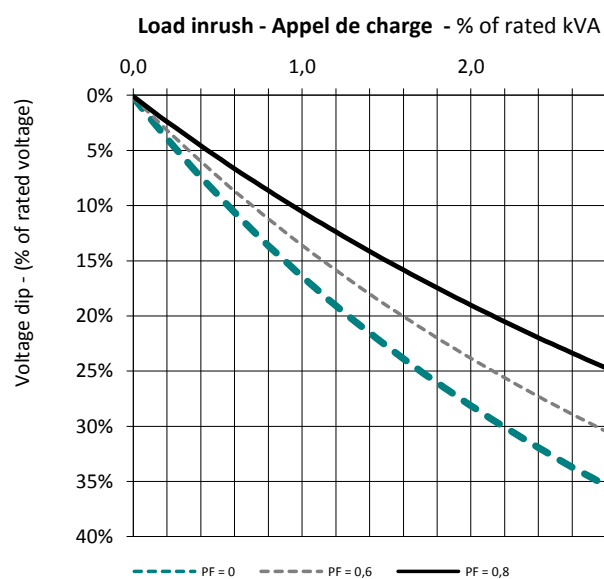


### Efficiency Curves

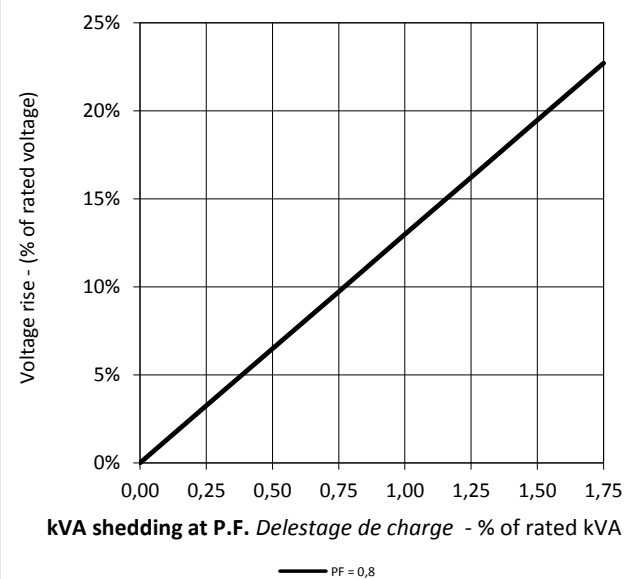


### Transient Voltage Variation

#### Transient voltage dip curve versus load impact

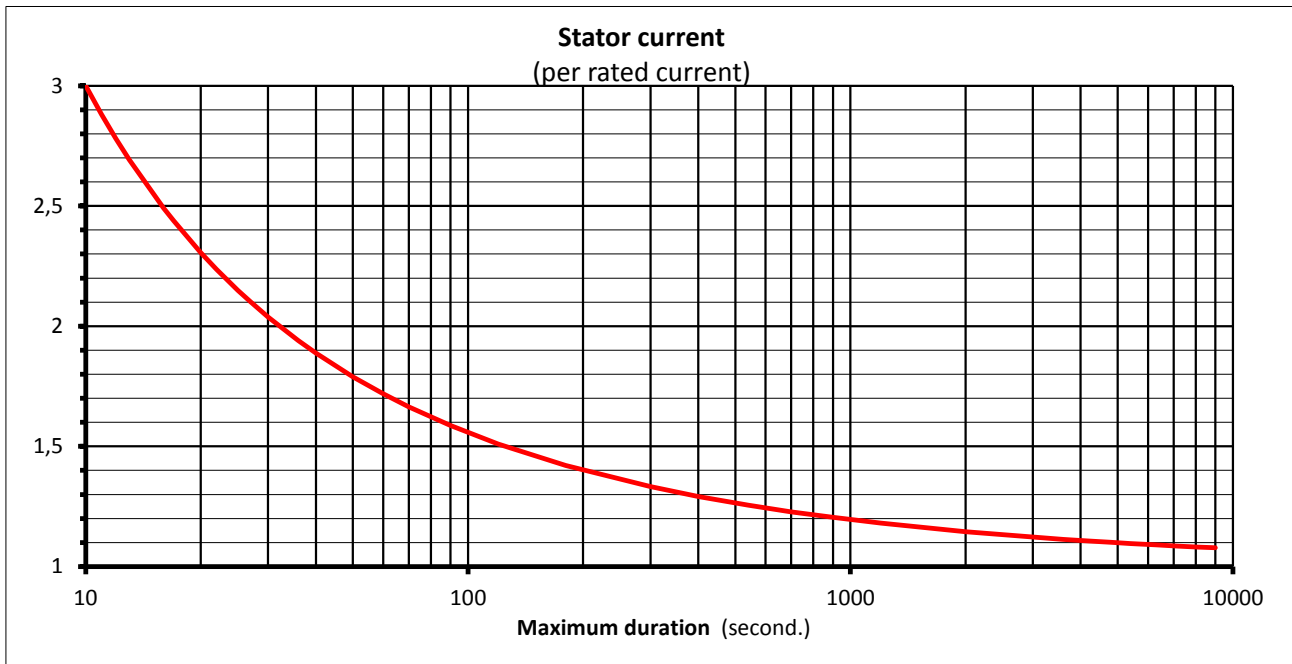


#### Transient voltage rise curve versus load rejection

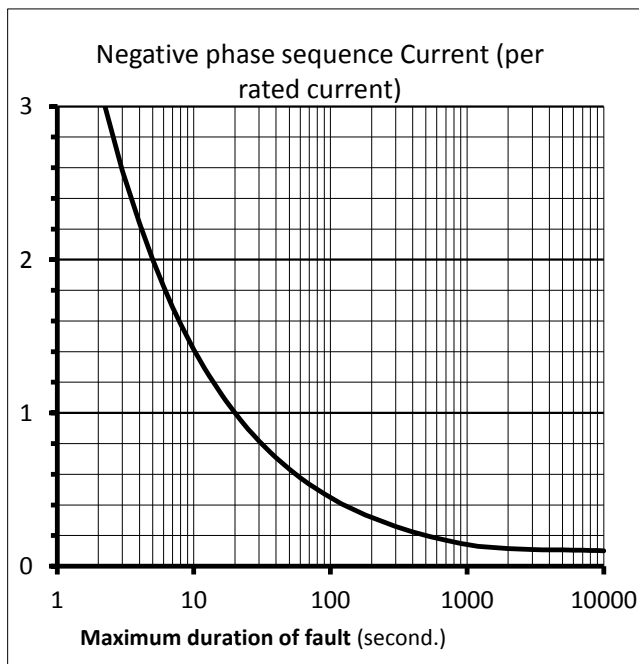




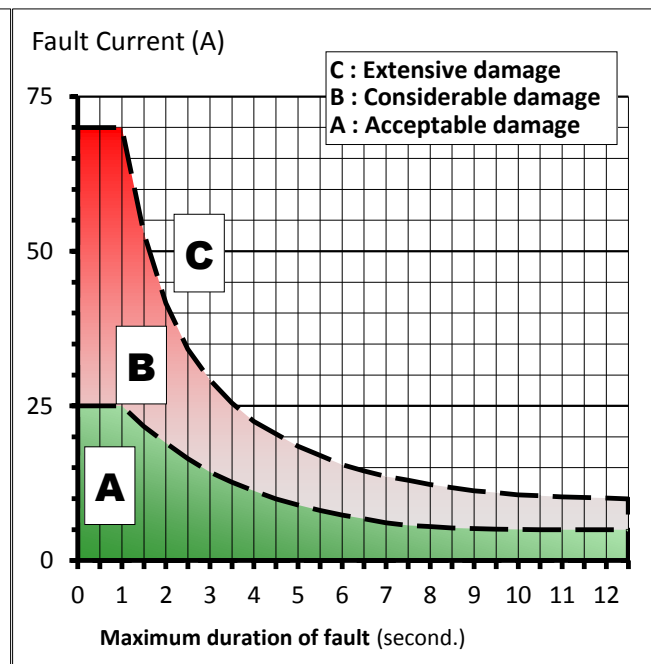
### Thermal Damage Curve



### Unbalance Load Curve



### Stator Earth Fault Current



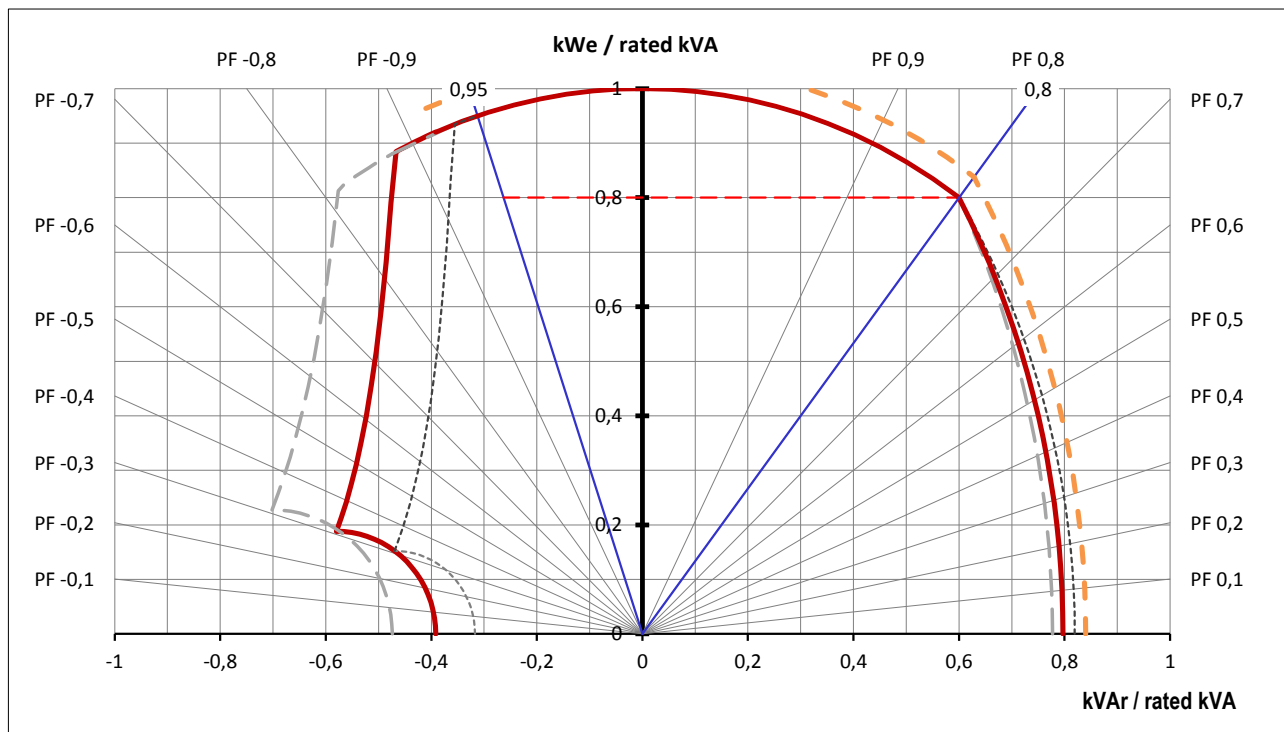
Date : 26.11.2014

1482kVA - 6300V - 50 Hz

V4.02 - 11/2014

### Capability Curve

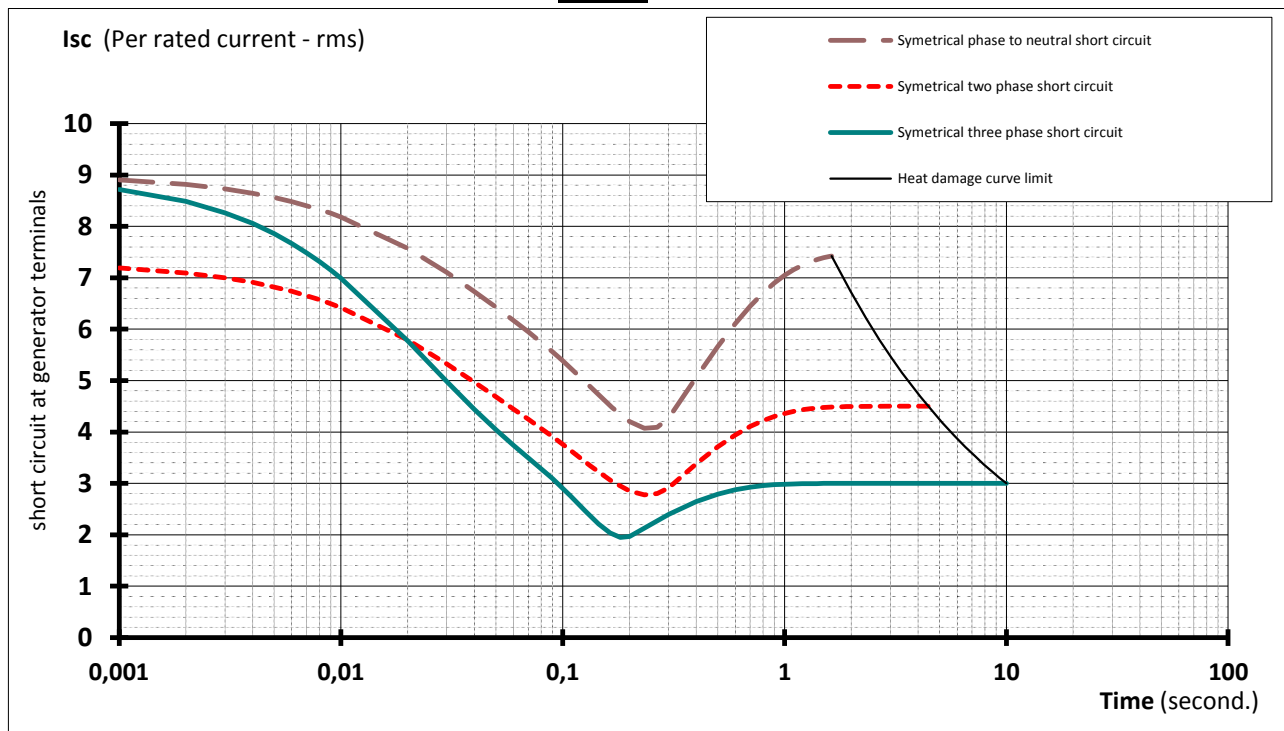
—	Umax + 10%	6 930	V
—	Un	<b>6 300</b>	V
- - -	Umin - 10%	5 670	V
- - -	Thermal Limit		



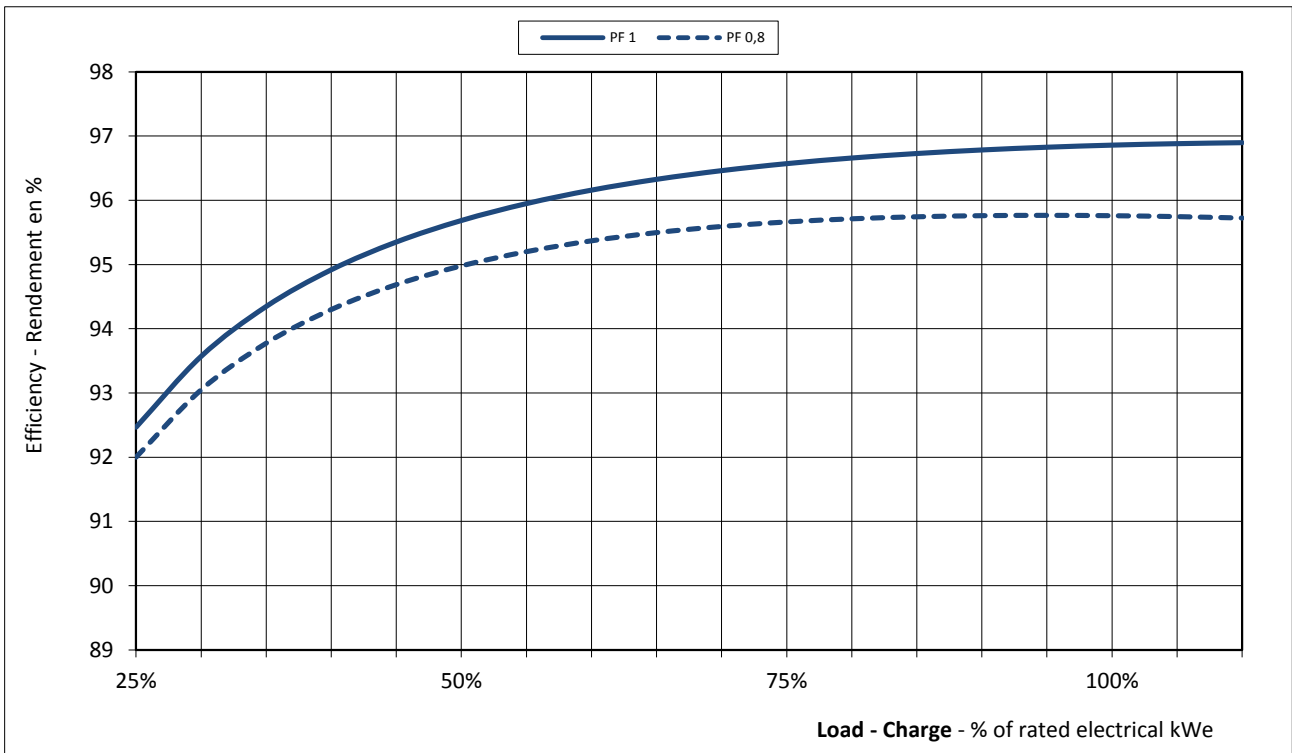
### Stator Current decrement curves

symetrical phase to neutral short circuit  
symetrical two phase short circuit  
symetrical three phase short circuit

initial	1 158	A	8,9 x In	In =	<b>130 A</b>
max	935	A	7,2 x In		
value	1 133	A	8,7 x In		

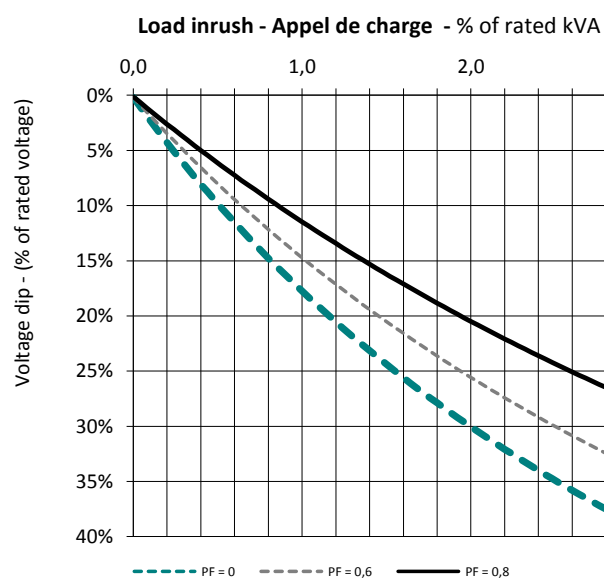


### Efficiency Curves

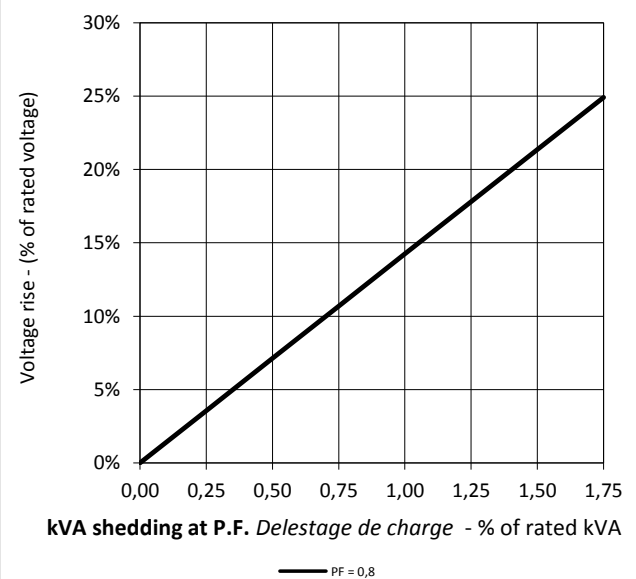


### Transient Voltage Variation

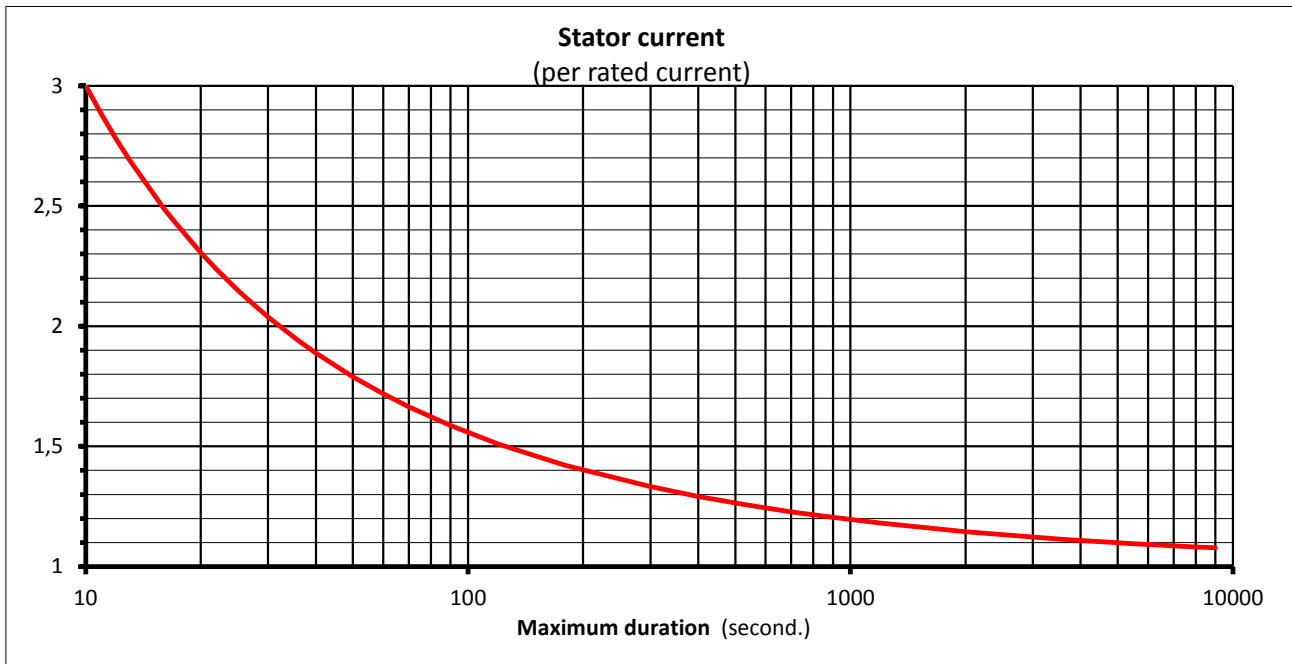
#### Transient voltage dip curve versus load impact



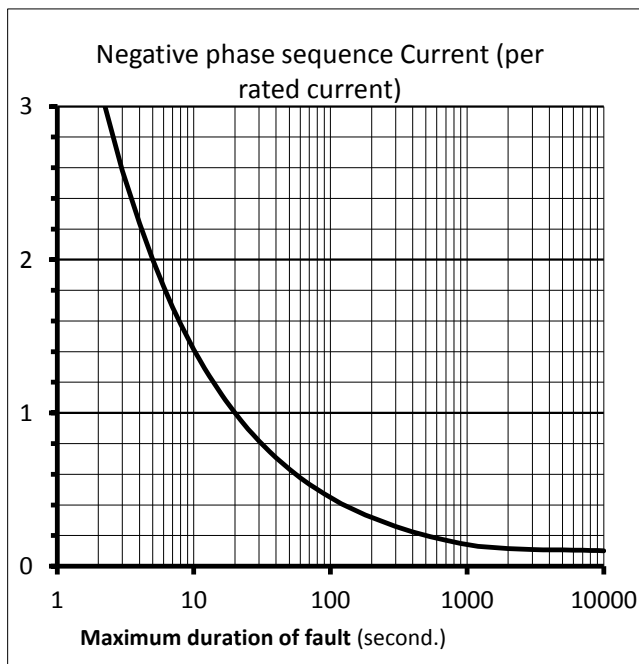
#### Transient voltage rise curve versus load rejection



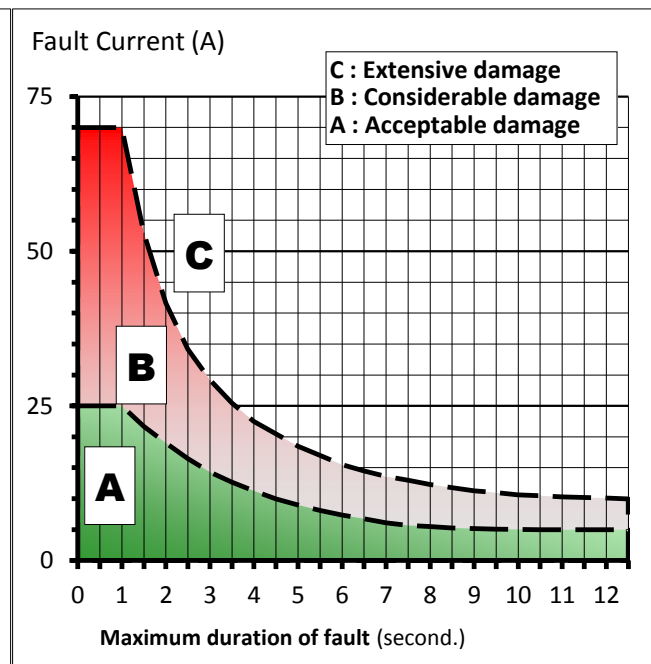
### Thermal Damage Curve



### Unbalance Load Curve



### Stator Earth Fault Current





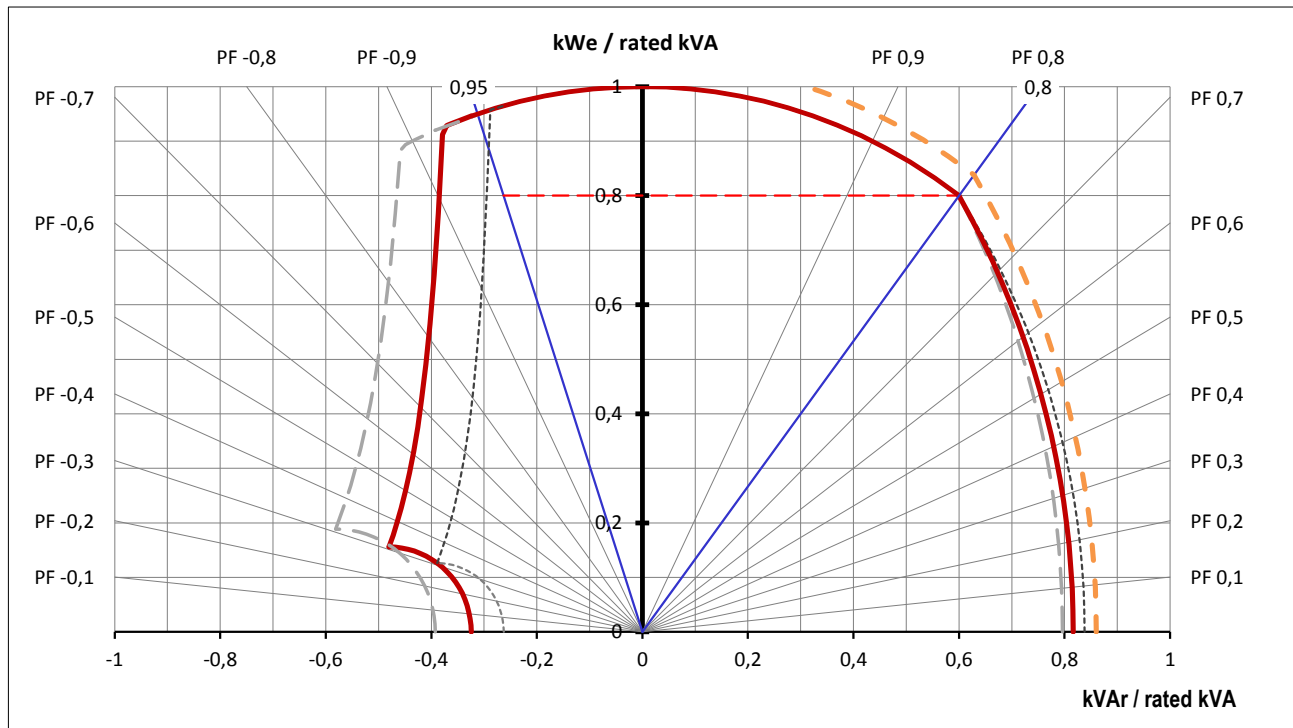
Date : 26.11.2014

1150kVA - 10500V - 50 Hz

V4.02 - 11/2014

### Capability Curve

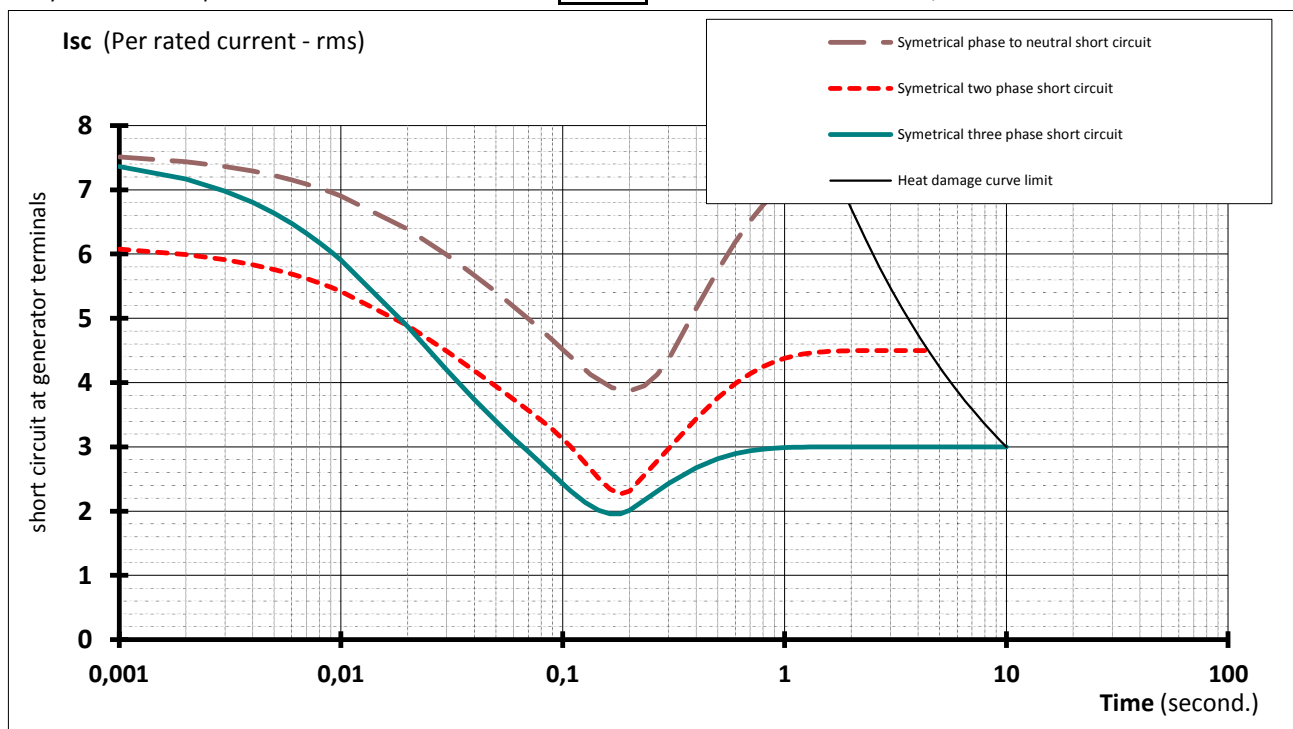
—	Umax	+ 10%	11 550	V
—	Un		<b>10 500</b>	V
- - -	Umin	- 10%	9 450	V
- - -	Thermal Limit			



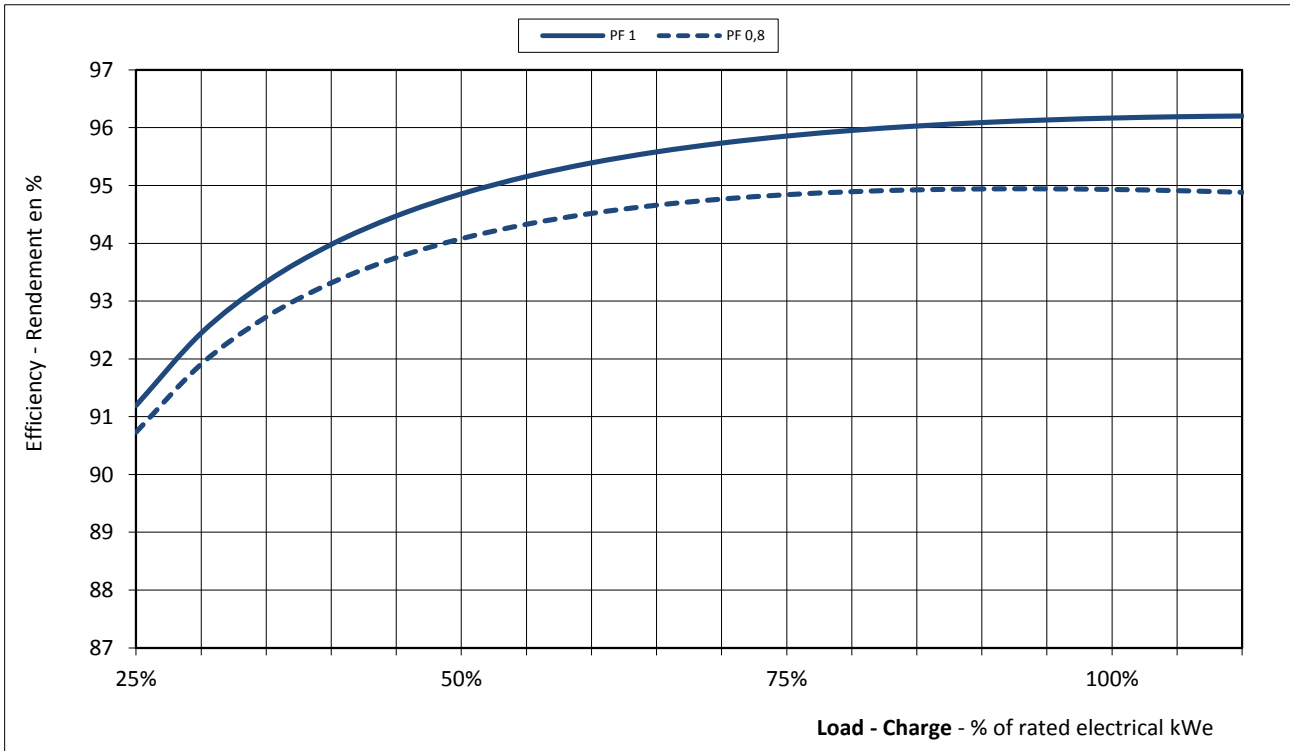
### Stator Current decrement curves

symetrical phase to neutral short circuit  
symetrical two phase short circuit  
symetrical three phase short circuit

initial	451	A	7,5 x In		
max	365	A	6,1 x In	In =	60 A
value	442	A	7,4 x In		

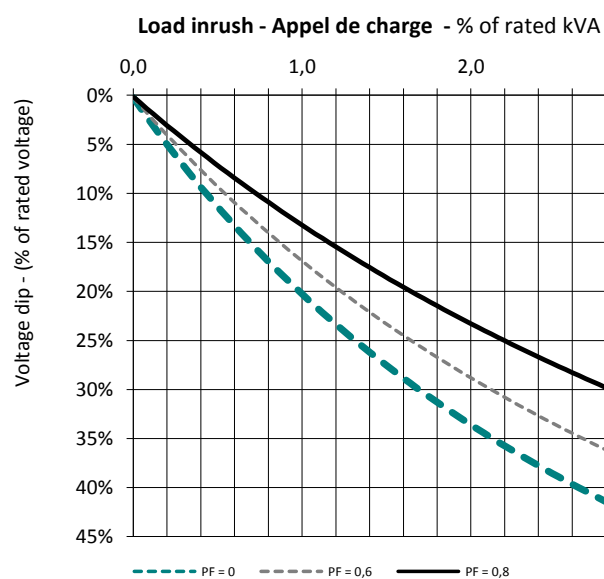


## Efficiency Curves

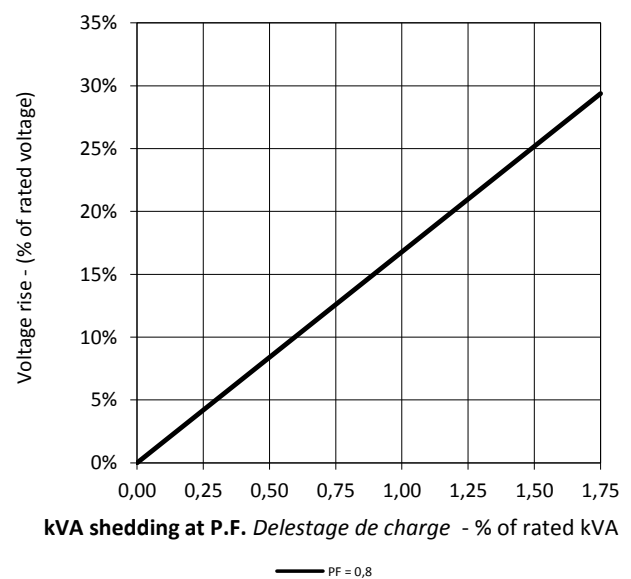


## Transient Voltage Variation

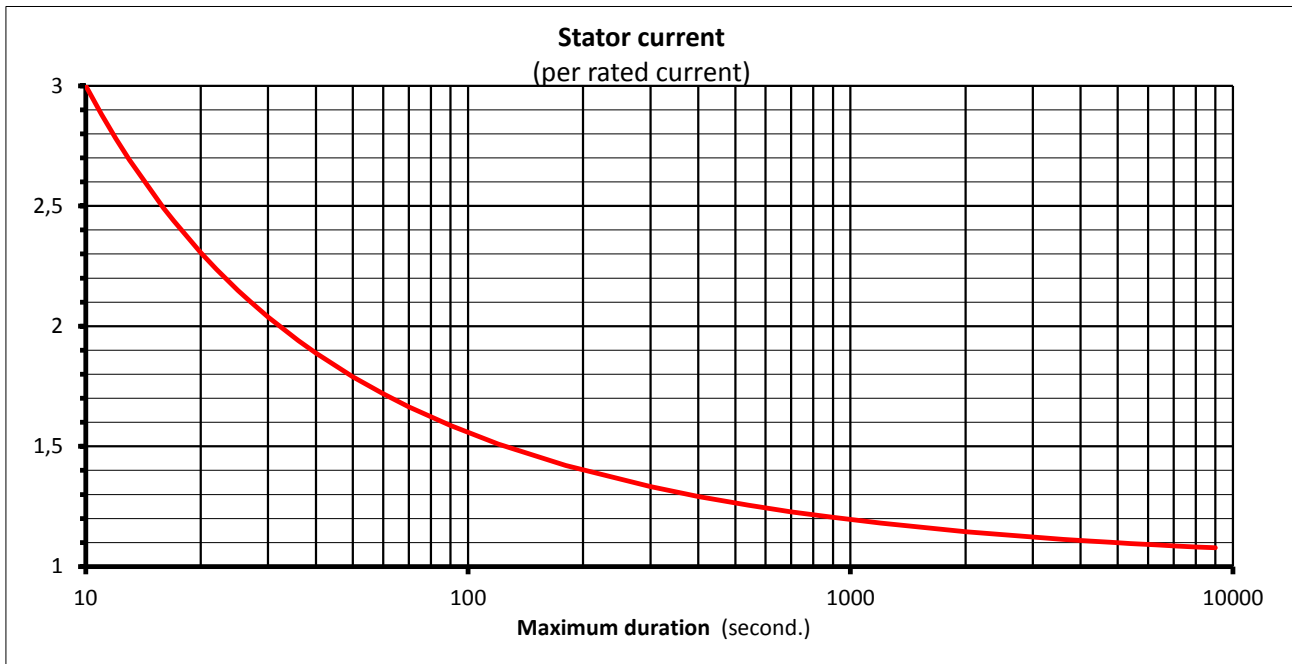
### Transient voltage dip curve versus load impact



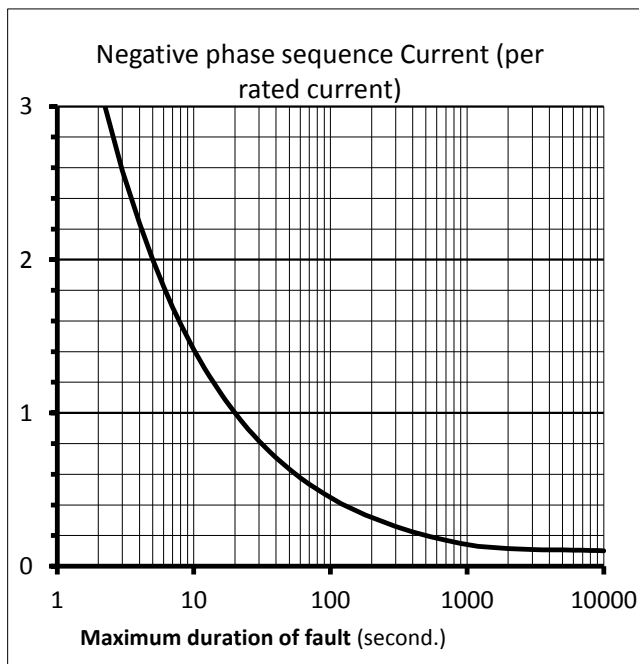
### Transient voltage rise curve versus load rejection



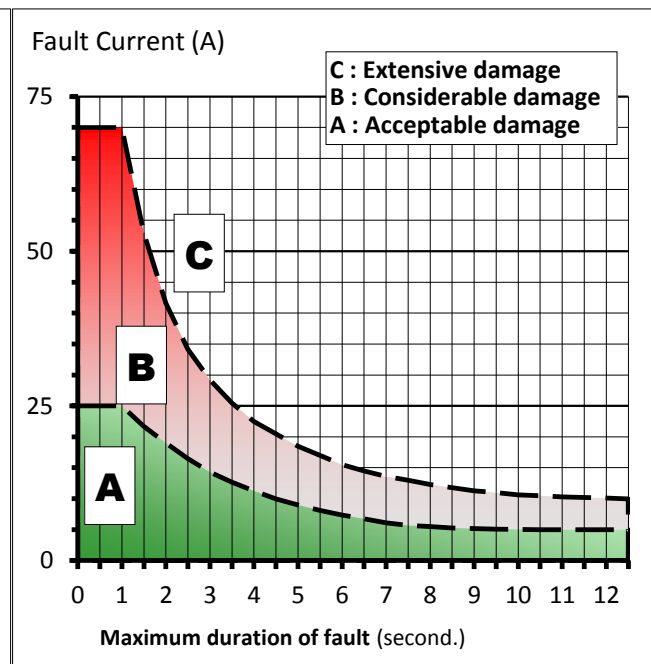
### Thermal Damage Curve



### Unbalance Load Curve



### Stator Earth Fault Current



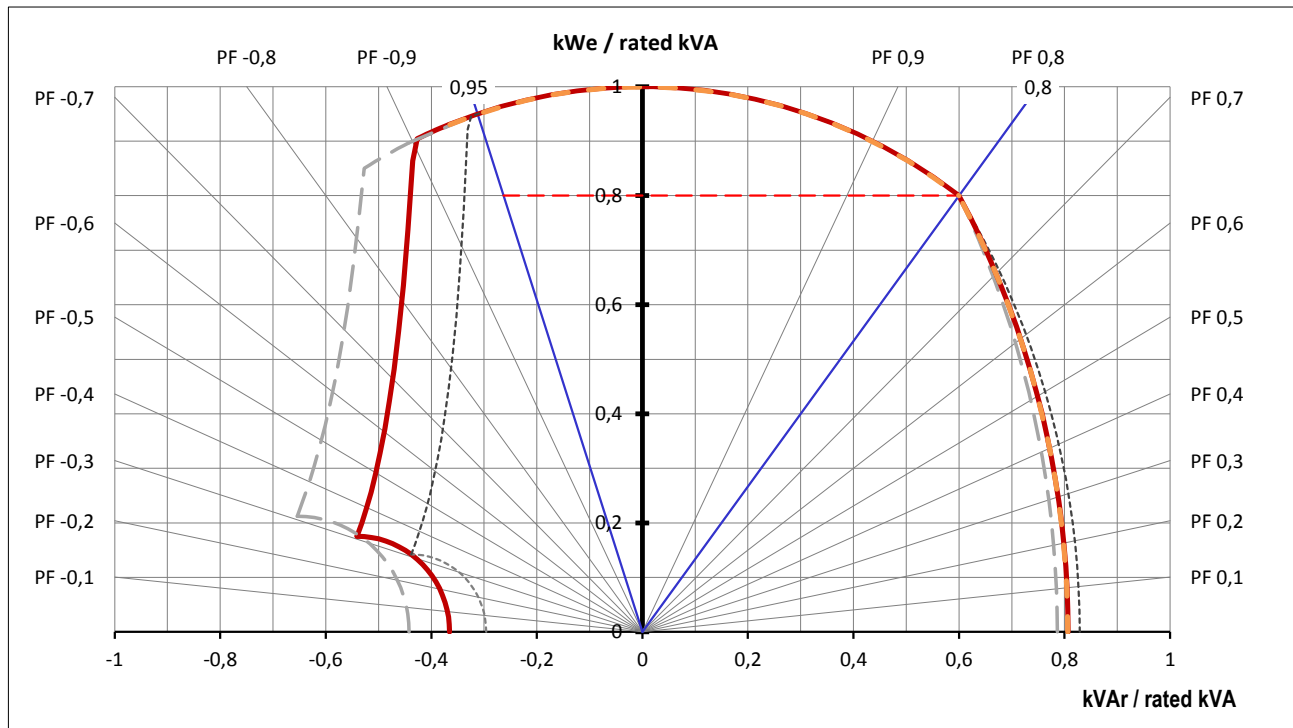
Date : 26.11.2014

1150kVA - 11000V - 50 Hz

V4.02 - 11/2014

### Capability Curve

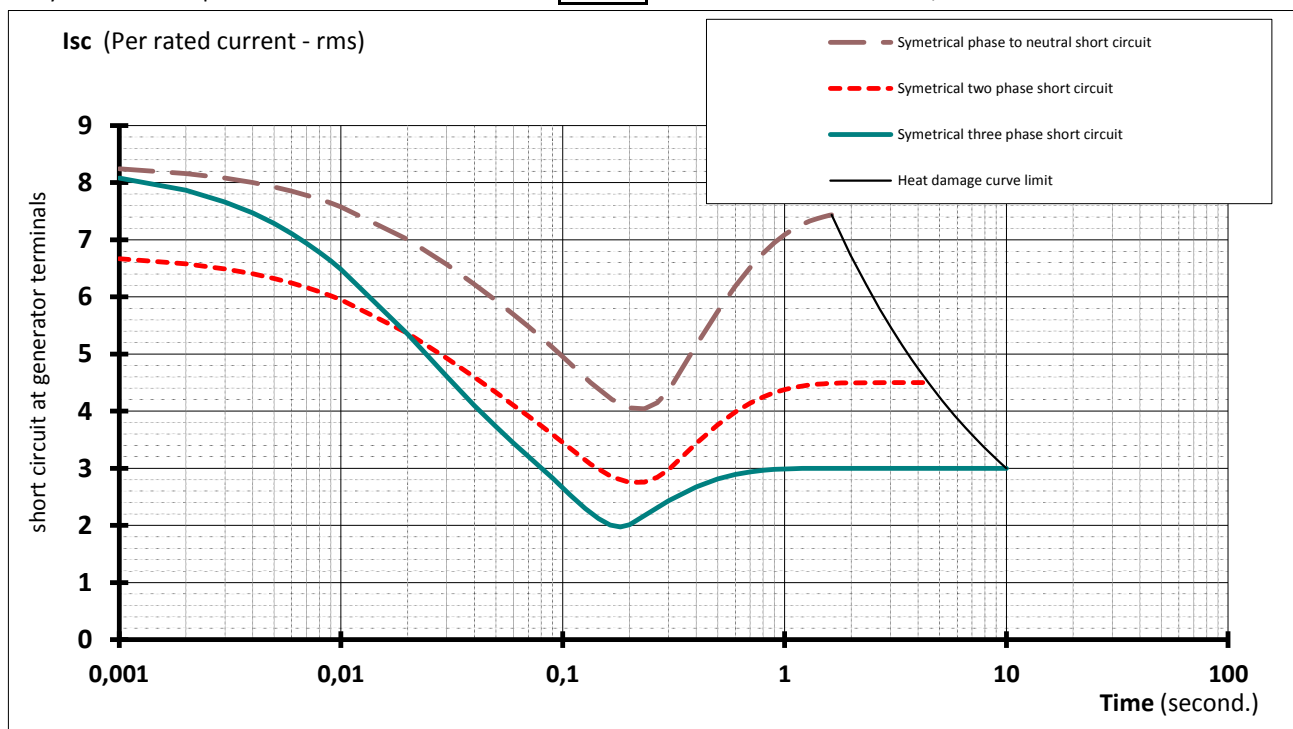
—	Umax + 10%	12 100	V
—	Un	11 000	V
- - -	Umin - 10%	9 900	V
- - -	Thermal Limit		



### Stator Current decrement curves

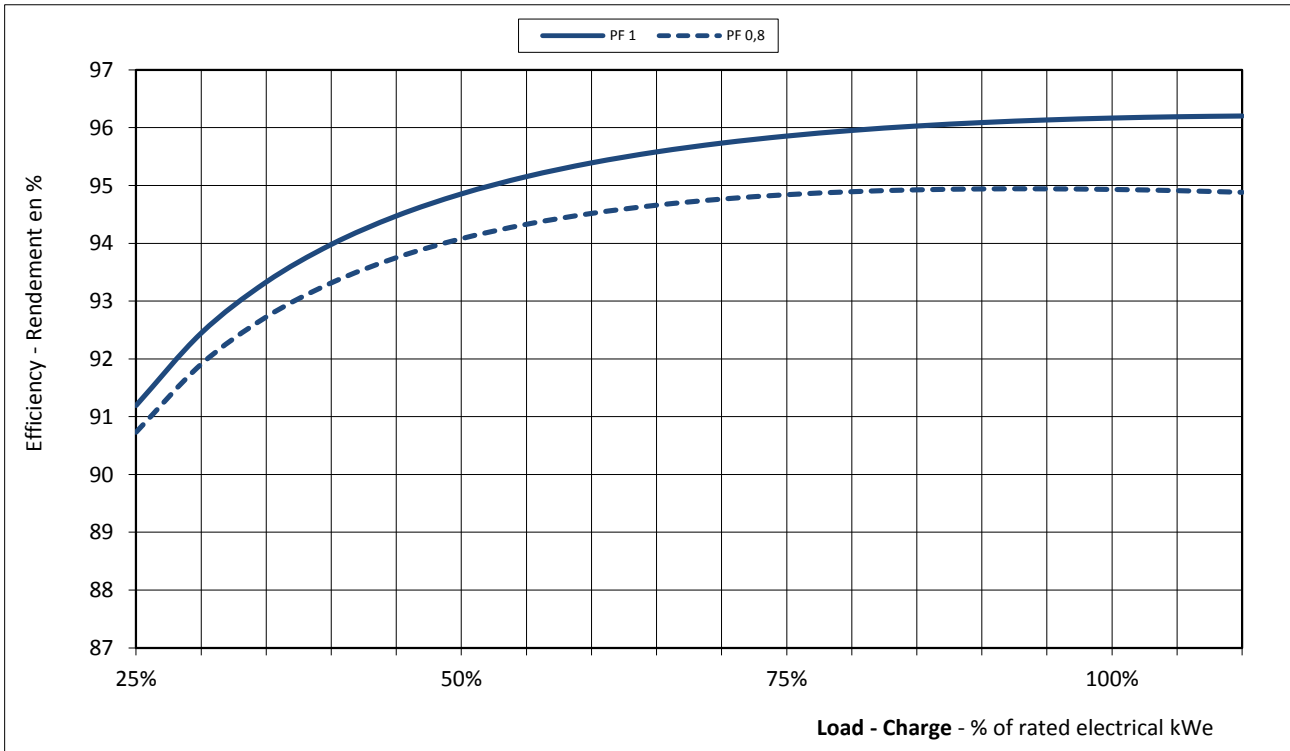
symmetrical phase to neutral short circuit  
symmetrical two phase short circuit  
symmetrical three phase short circuit

initial	495	A	8,2 x In	In =	60 A
max	400	A	6,7 x In		
value	485	A	8,1 x In		



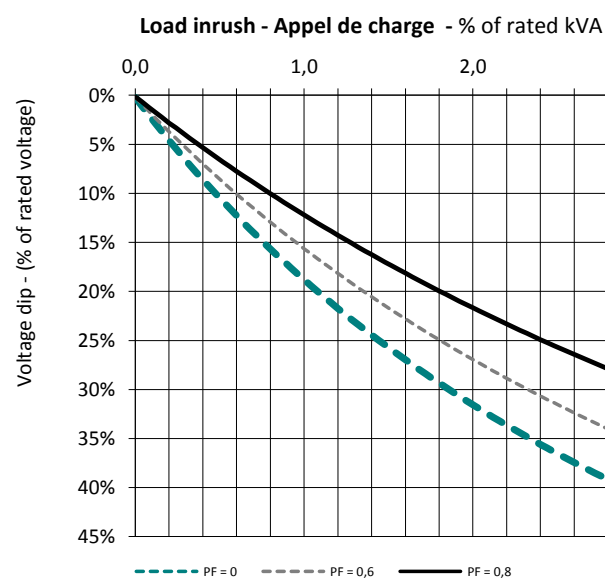


## Efficiency Curves

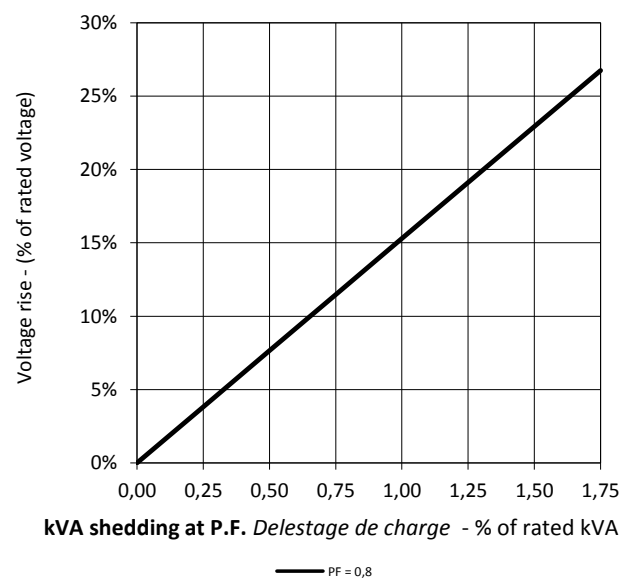


## Transient Voltage Variation

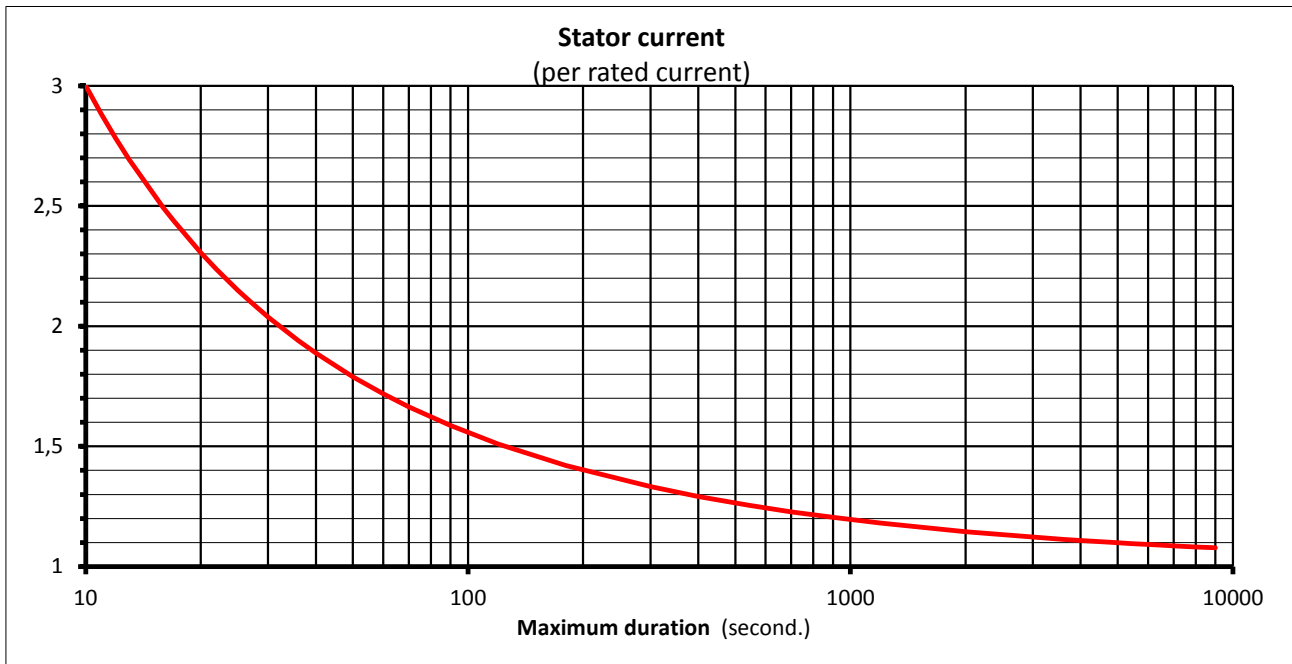
### Transient voltage dip curve versus load impact



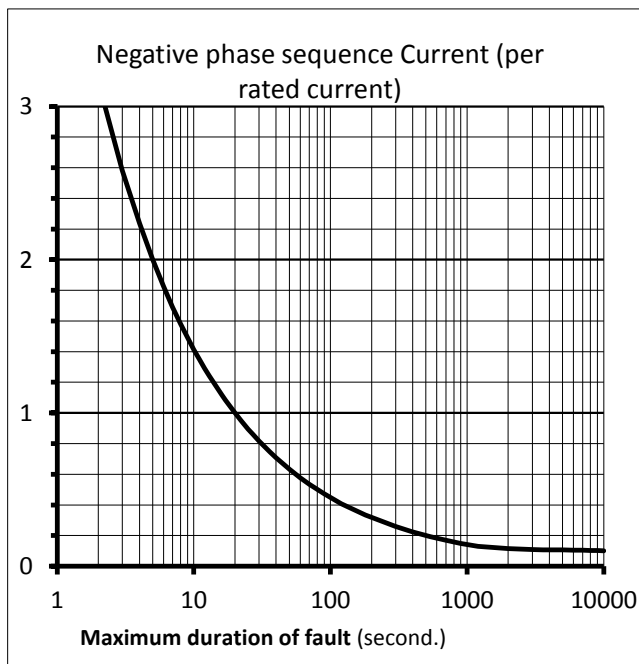
### Transient voltage rise curve versus load rejection



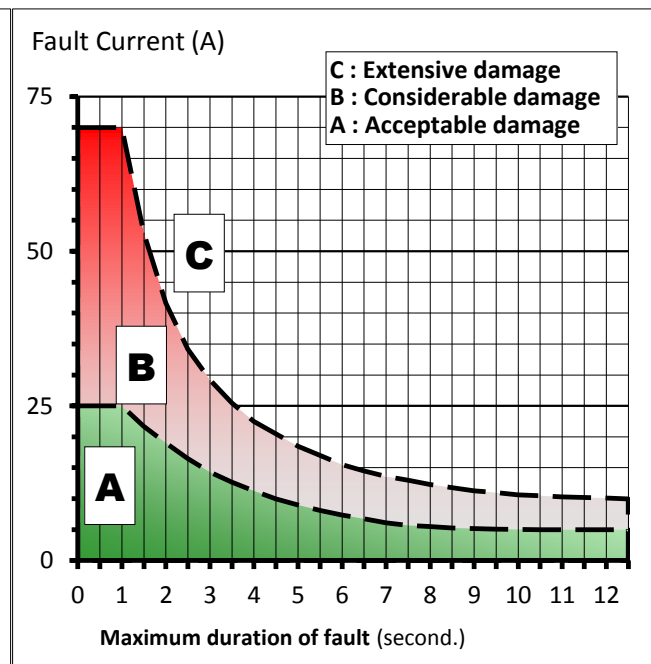
### Thermal Damage Curve



### Unbalance Load Curve



### Stator Earth Fault Current



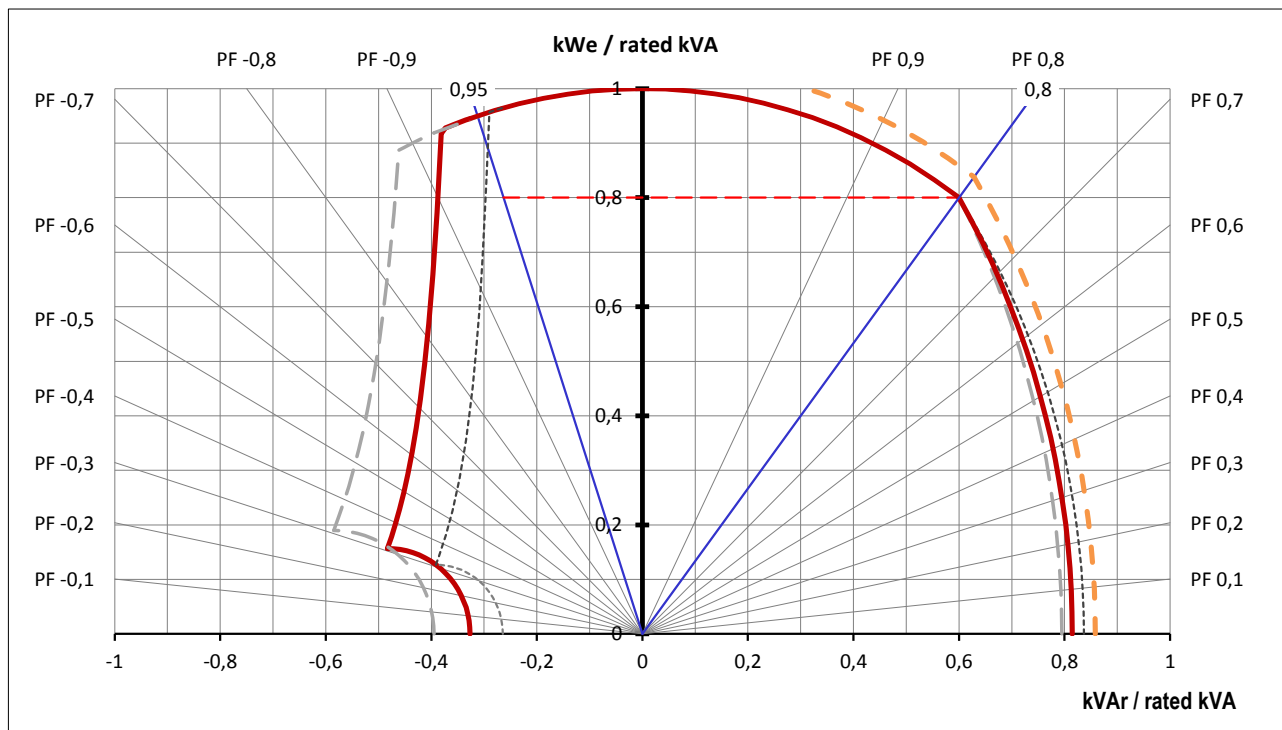
Date : 26.11.2014

1381kVA - 10500V - 50 Hz

V4.02 - 11/2014

### Capability Curve

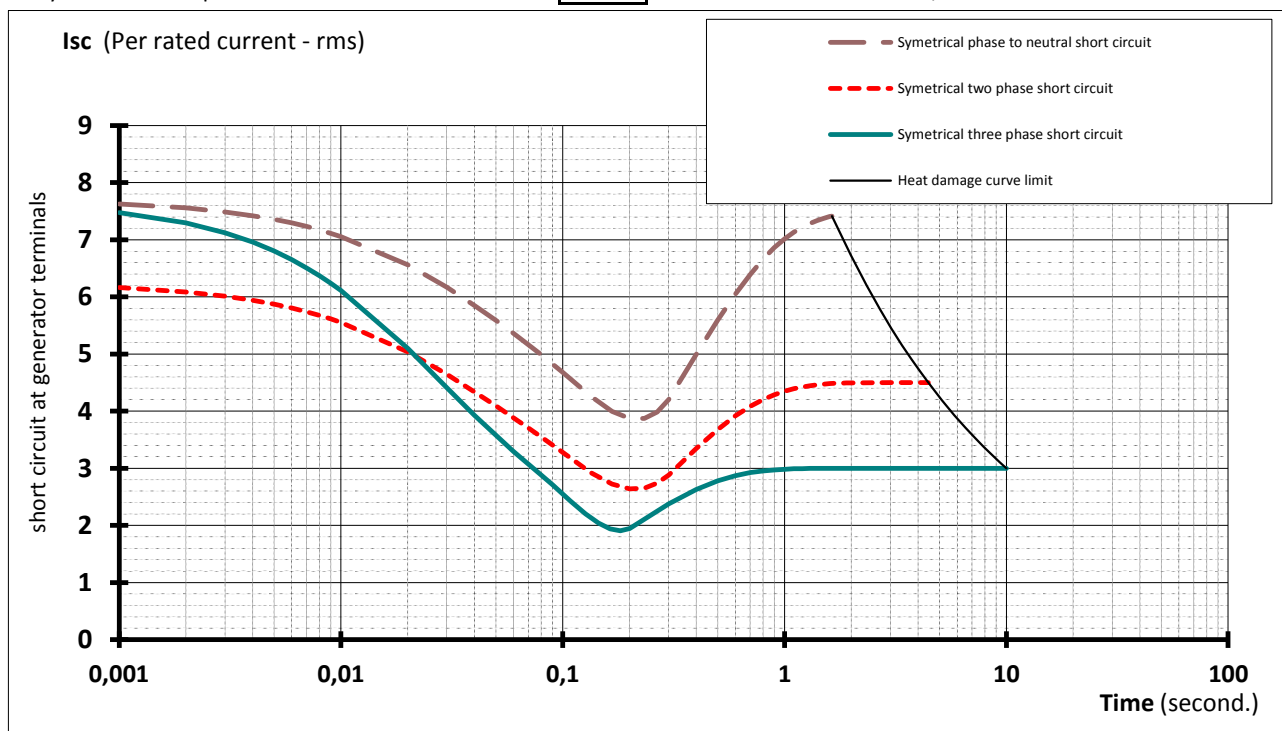
—	Umax + 10%	11 550	V
—	Un	<b>10 500</b>	V
- - -	Umin - 10%	9 450	V
- - -	Thermal Limit		



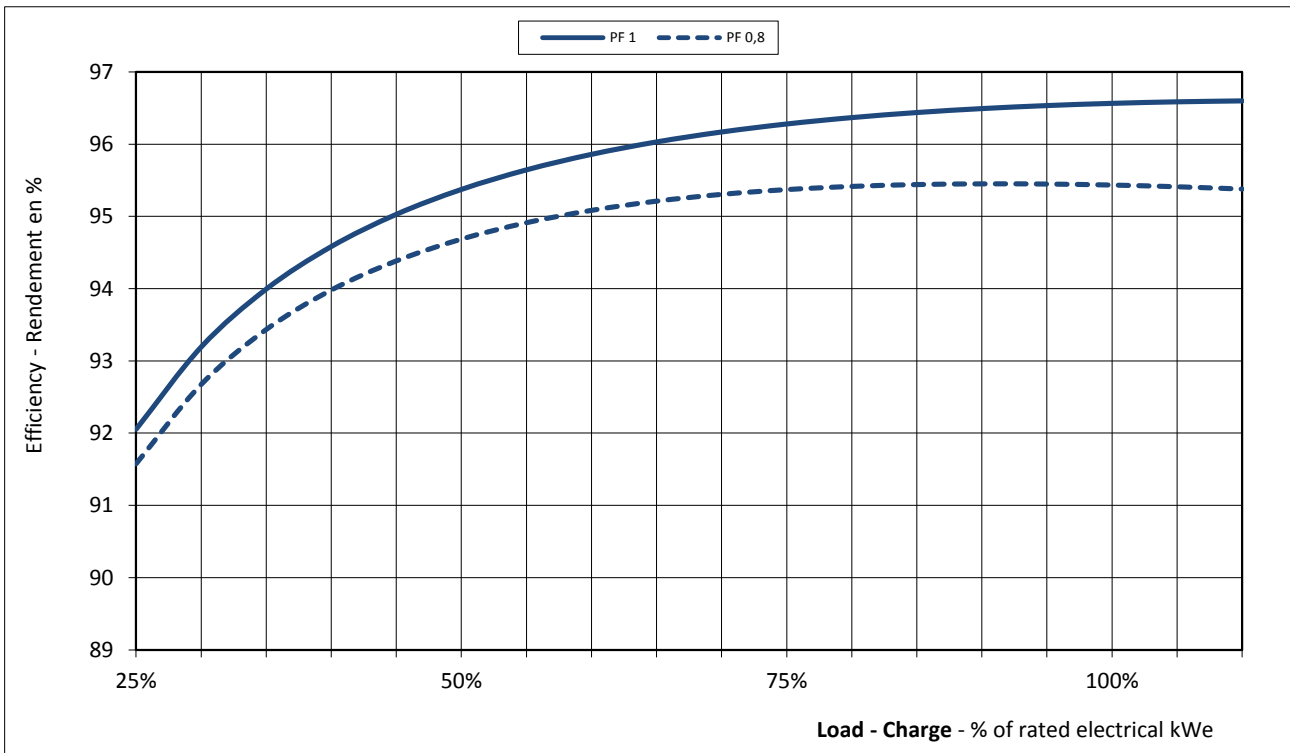
### Stator Current decrement curves

symetrical phase to neutral short circuit  
symetrical two phase short circuit  
symetrical three phase short circuit

initial	549	A	7,6 x In	In =	<b>72 A</b>
max	444	A	6,2 x In		
value	538	A	7,5 x In		

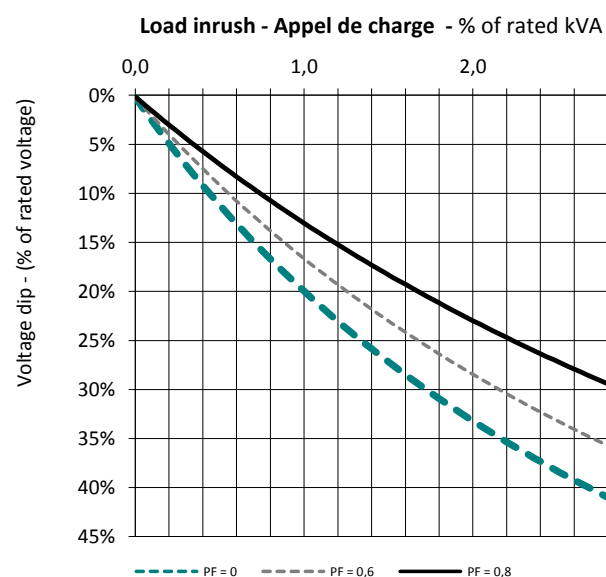


## Efficiency Curves

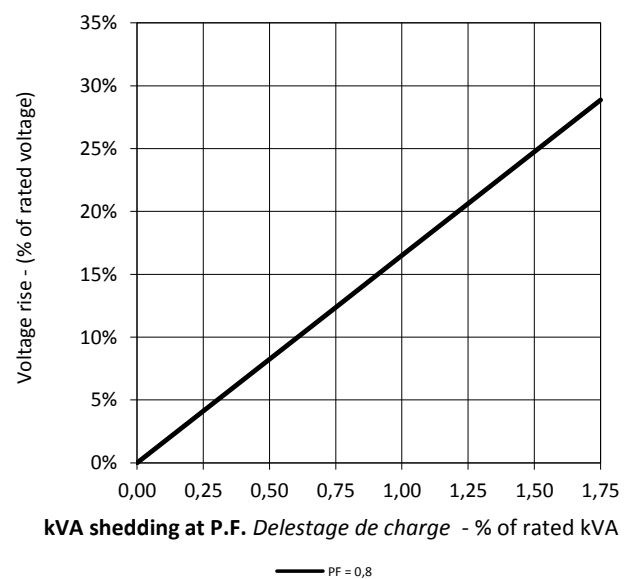


## Transient Voltage Variation

### Transient voltage dip curve versus load impact



### Transient voltage rise curve versus load rejection

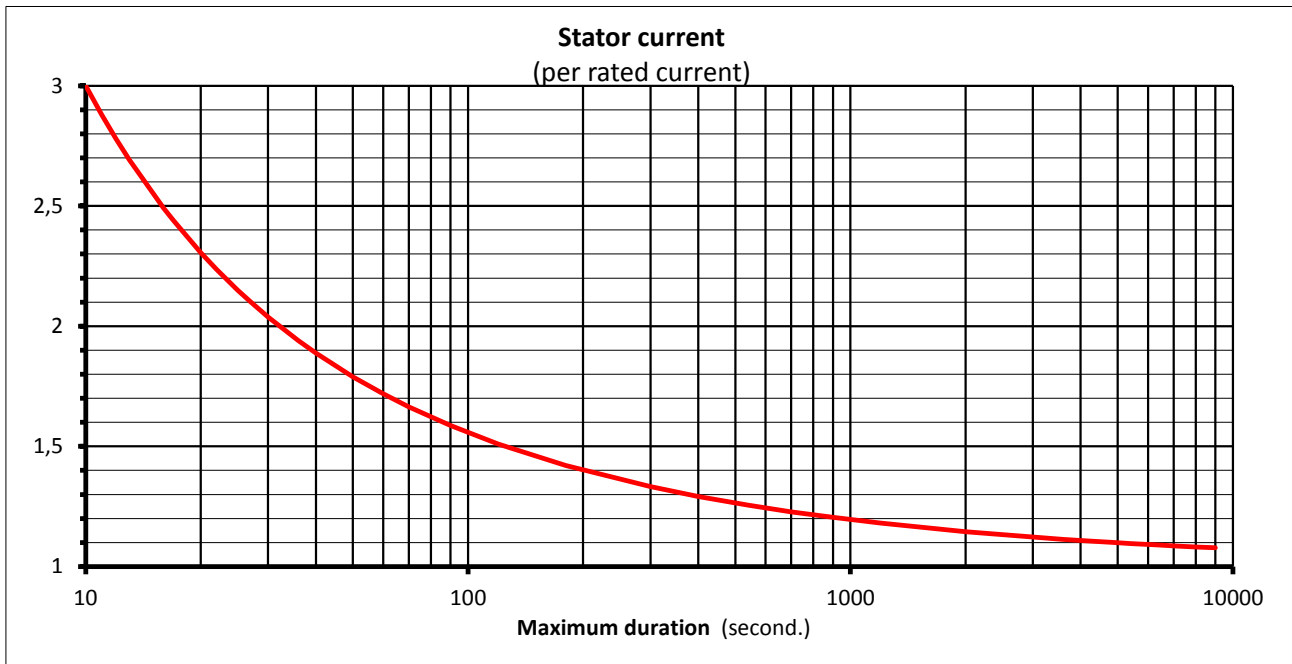


Date : 26.11.2014

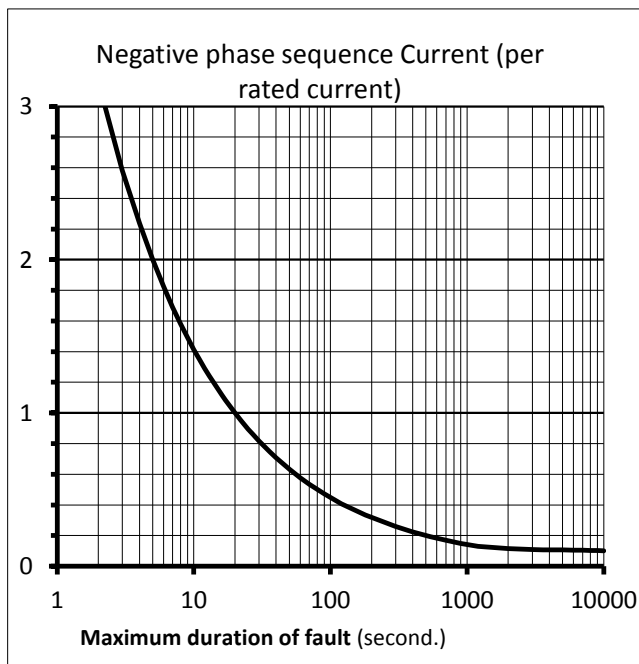
1381kVA - 10500V - 50 Hz

V4.02 - 11/2014

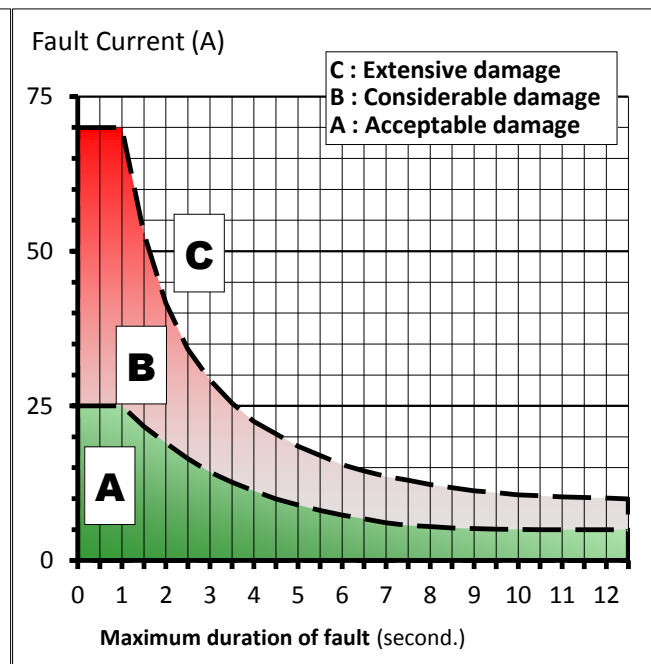
### Thermal Damage Curve



### Unbalance Load Curve



### Stator Earth Fault Current





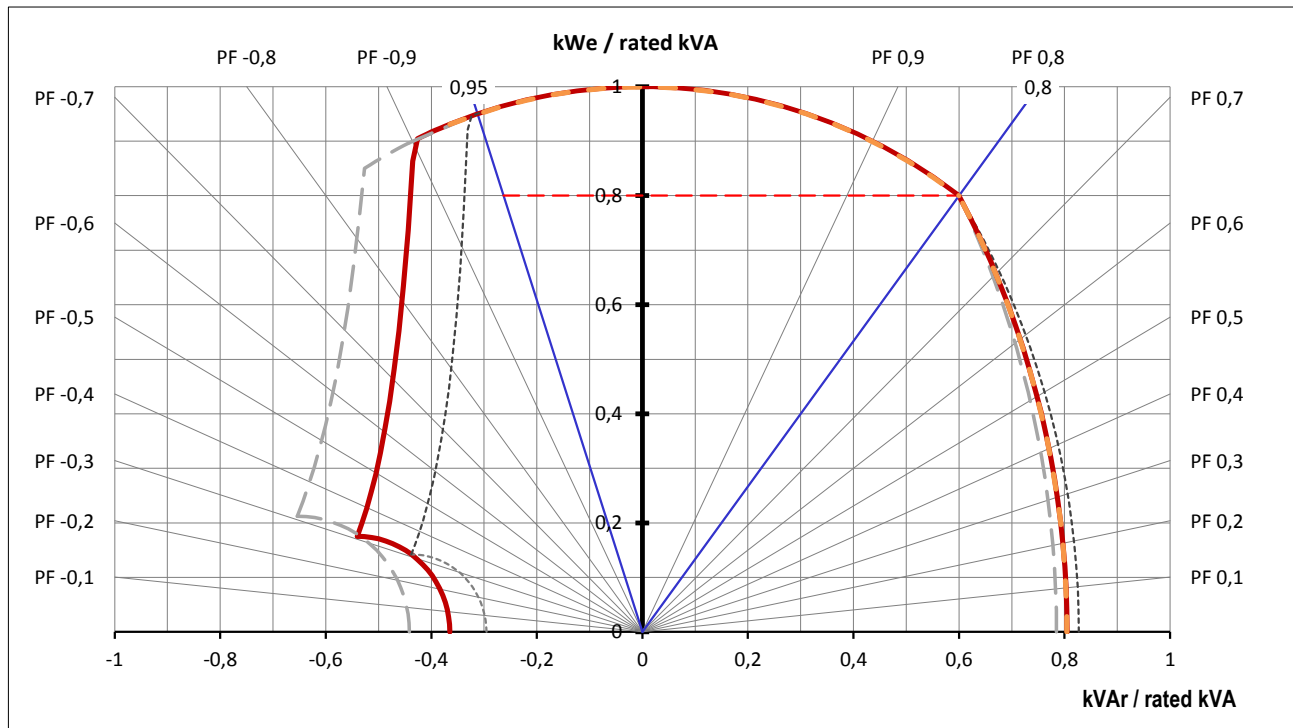
Date : 26.11.2014

1381kVA - 11000V - 50 Hz

V4.02 - 11/2014

### Capability Curve

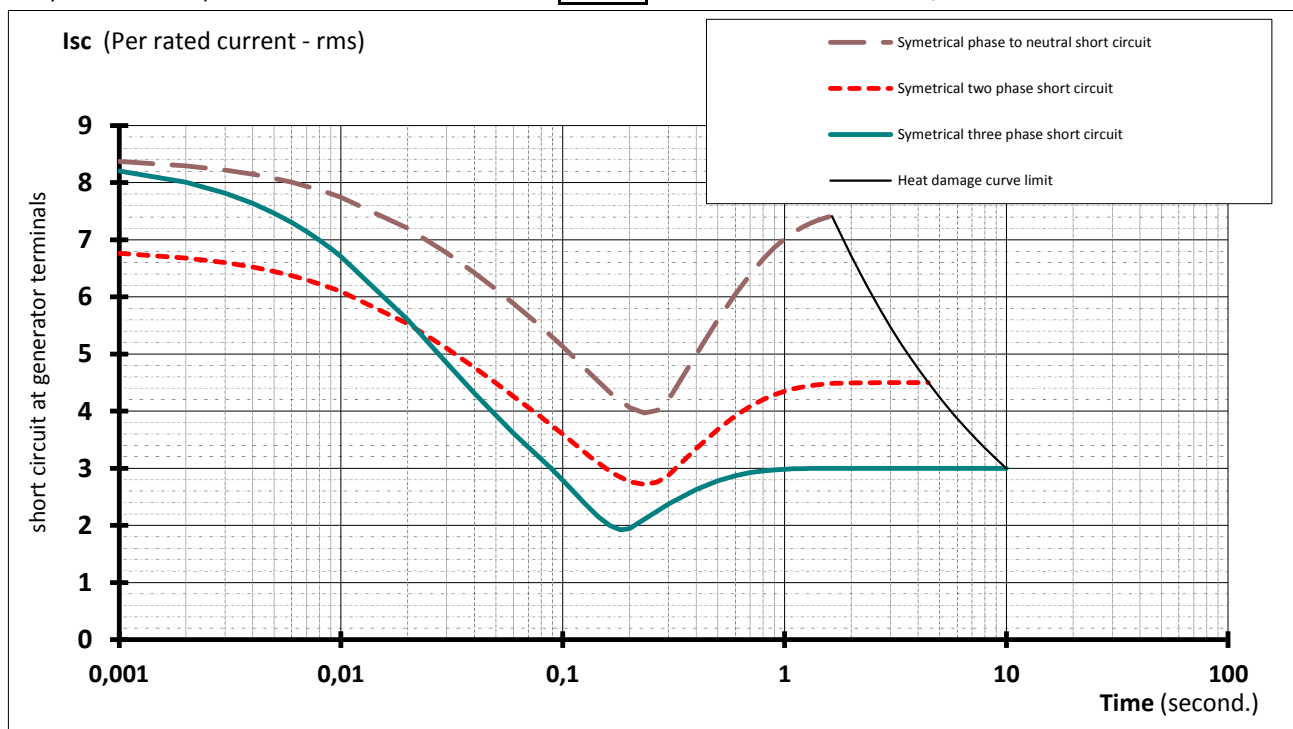
—	Umax + 10%	12 100	V
—	Un	<b>11 000</b>	V
- - -	Umin - 10%	9 900	V
- - -	Thermal Limit		



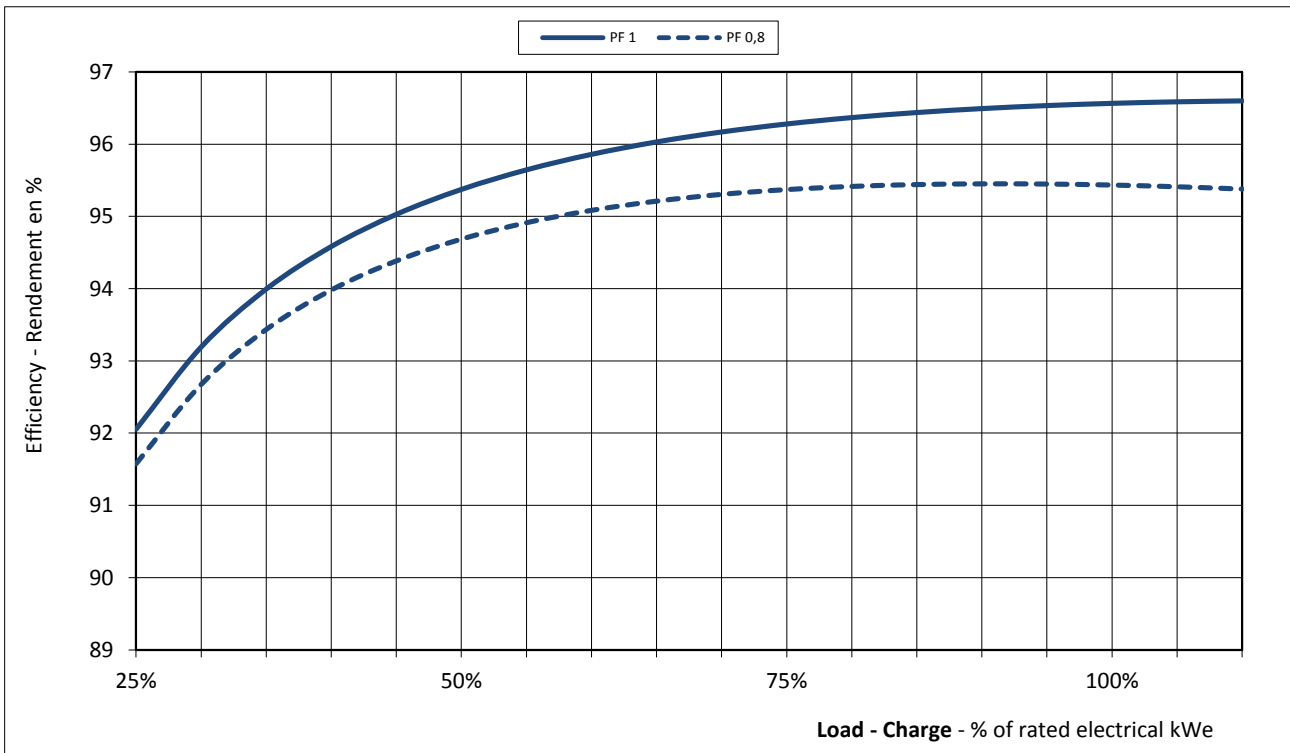
### Stator Current decrement curves

symmetrical phase to neutral short circuit  
symmetrical two phase short circuit  
symmetrical three phase short circuit

initial	603	A	8,4 x In	
max	487	A	6,8 x In	In = 72 A
value	591	A	8,2 x In	

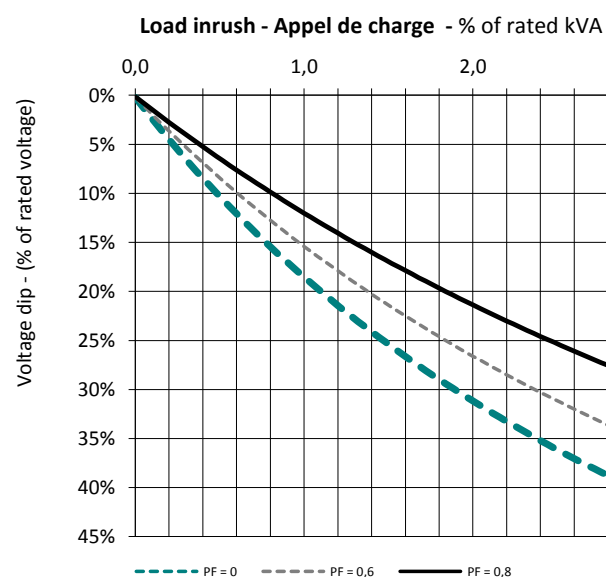


### Efficiency Curves

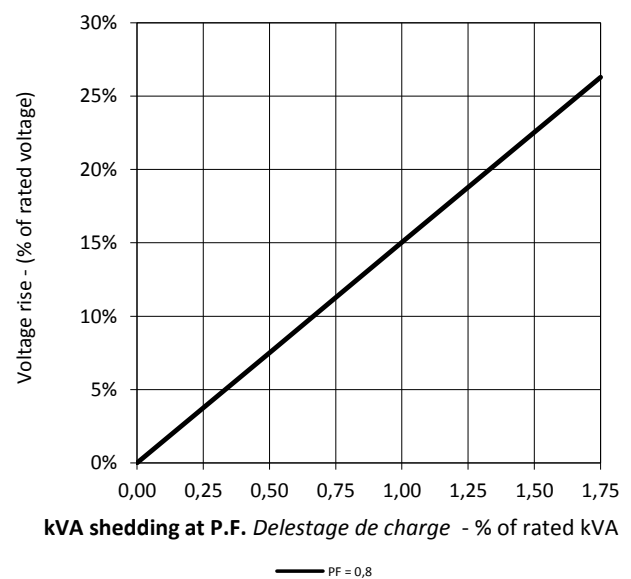


### Transient Voltage Variation

#### Transient voltage dip curve versus load impact



#### Transient voltage rise curve versus load rejection

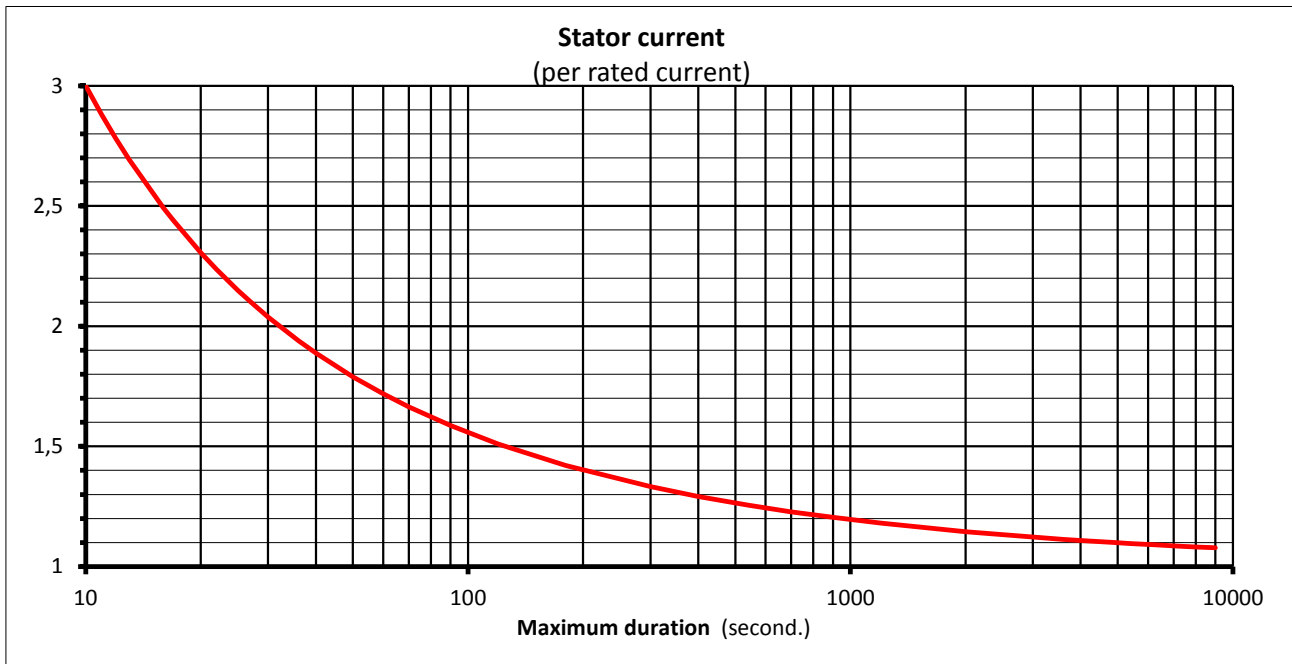


Date : 26.11.2014

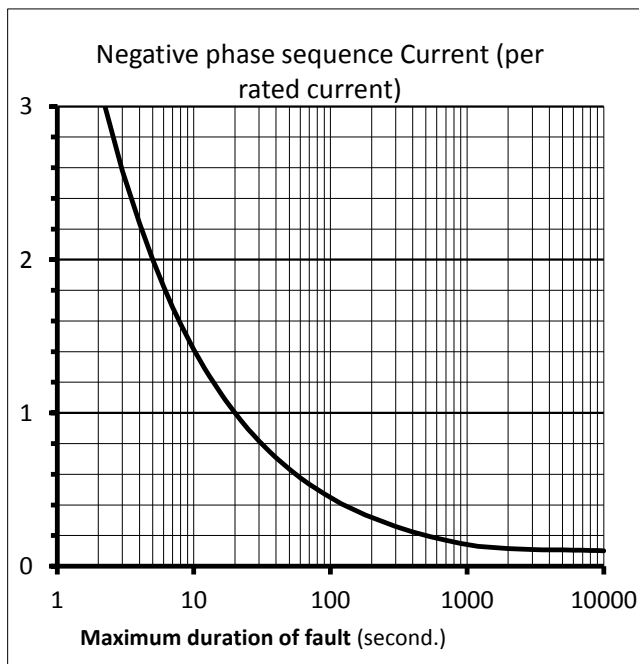
1381kVA - 11000V - 50 Hz

V4.02 - 11/2014

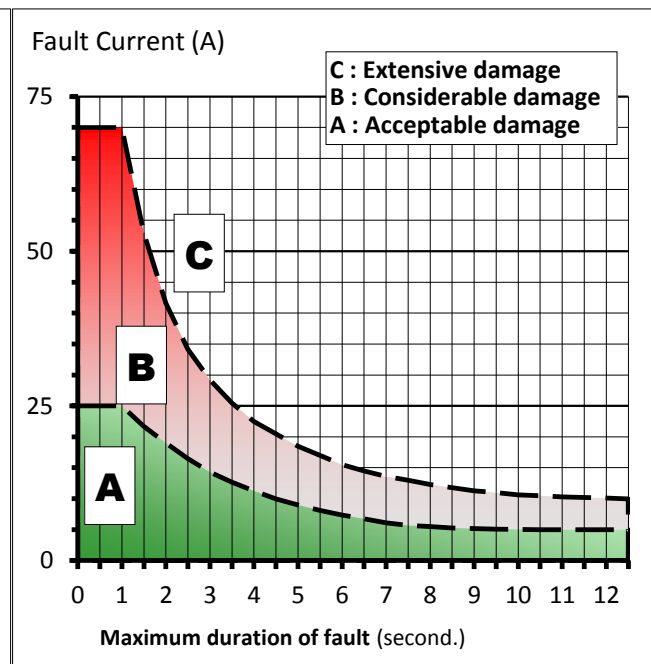
### Thermal Damage Curve



### Unbalance Load Curve



### Stator Earth Fault Current



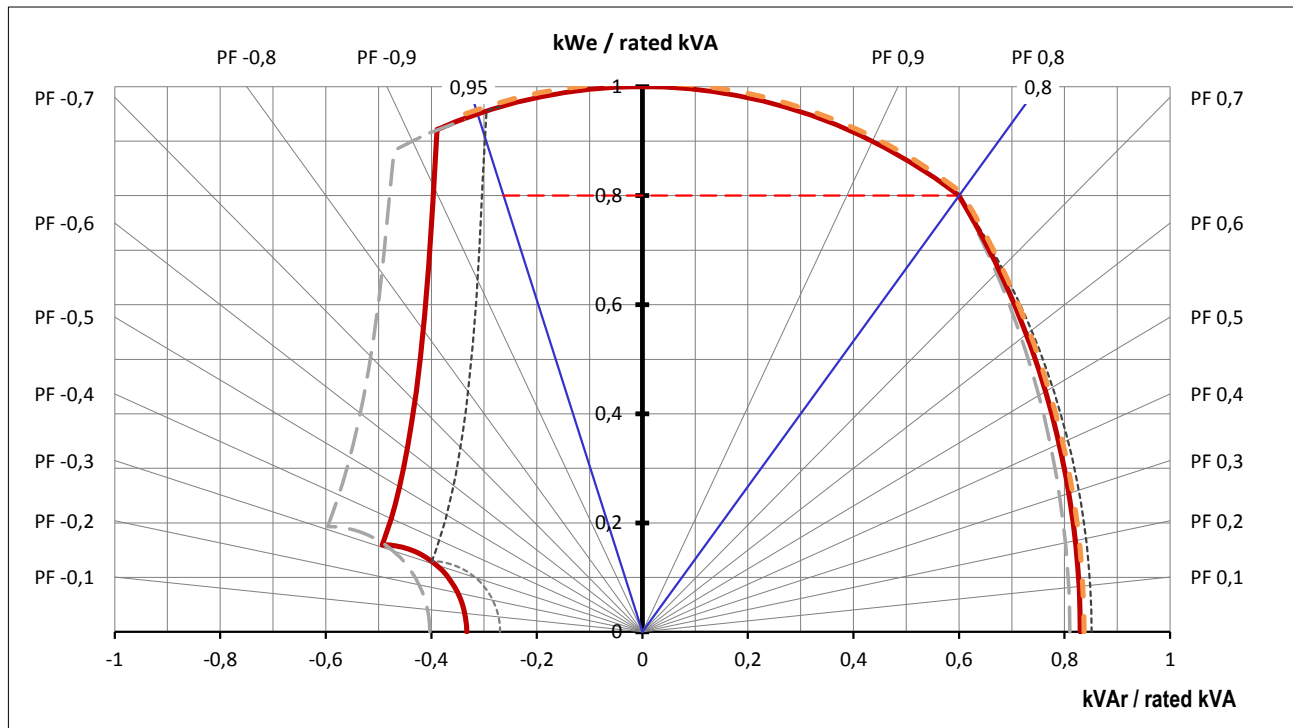
Date : 19.11.2014

526kVA - 400V - 50 Hz

V4.02 - 11/2014

### Capability Curve

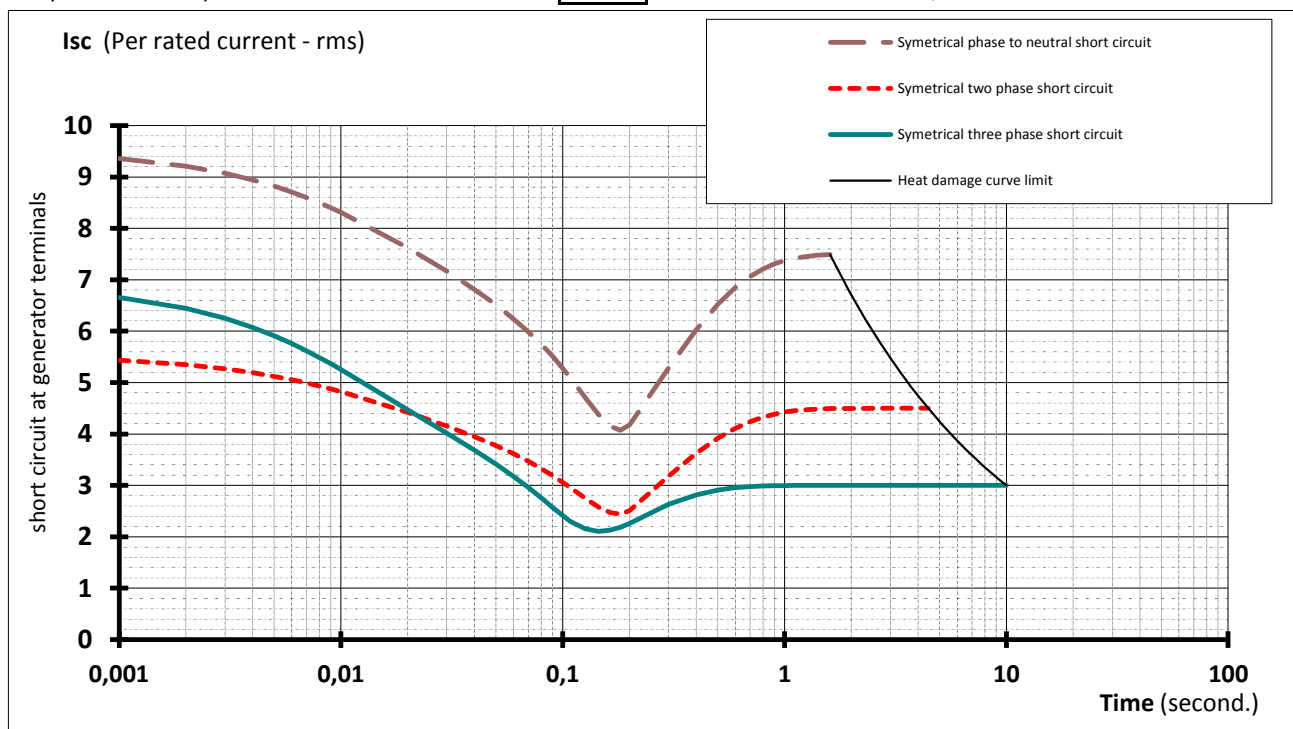
—	Umax + 10%	440	V
—	Un	<b>400</b>	V
- - -	Umin - 10%	360	V
- - -	Thermal Limit		



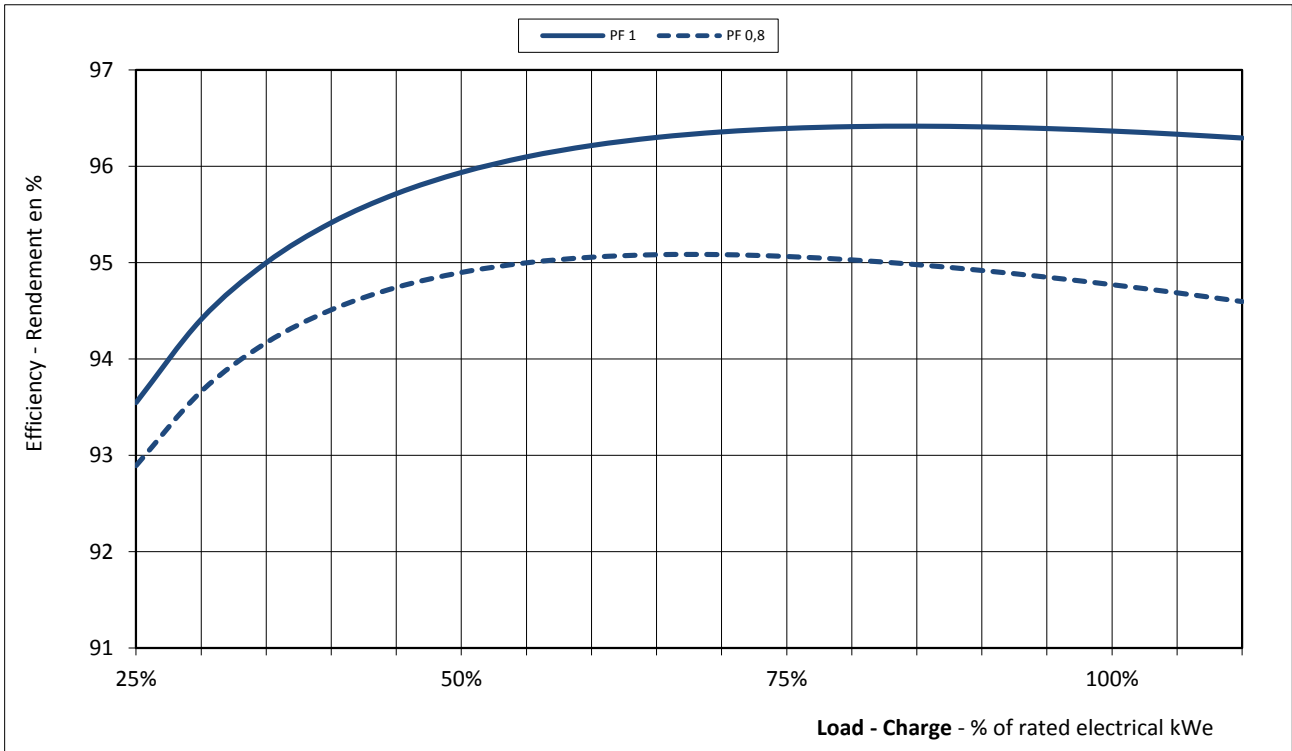
### Stator Current decrement curves

symetrical phase to neutral short circuit  
symetrical two phase short circuit  
symetrical three phase short circuit

initial	7 104	A	9,4 x In	In = <b>759</b> A
max	4 125	A	5,4 x In	
value	5 052	A	6,7 x In	

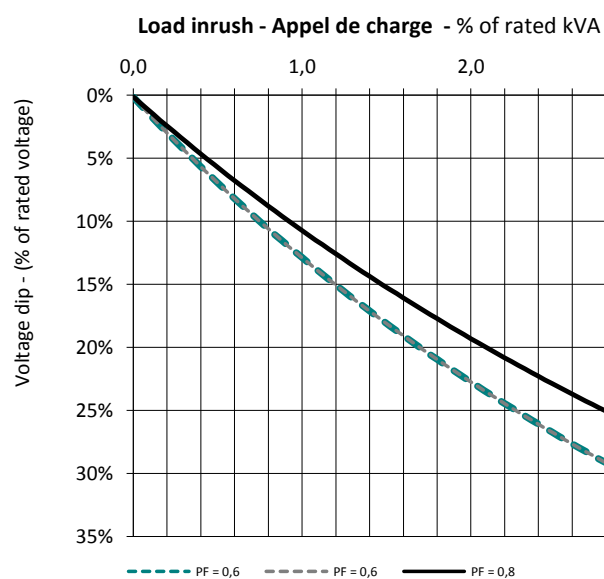


## Efficiency Curves

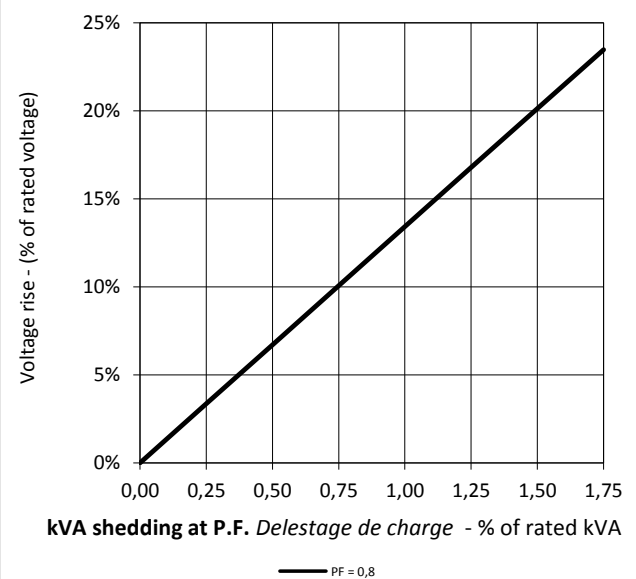


## Transient Voltage Variation

### Transient voltage dip curve versus load impact

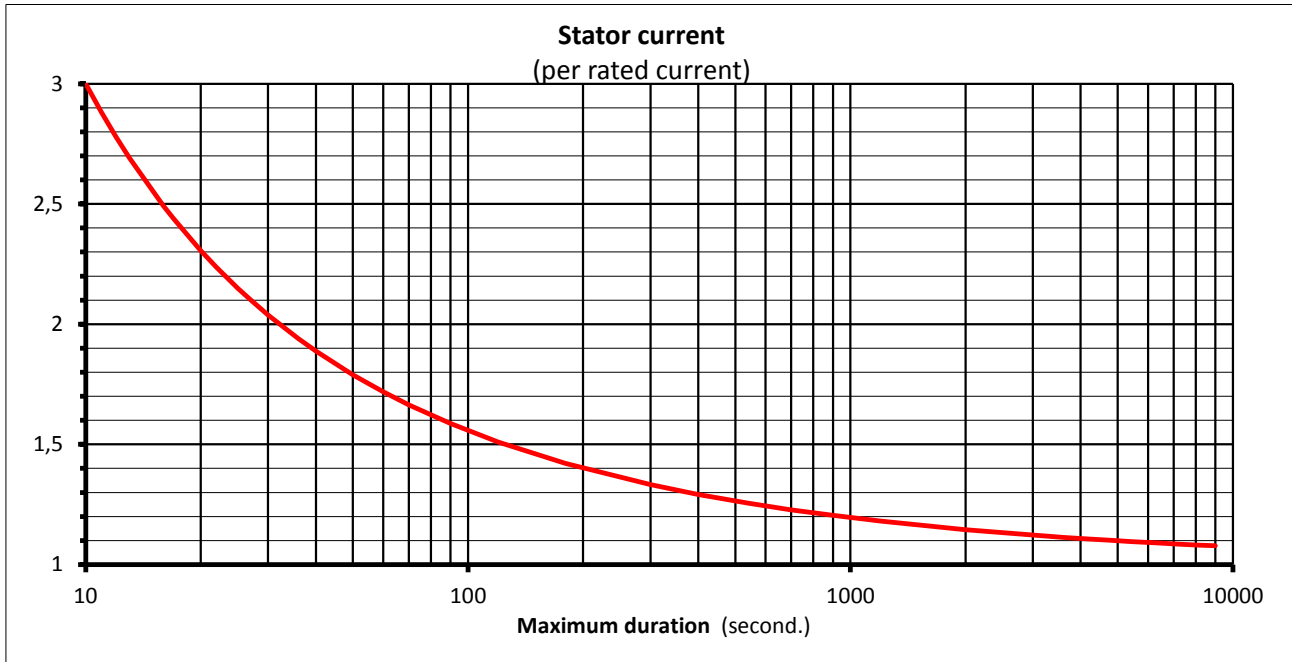


### Transient voltage rise curve versus load rejection

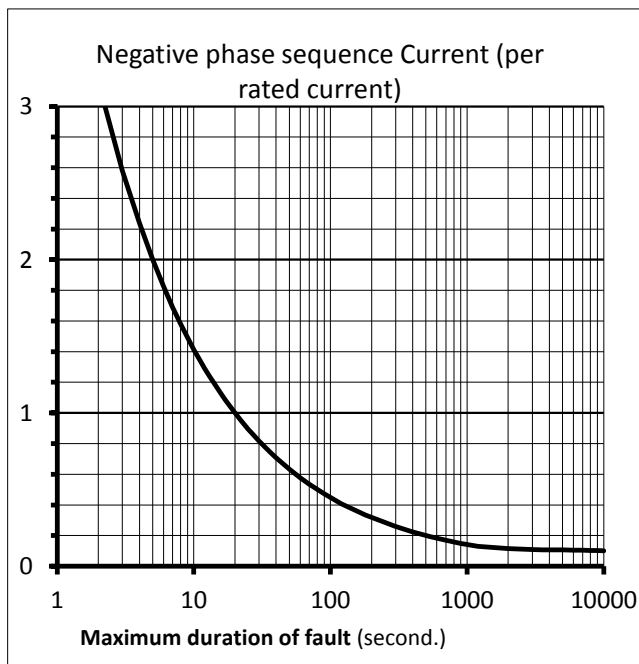




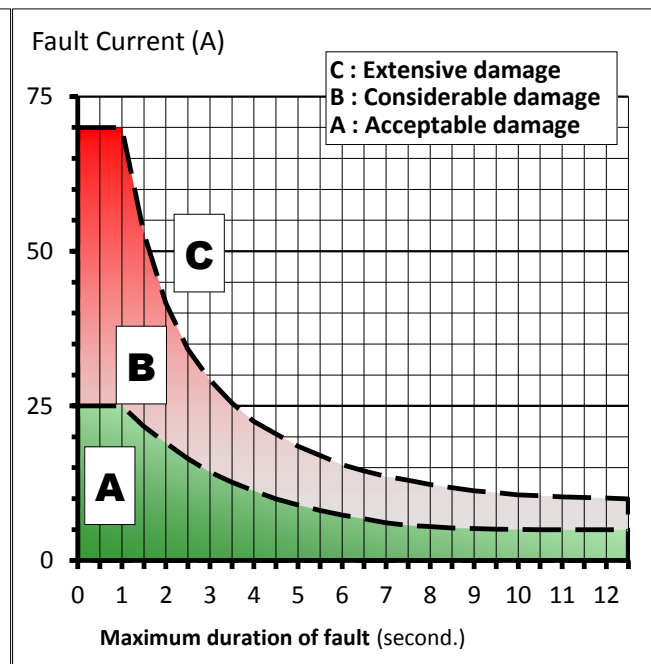
### Thermal Damage Curve



### Unbalance Load Curve



### Stator Earth Fault Current



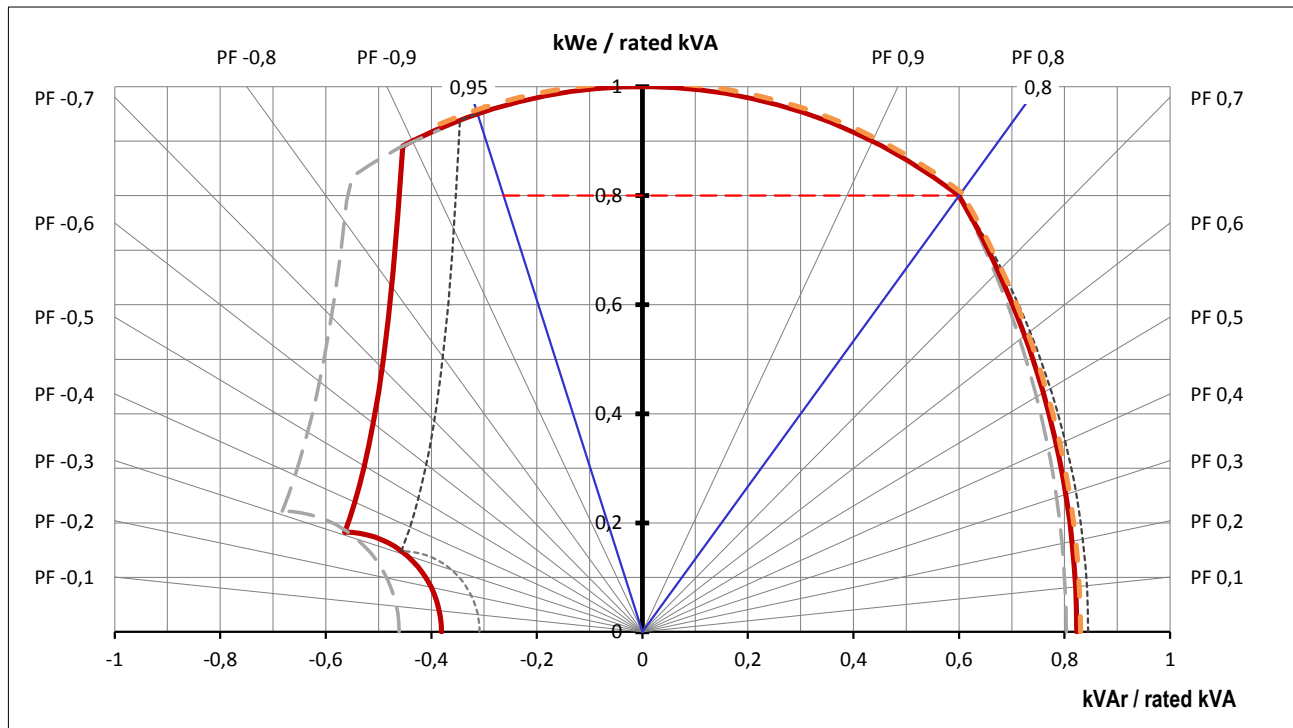
Date : 19.11.2014

785kVA - 400V - 50 Hz

V4.02 - 11/2014

### Capability Curve

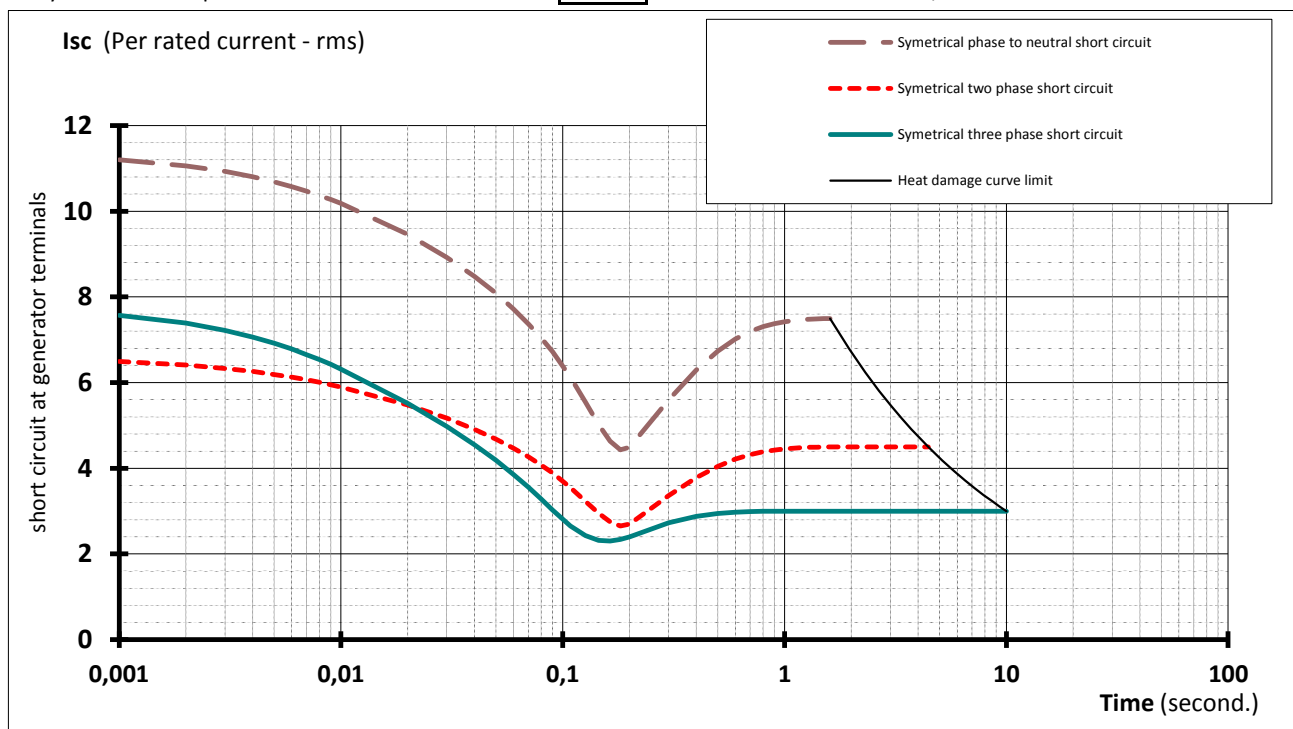
—	Umax + 10%	440	V
—	Un	<b>400</b>	V
- - -	Umin - 10%	360	V
- - -	Thermal Limit		



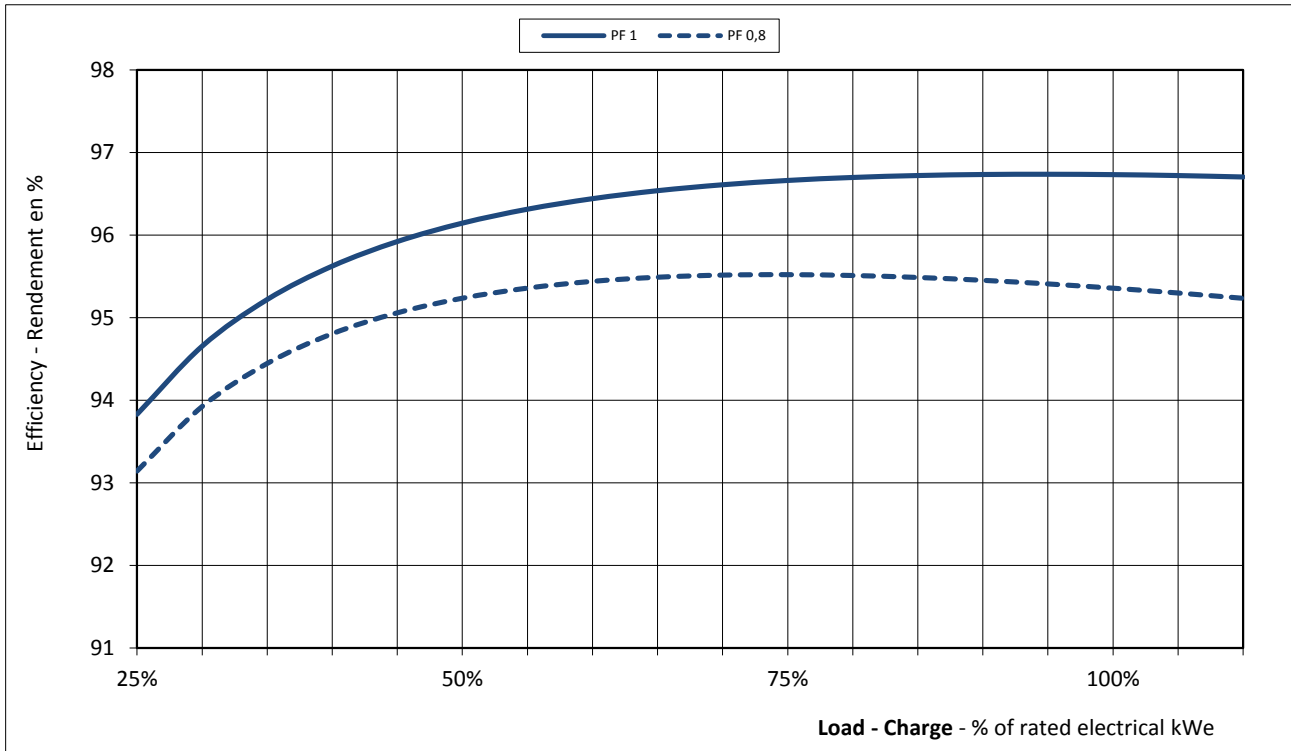
### Stator Current decrement curves

symetrical phase to neutral short circuit  
symetrical two phase short circuit  
symetrical three phase short circuit

initial	12 691	A	11,2 x In	
max	7 354	A	6,5 x In	In = <b>1133</b> A
value	8 575	A	7,6 x In	

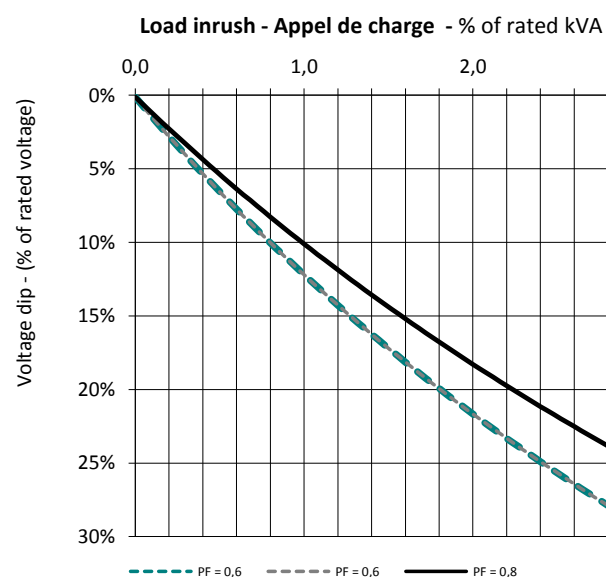


### Efficiency Curves

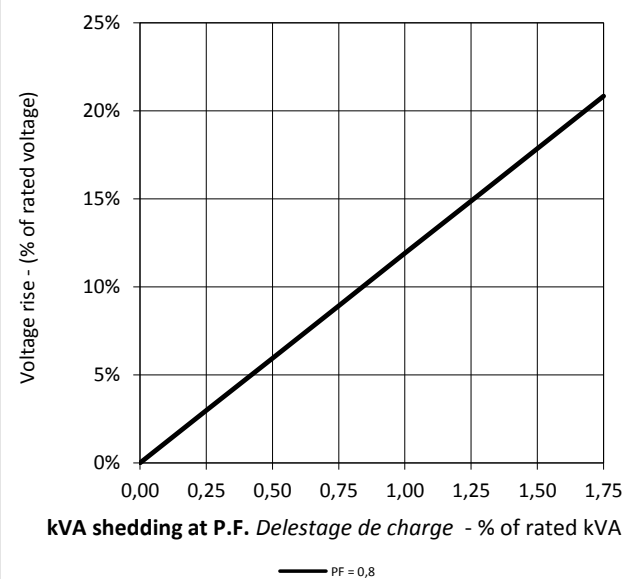


### Transient Voltage Variation

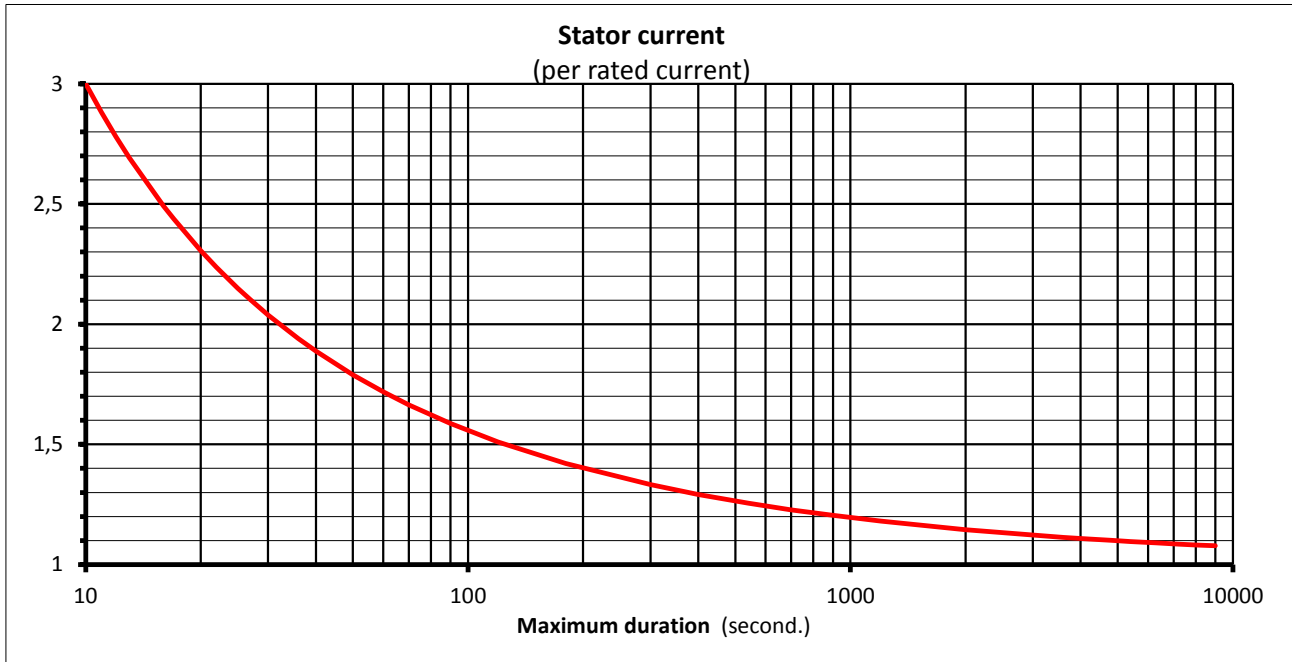
#### Transient voltage dip curve versus load impact



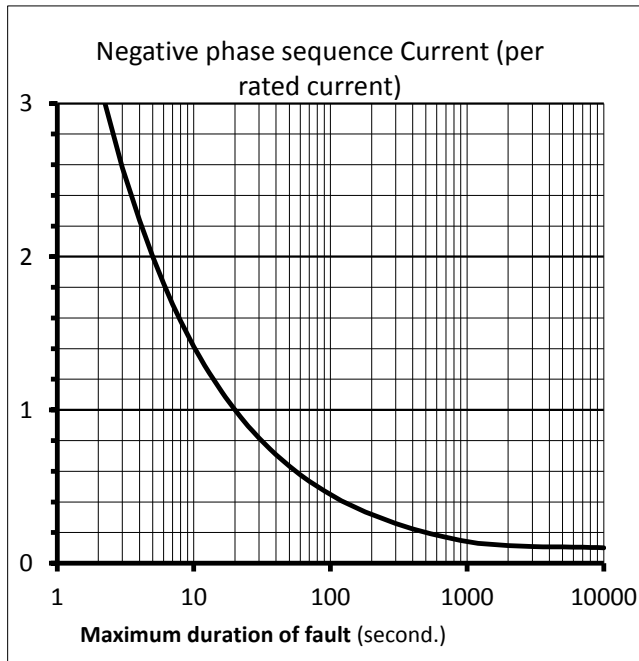
#### Transient voltage rise curve versus load rejection



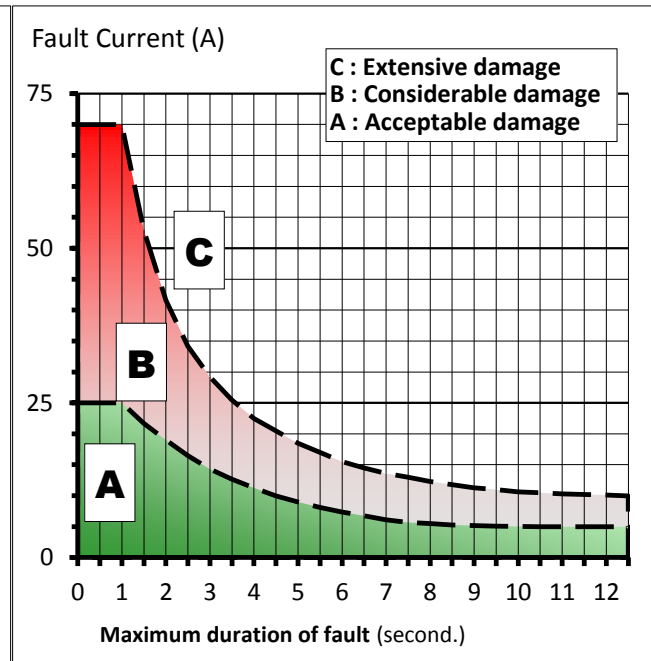
### Thermal Damage Curve



### Unbalance Load Curve



### Stator Earth Fault Current



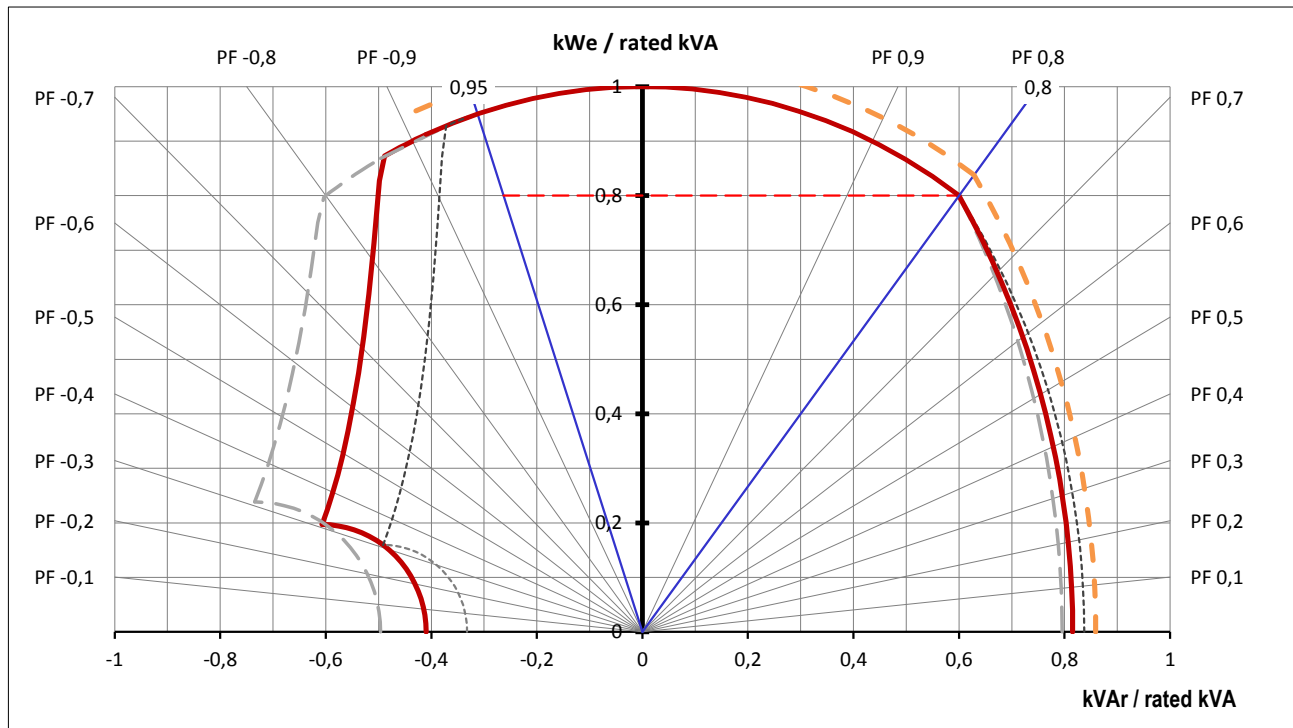
Date : 20.11.2014

785kVA - 415V - 50 Hz

V4.02 - 11/2014

### Capability Curve

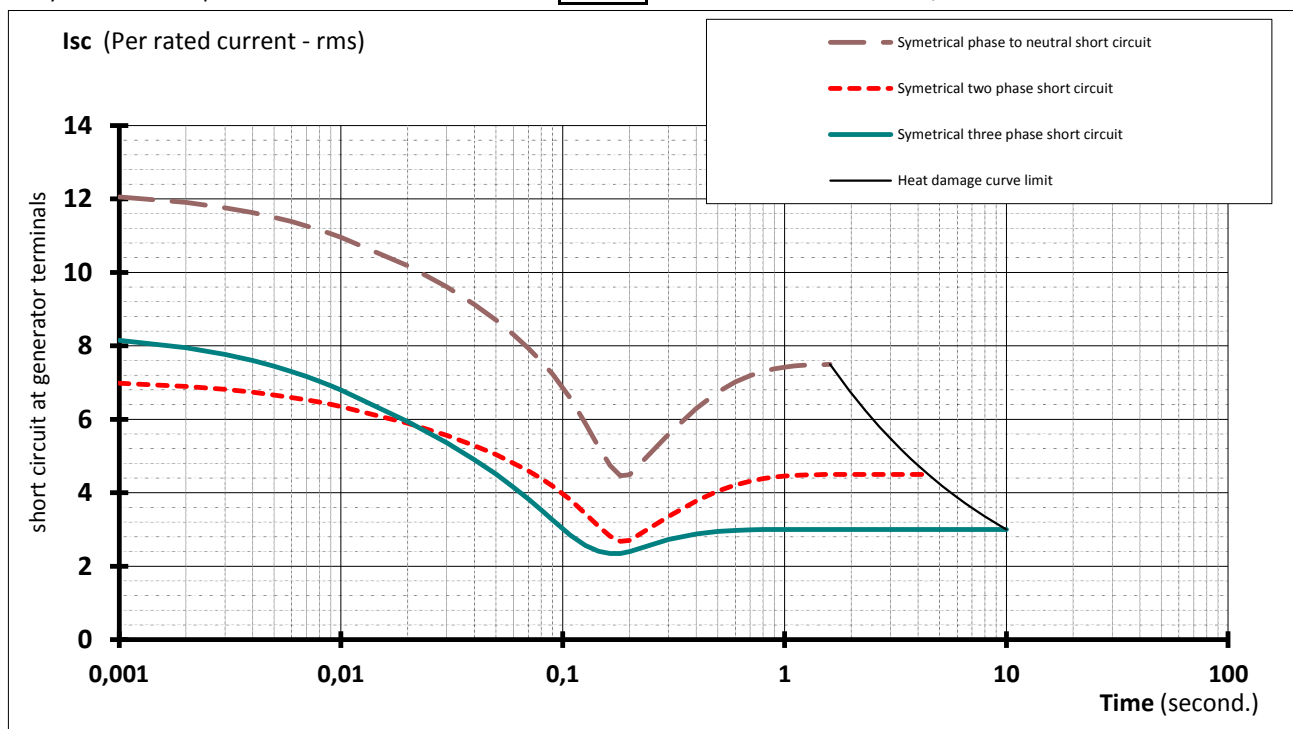
—	Umax + 10%	457	V
—	Un	415	V
- - -	Umin - 10%	374	V
- - -	Thermal Limit		



### Stator Current decrement curves

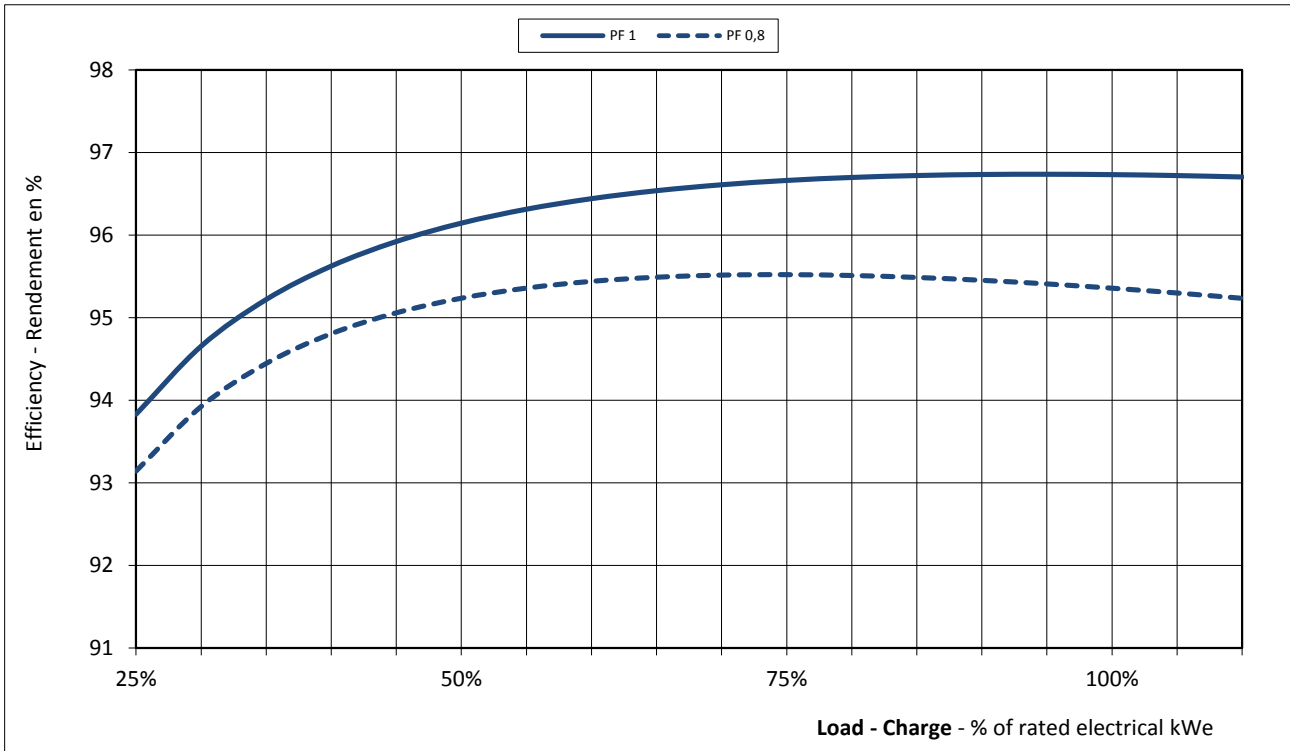
symetrical phase to neutral short circuit  
symetrical two phase short circuit  
symetrical three phase short circuit

initial	13 661	A	12,1 x In	
max	7 916	A	7 x In	In = 1133 A
value	9 230	A	8,1 x In	



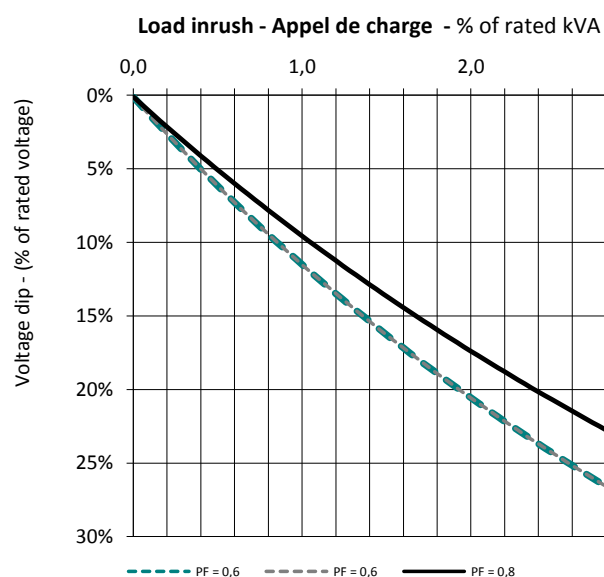


### Efficiency Curves

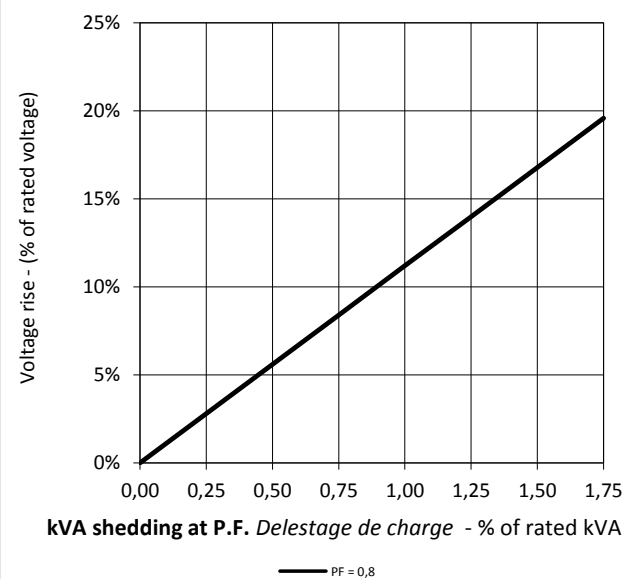


### Transient Voltage Variation

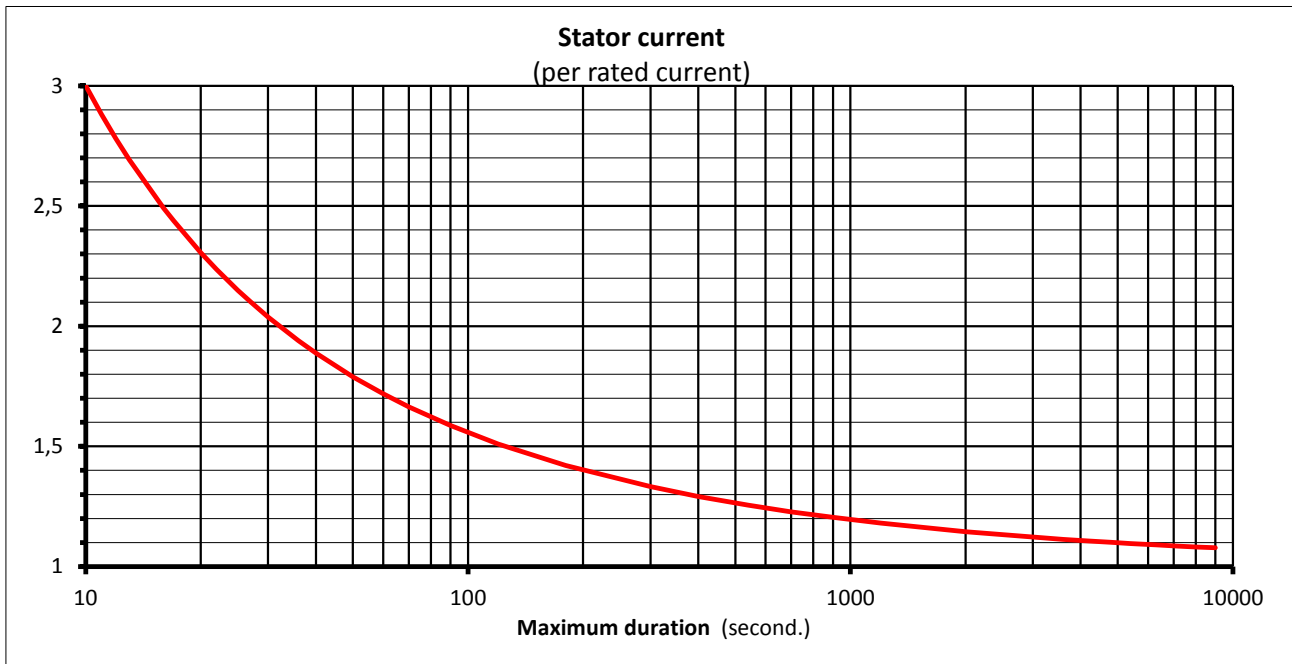
#### Transient voltage dip curve versus load impact



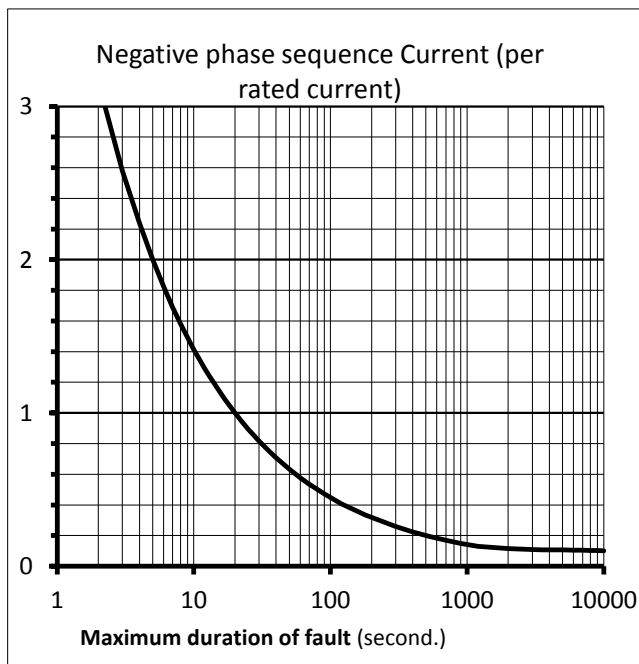
#### Transient voltage rise curve versus load rejection



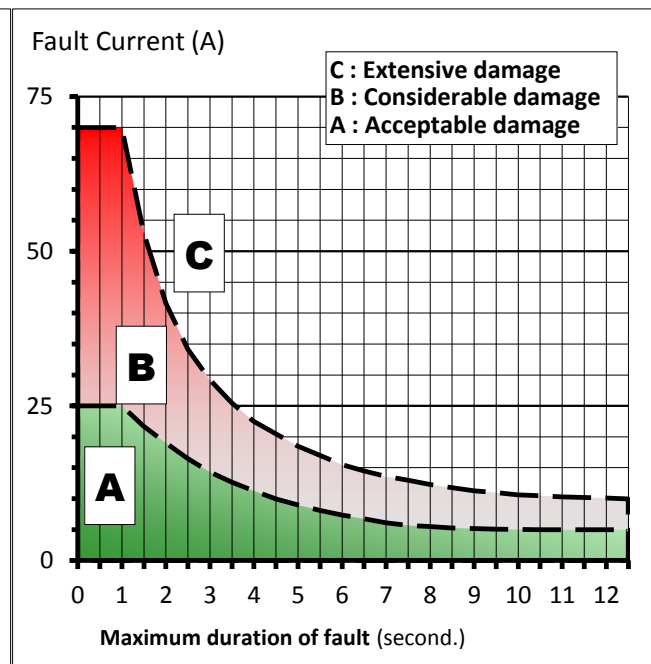
### Thermal Damage Curve



### Unbalance Load Curve



### Stator Earth Fault Current



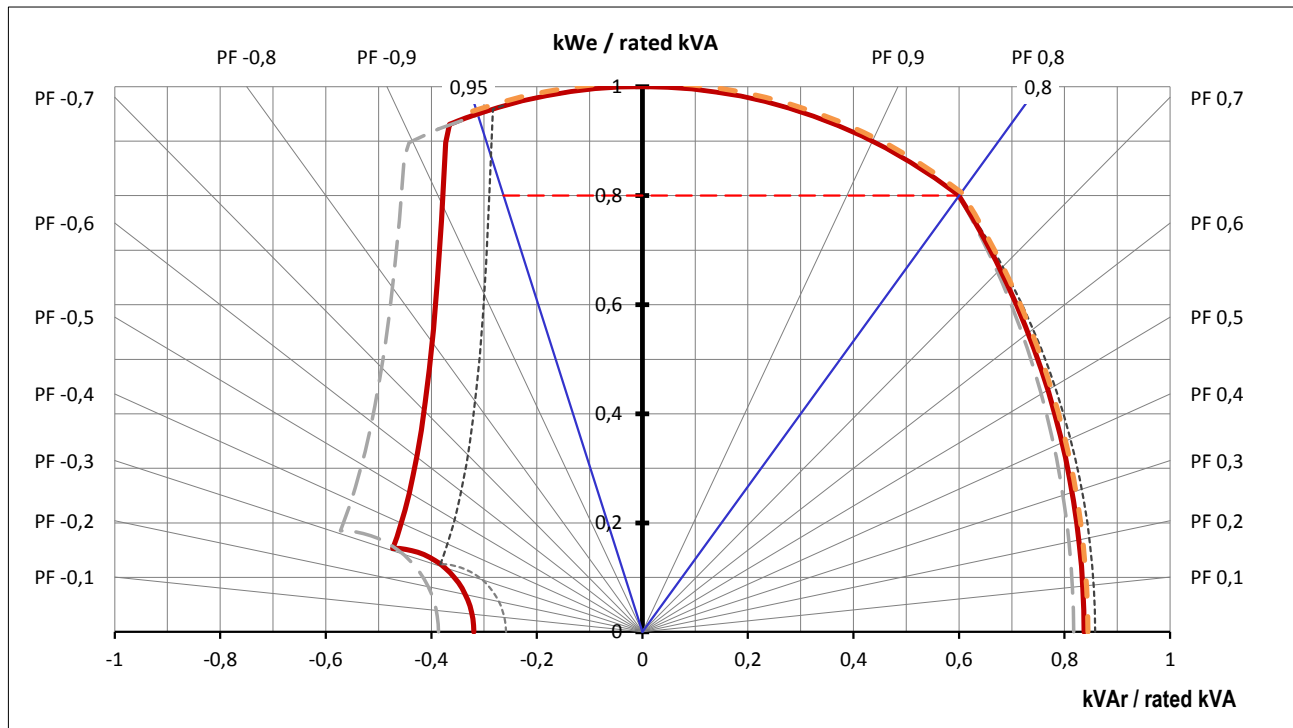
Date : 26.11.2014

1150kVA - 400V - 50 Hz

V4.02 - 11/2014

### Capability Curve

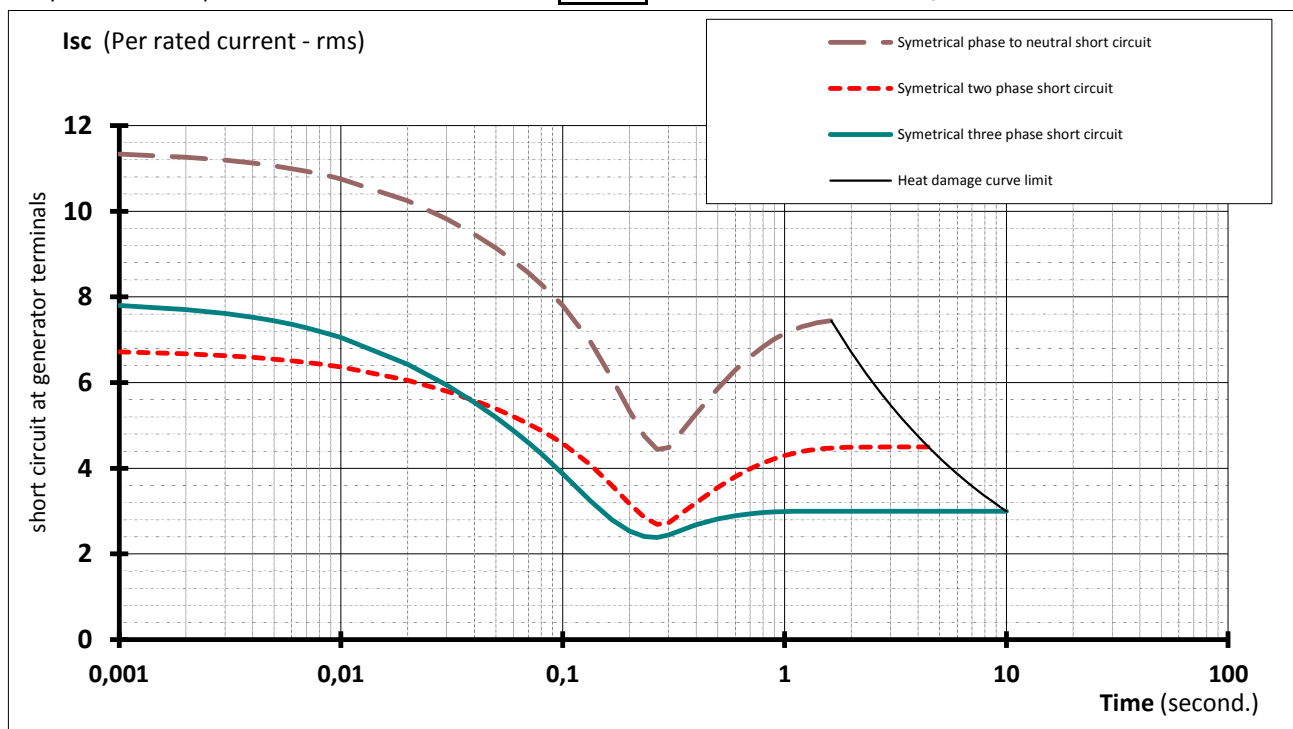
—	Umax + 10%	440	V
—	Un	<b>400</b>	V
- - -	Umin - 10%	360	V
- - -	Thermal Limit		



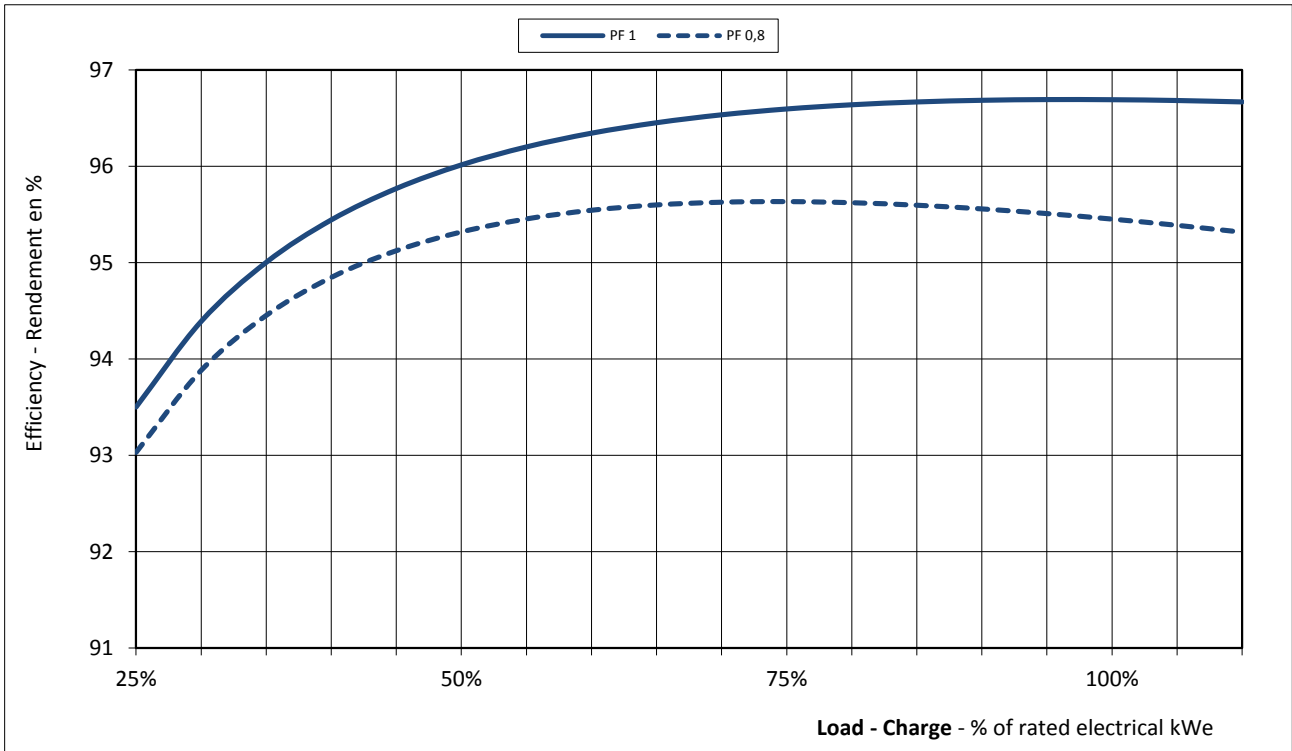
### Stator Current decrement curves

symetrical phase to neutral short circuit  
symetrical two phase short circuit  
symetrical three phase short circuit

initial	18 815	A	11,3 x In	In = <b>1660</b> A
max	11 150	A	6,7 x In	
value	12 951	A	7,8 x In	

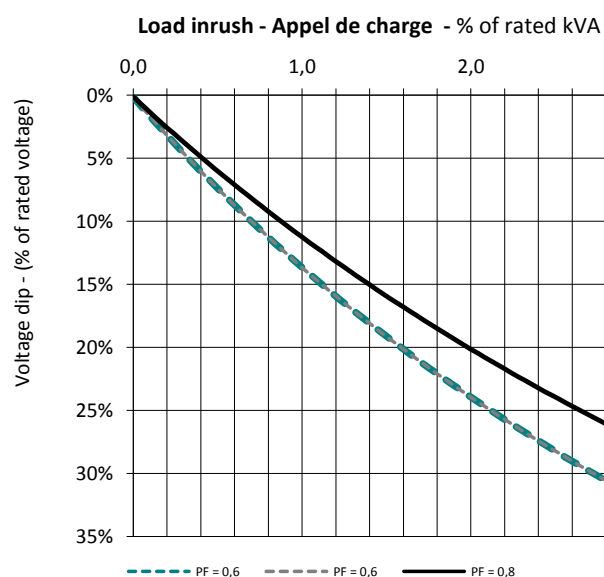


### Efficiency Curves

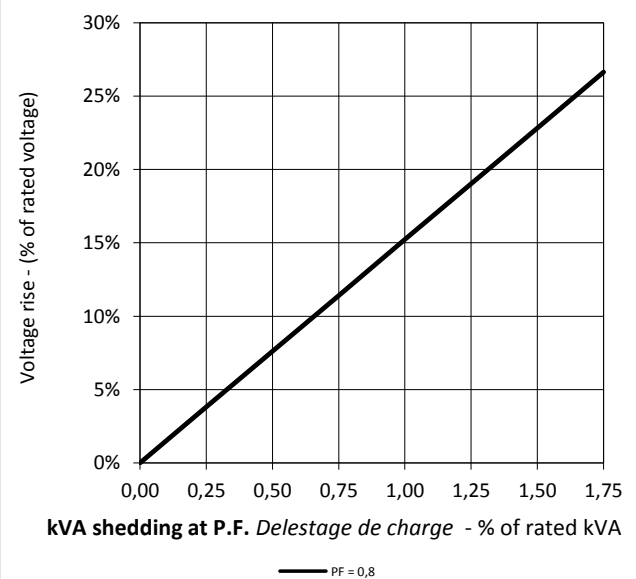


### Transient Voltage Variation

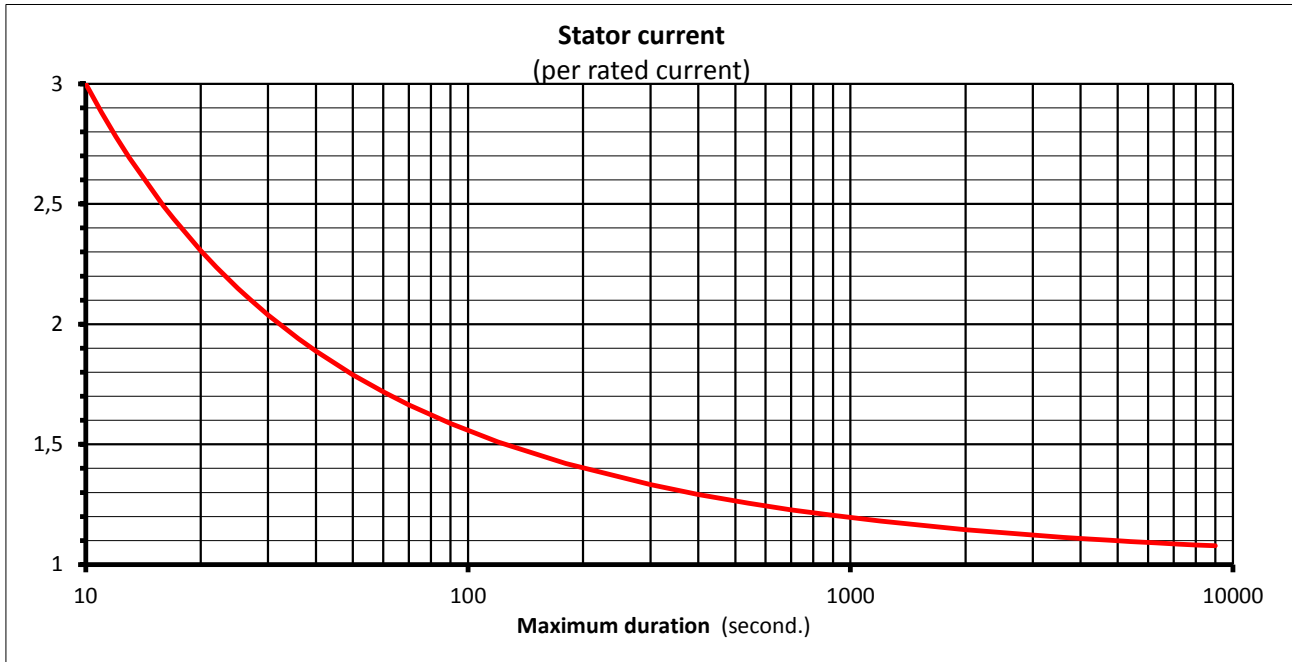
#### Transient voltage dip curve versus load impact



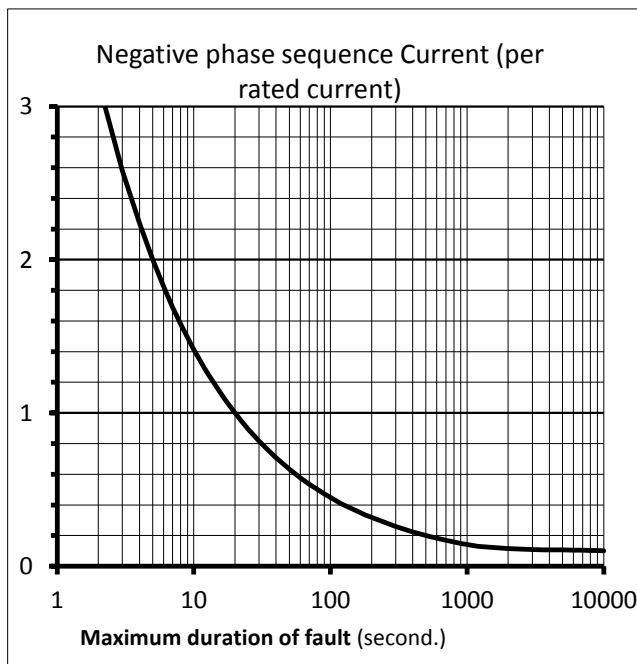
#### Transient voltage rise curve versus load rejection



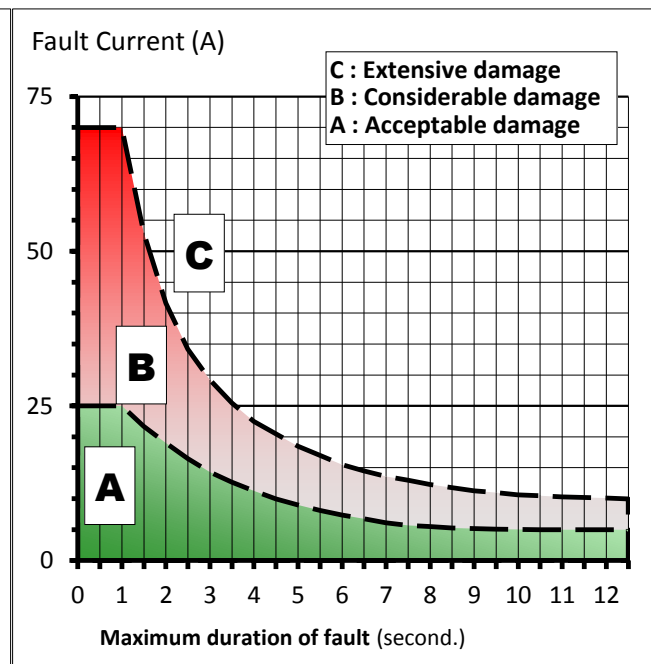
### Thermal Damage Curve



### Unbalance Load Curve



### Stator Earth Fault Current





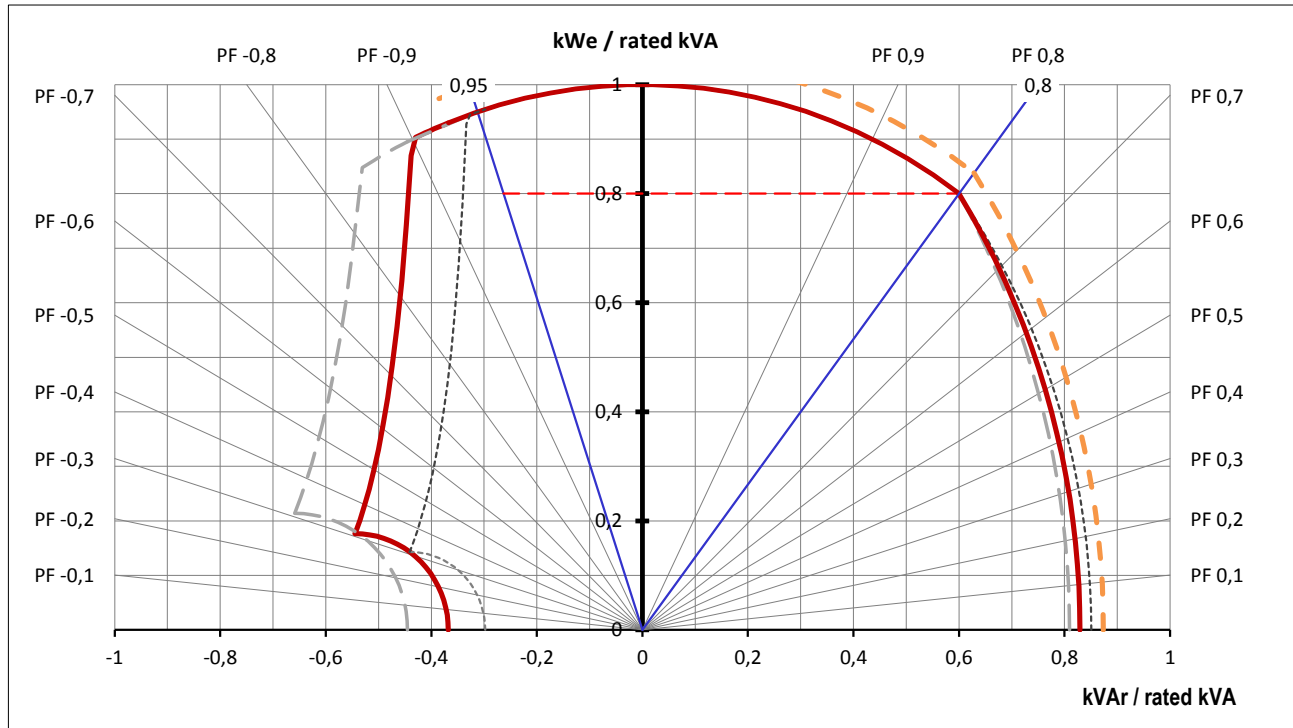
Date : 26.11.2014

1150kVA - 415V - 50 Hz

V4.02 - 11/2014

### Capability Curve

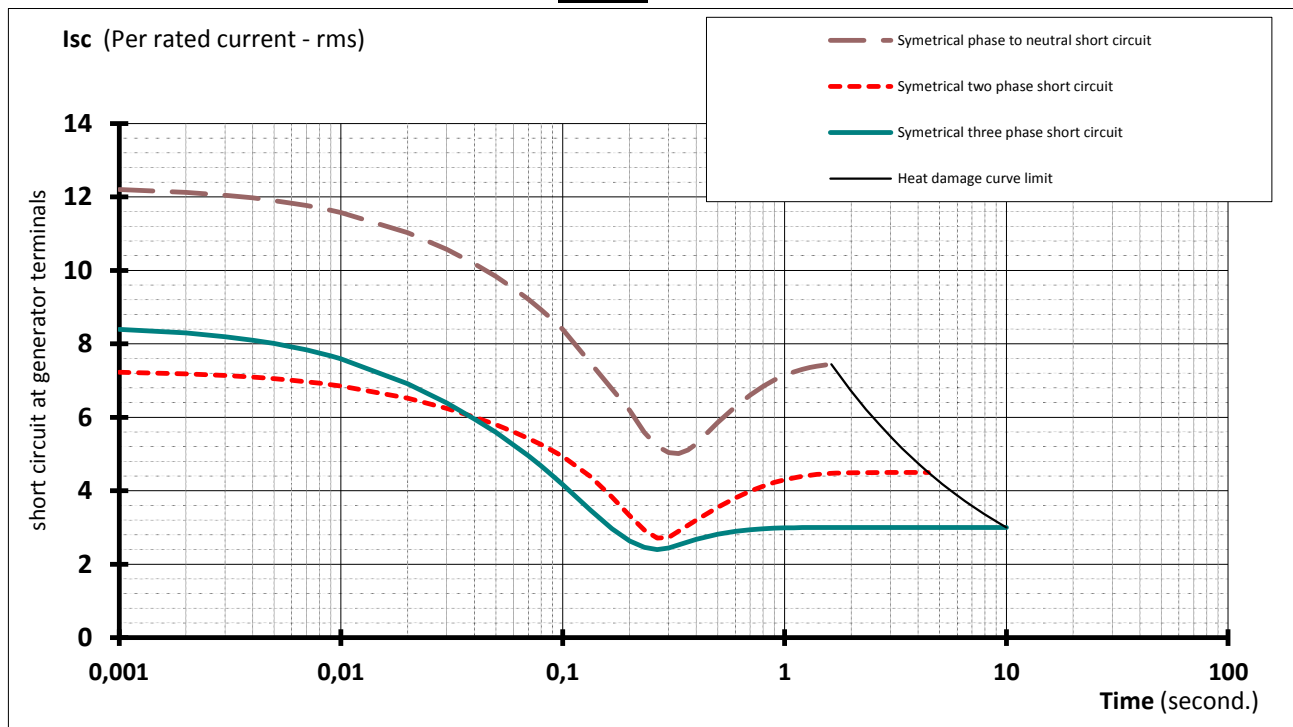
—	Umax + 10%	457	V
—	Un	415	V
- - -	Umin - 10%	374	V
- - -	Thermal Limit		



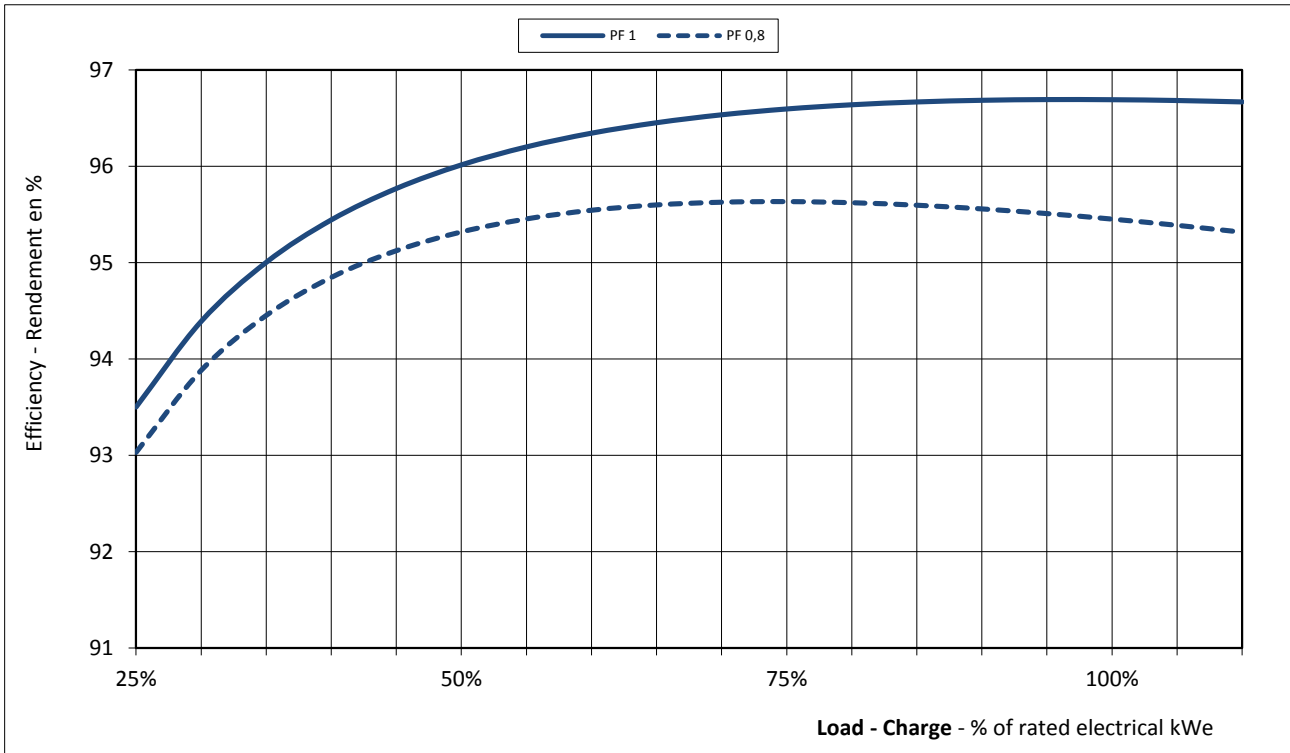
### Stator Current decrement curves

symetrical phase to neutral short circuit  
symetrical two phase short circuit  
symetrical three phase short circuit

initial	20 252	A	12,2 x In	
max	12 002	A	7,2 x In	In = 1660 A
value	13 941	A	8,4 x In	

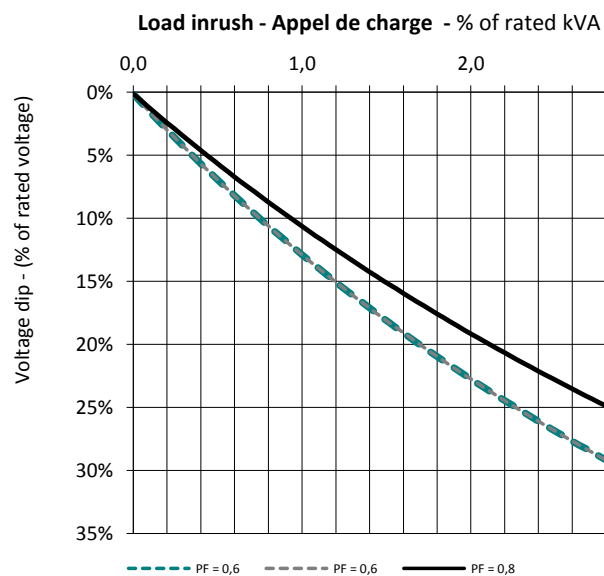


### Efficiency Curves

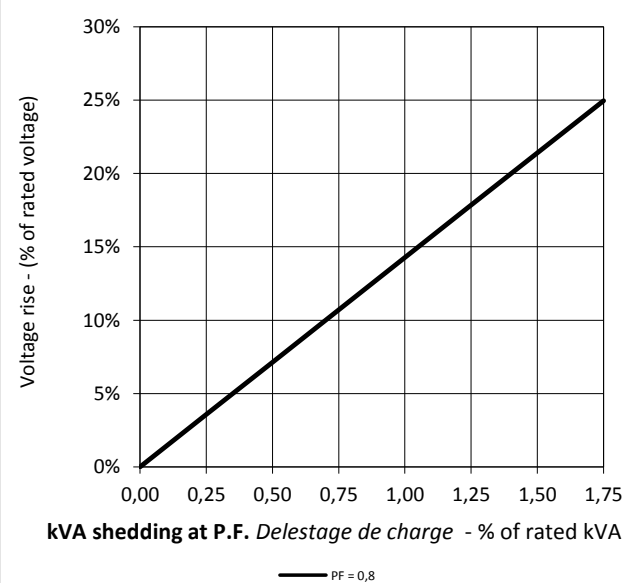


### Transient Voltage Variation

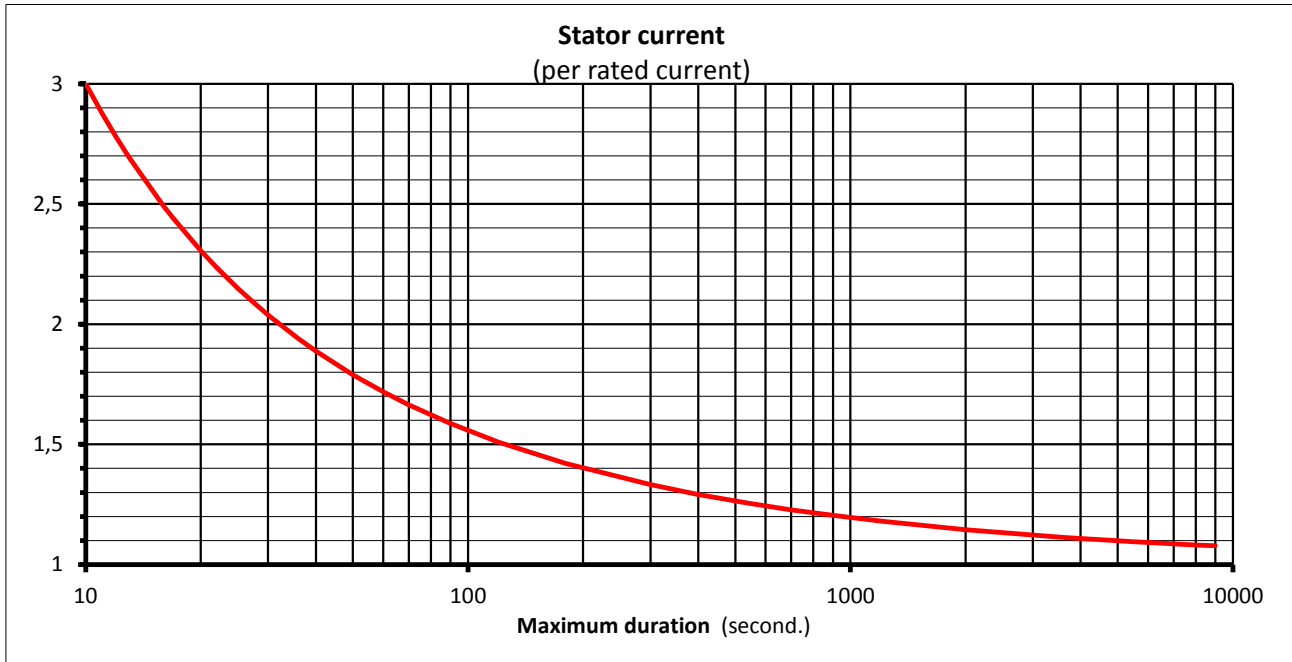
#### Transient voltage dip curve versus load impact



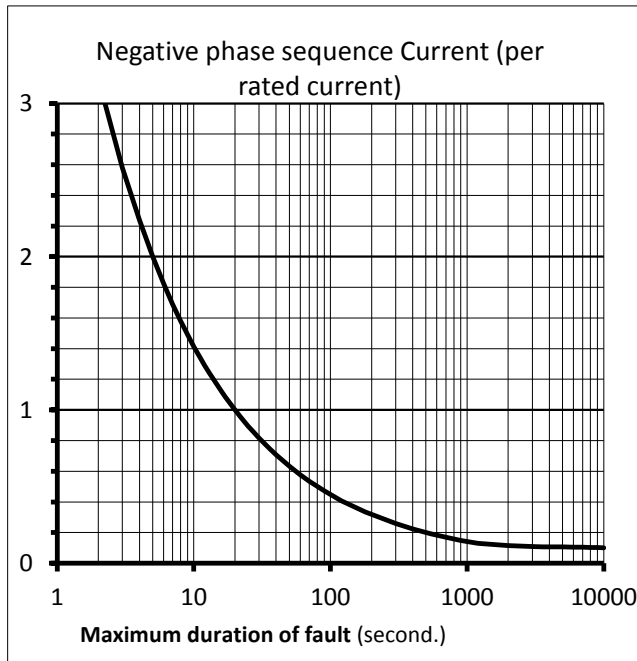
#### Transient voltage rise curve versus load rejection



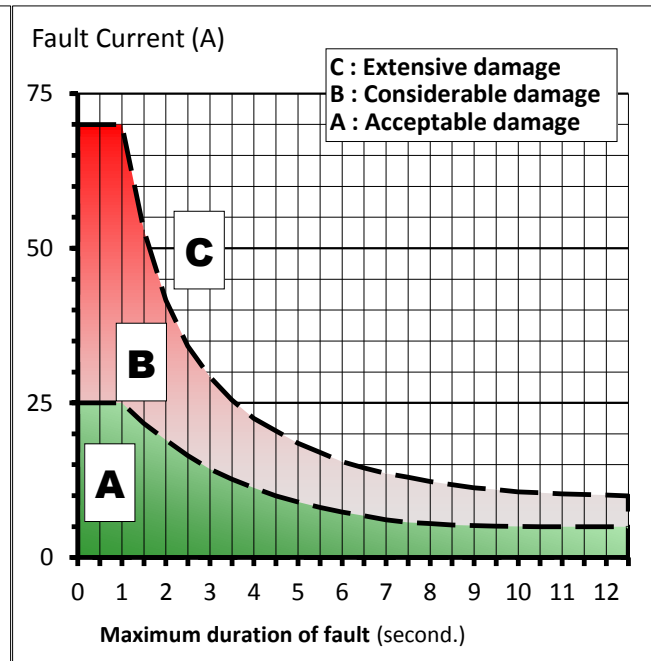
### Thermal Damage Curve



### Unbalance Load Curve



### Stator Earth Fault Current



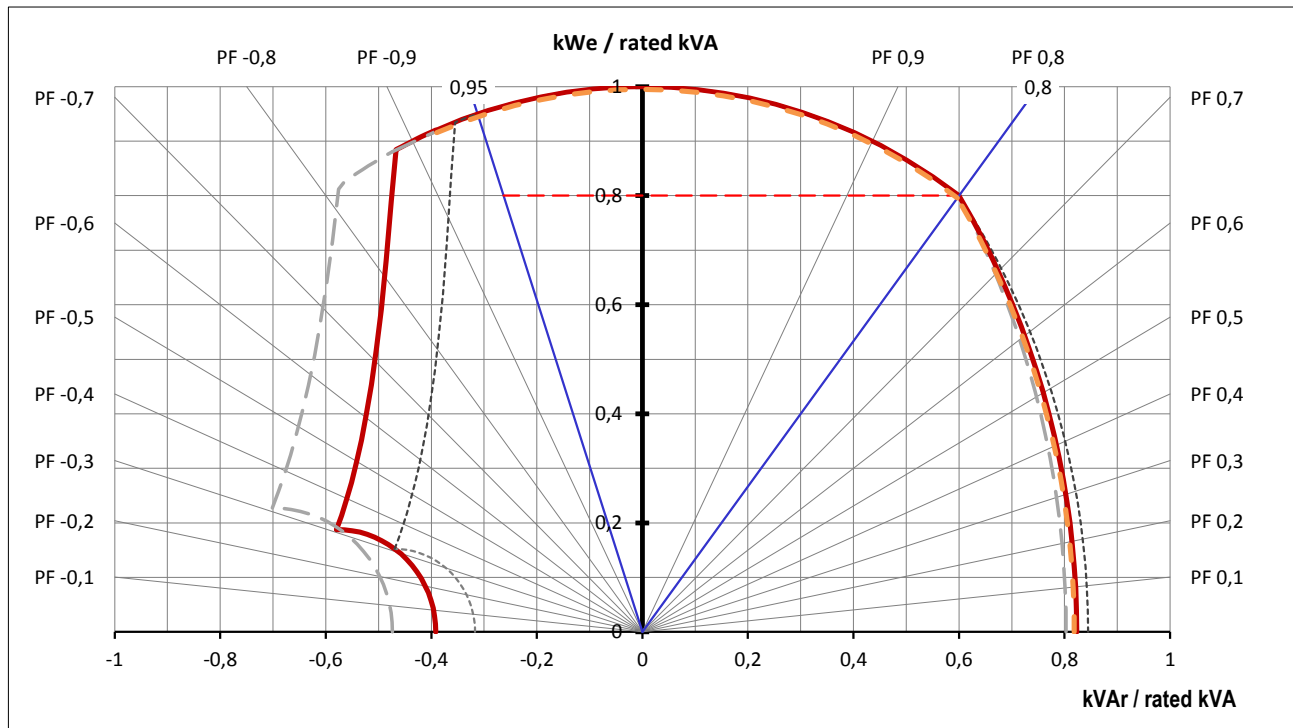
Date : 24.11.2014

1040kVA - 690V - 50 Hz

V4.02 - 11/2014

### Capability Curve

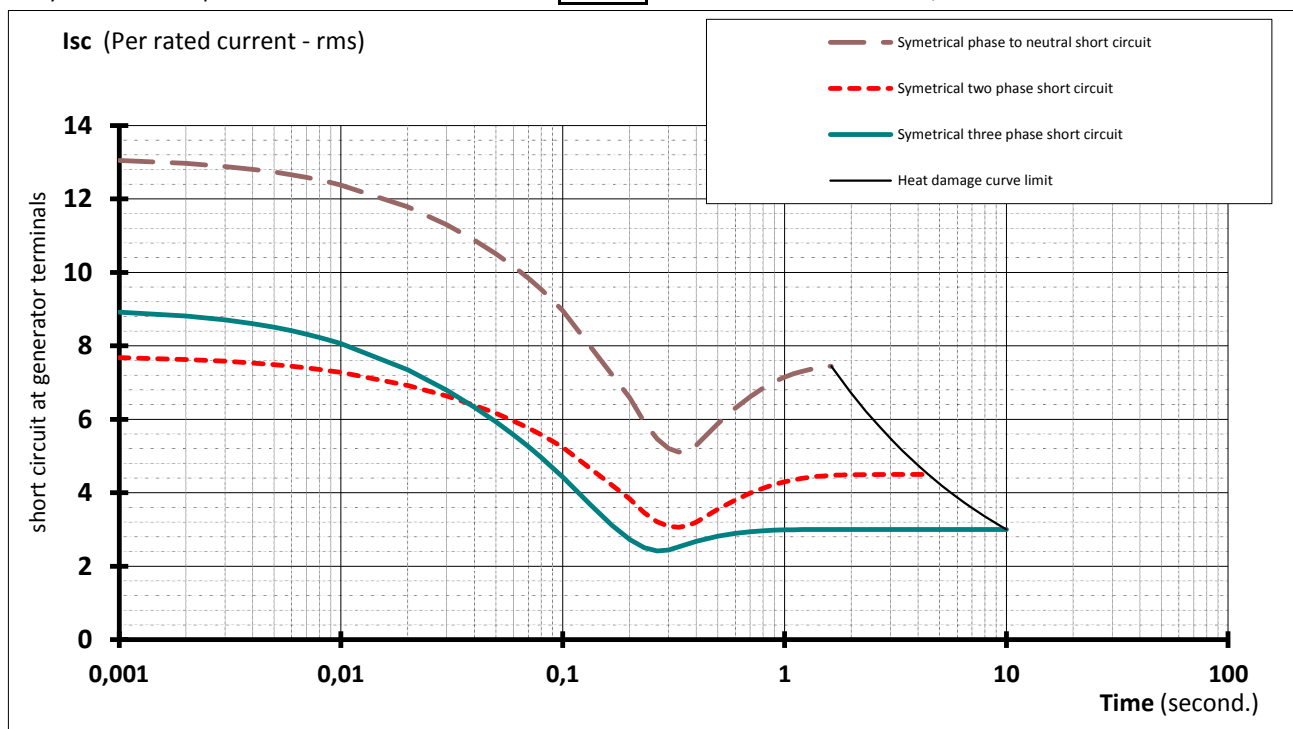
—	Umax + 10%	759	V
—	Un	690	V
- - -	Umin - 10%	621	V
- - -	Thermal Limit		



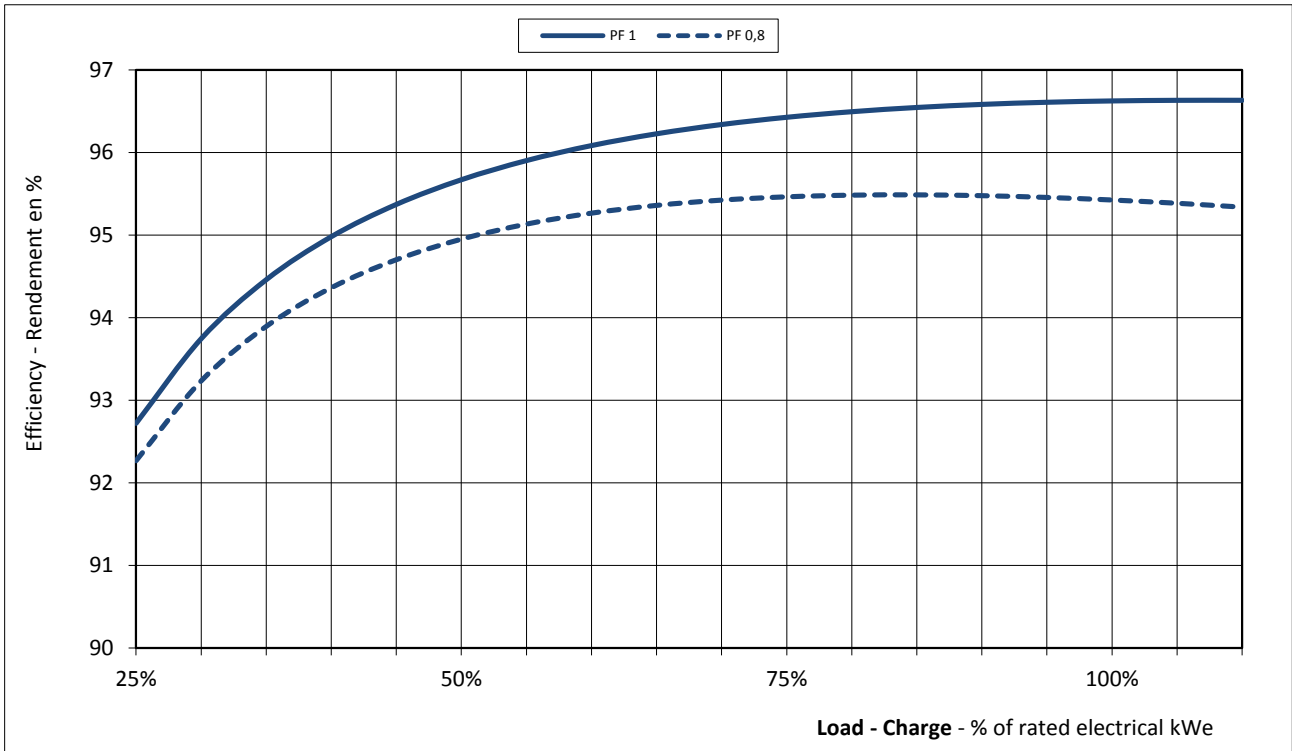
### Stator Current decrement curves

symmetrical phase to neutral short circuit  
symmetrical two phase short circuit  
symmetrical three phase short circuit

initial	11 356	A	13,1 x In	
max	6 681	A	7,7 x In	In = 870 A
value	7 761	A	8,9 x In	

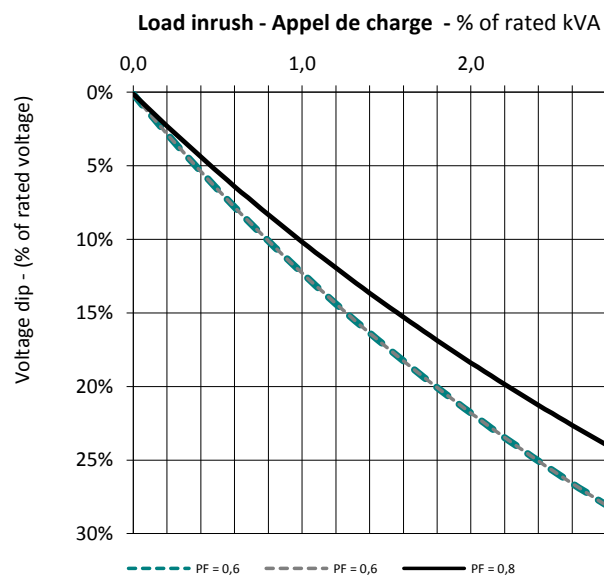


## Efficiency Curves

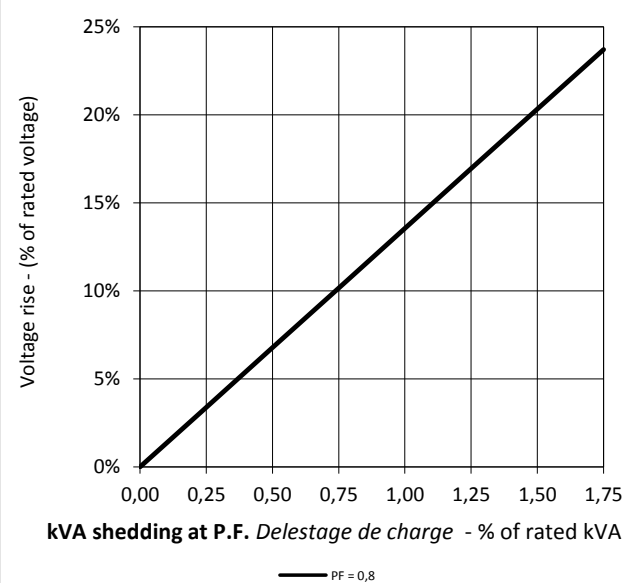


## Transient Voltage Variation

### Transient voltage dip curve versus load impact

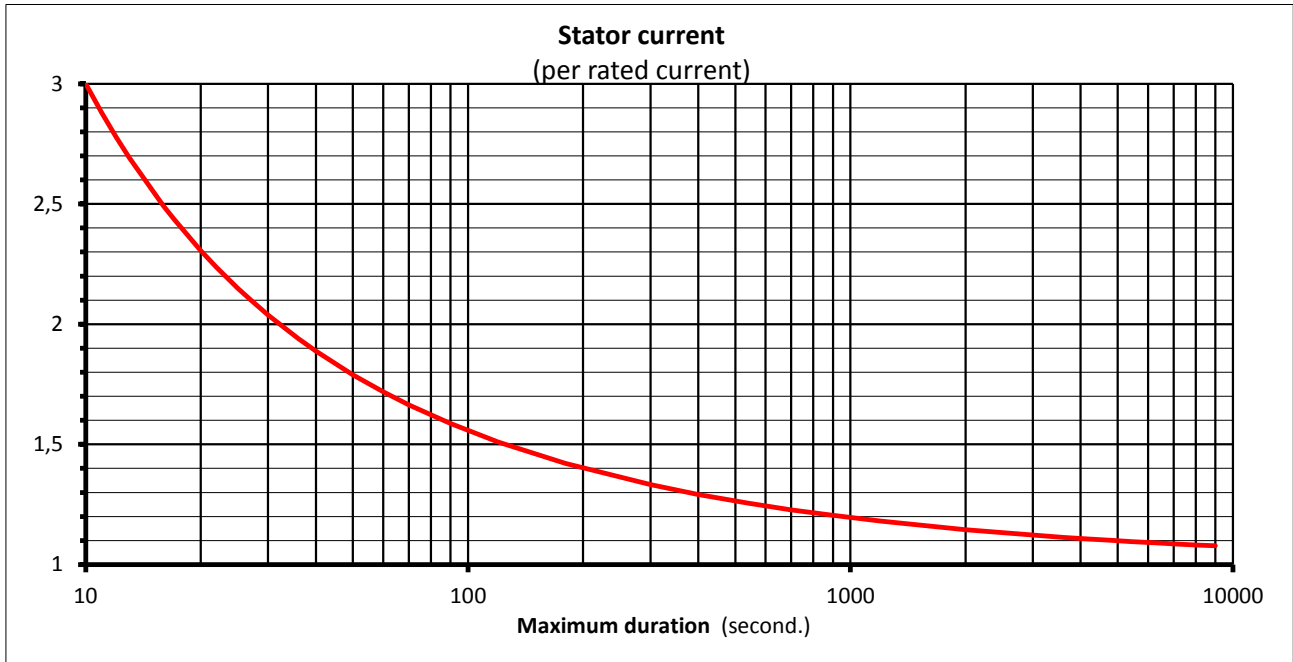


### Transient voltage rise curve versus load rejection

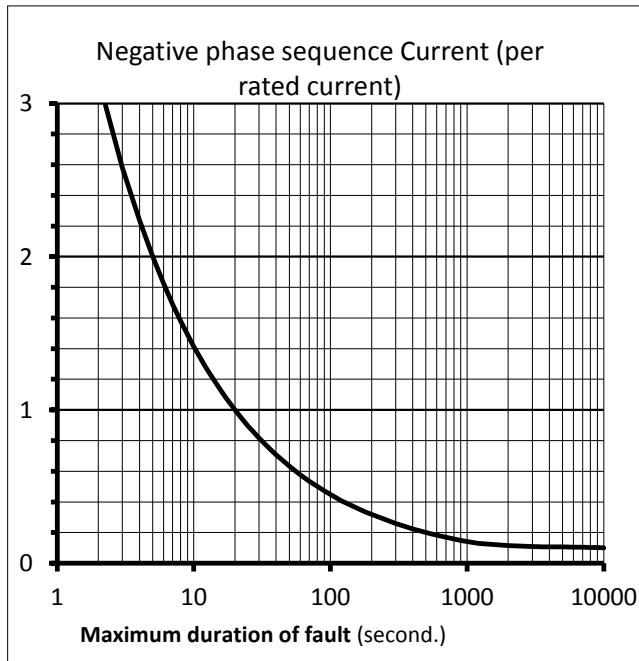




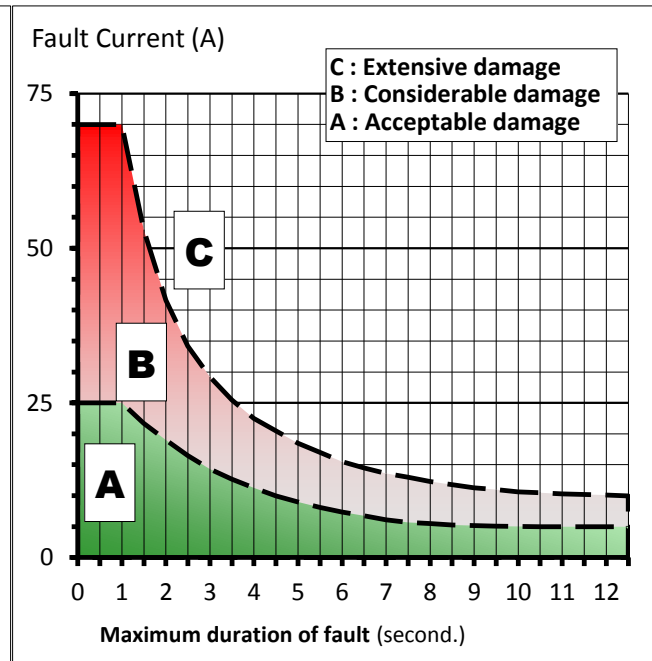
### Thermal Damage Curve



### Unbalance Load Curve



### Stator Earth Fault Current



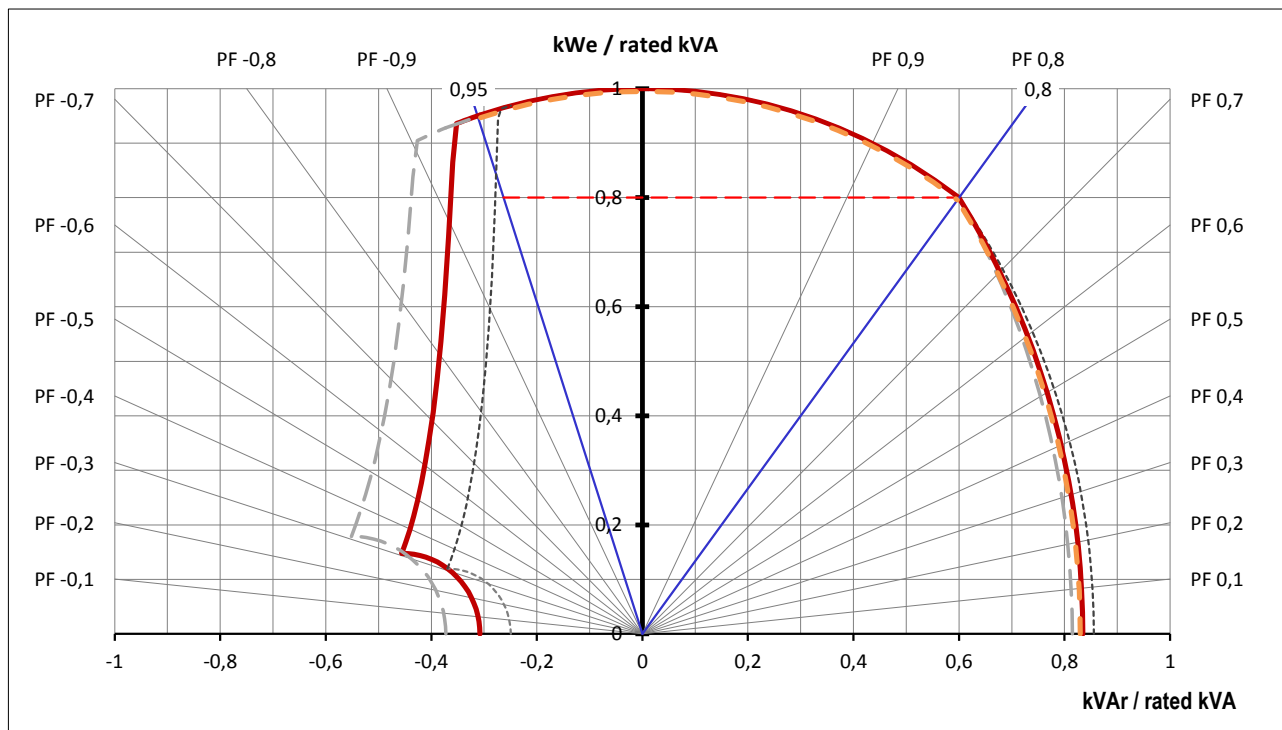
Date : 24.11.2014

1168kVA - 690V - 50 Hz

V4.02 - 11/2014

### Capability Curve

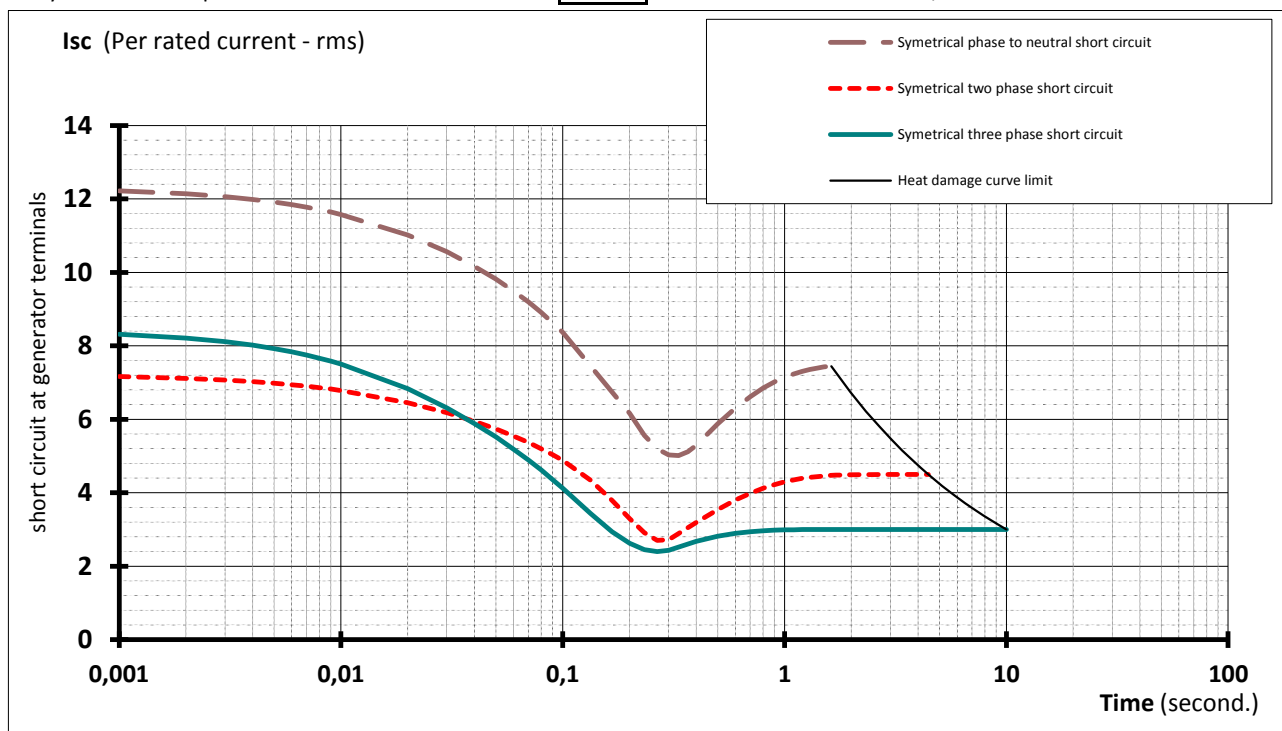
—	Umax + 10%	759	V
—	Un	690	V
- - -	Umin - 10%	621	V
- - -	Thermal Limit		



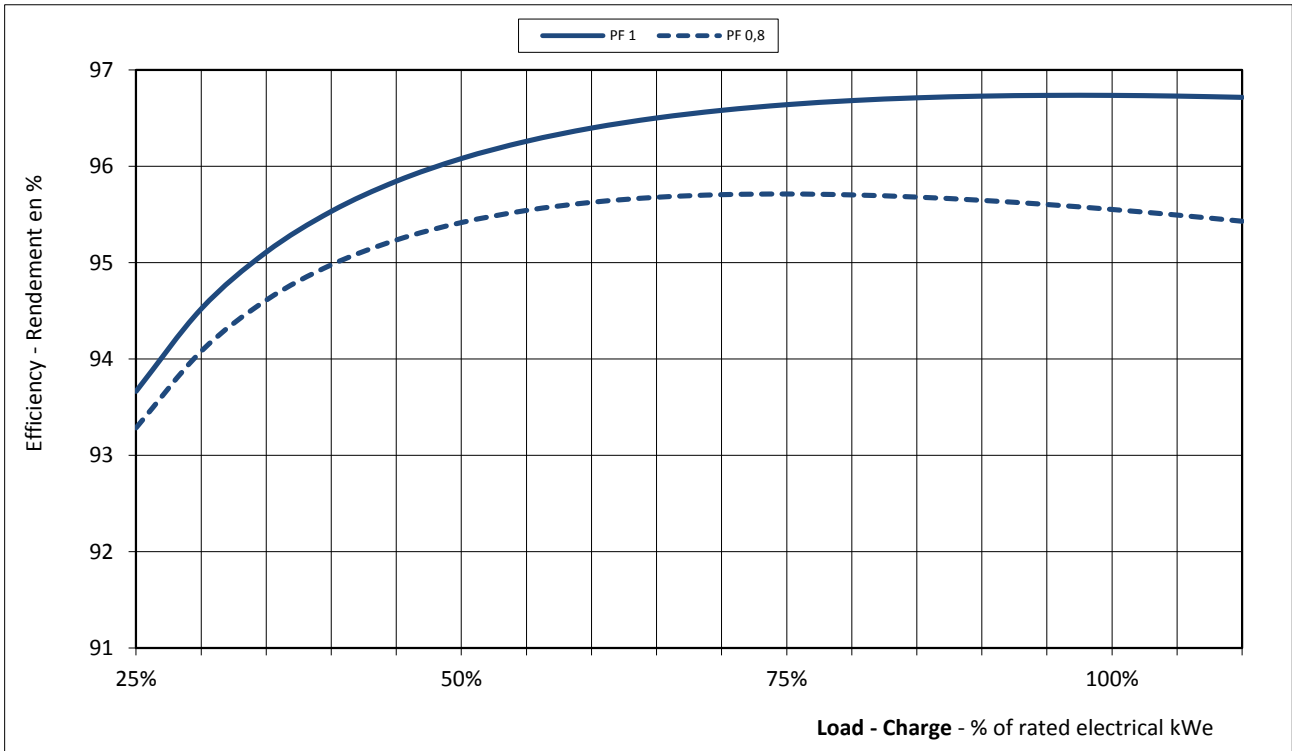
### Stator Current decrement curves

symetrical phase to neutral short circuit  
symetrical two phase short circuit  
symetrical three phase short circuit

initial	11 939	A	12,2 x In	In = 977 A
max	7 000	A	7,2 x In	
value	8 125	A	8,3 x In	

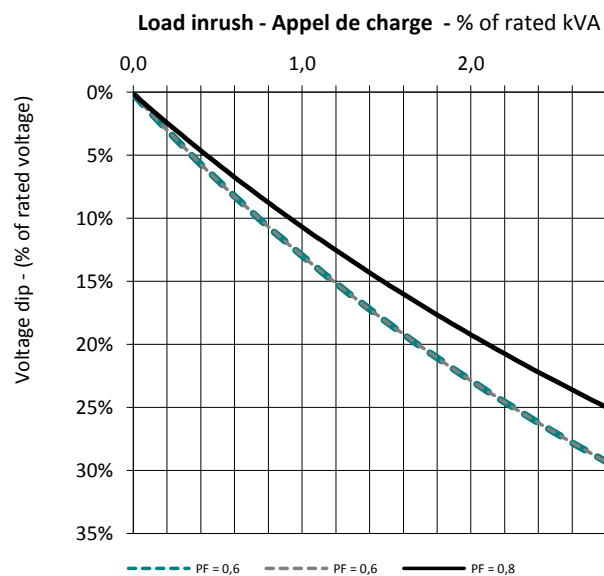


### Efficiency Curves

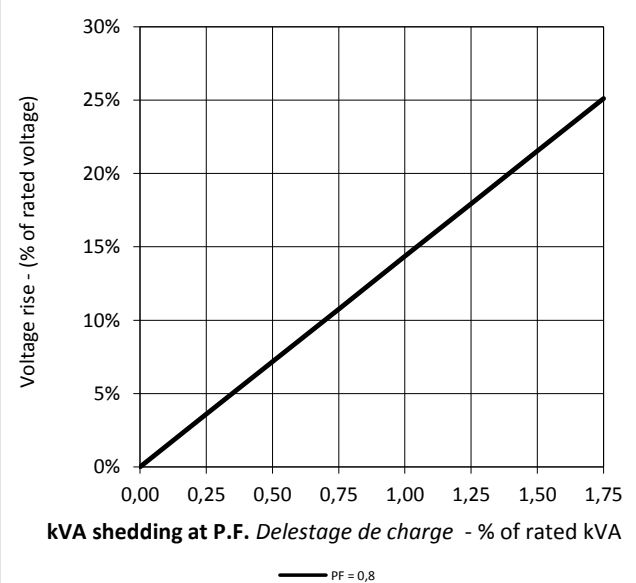


### Transient Voltage Variation

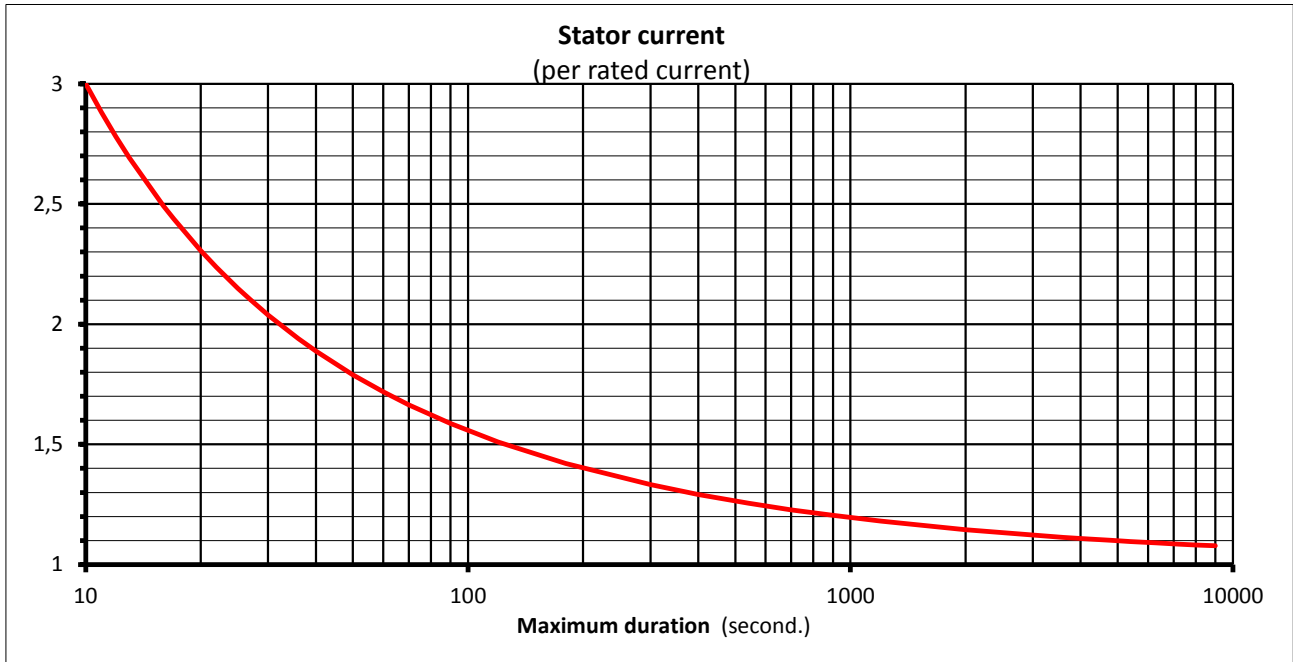
#### Transient voltage dip curve versus load impact



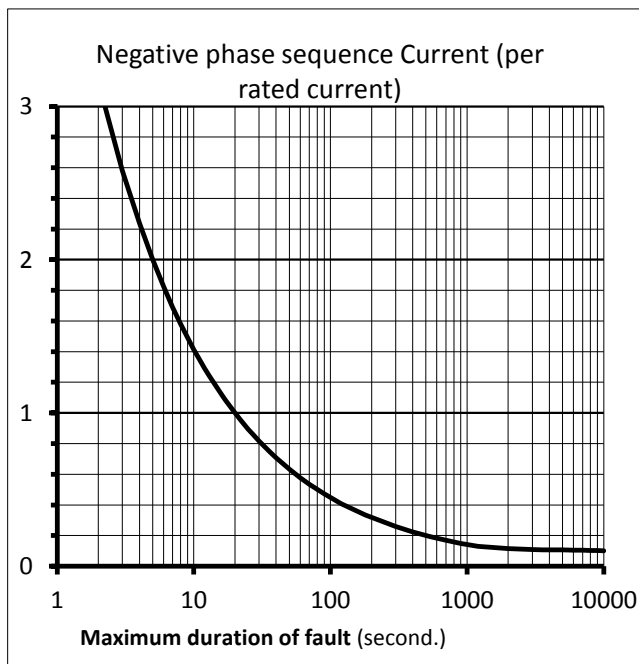
#### Transient voltage rise curve versus load rejection



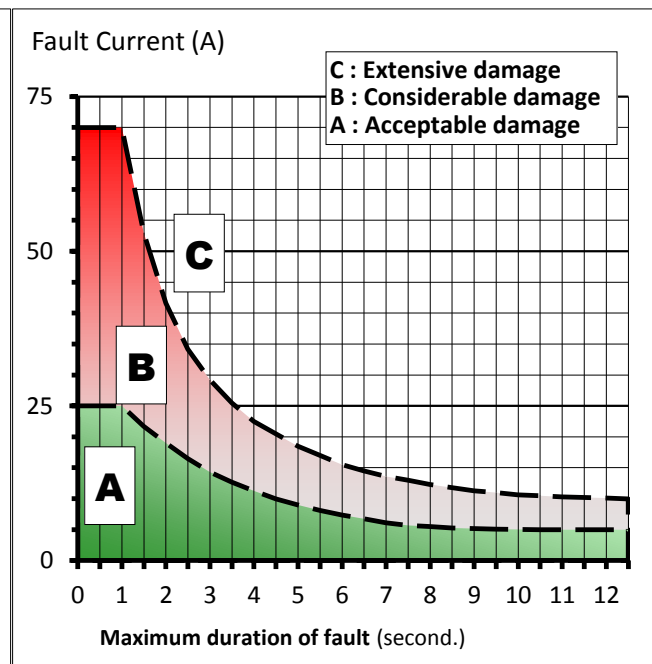
### Thermal Damage Curve



### Unbalance Load Curve



### Stator Earth Fault Current



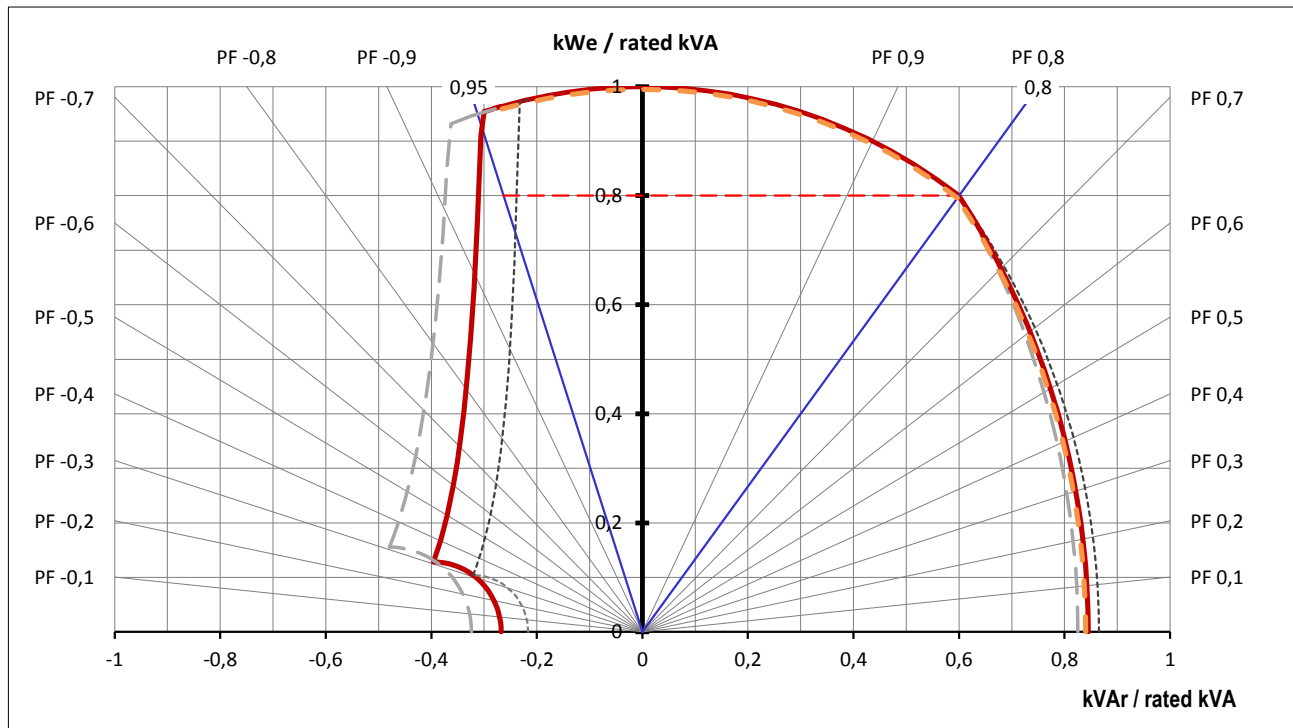
Date : 24.11.2014

959kVA - 690V - 50 Hz

V4.02 - 11/2014

### Capability Curve

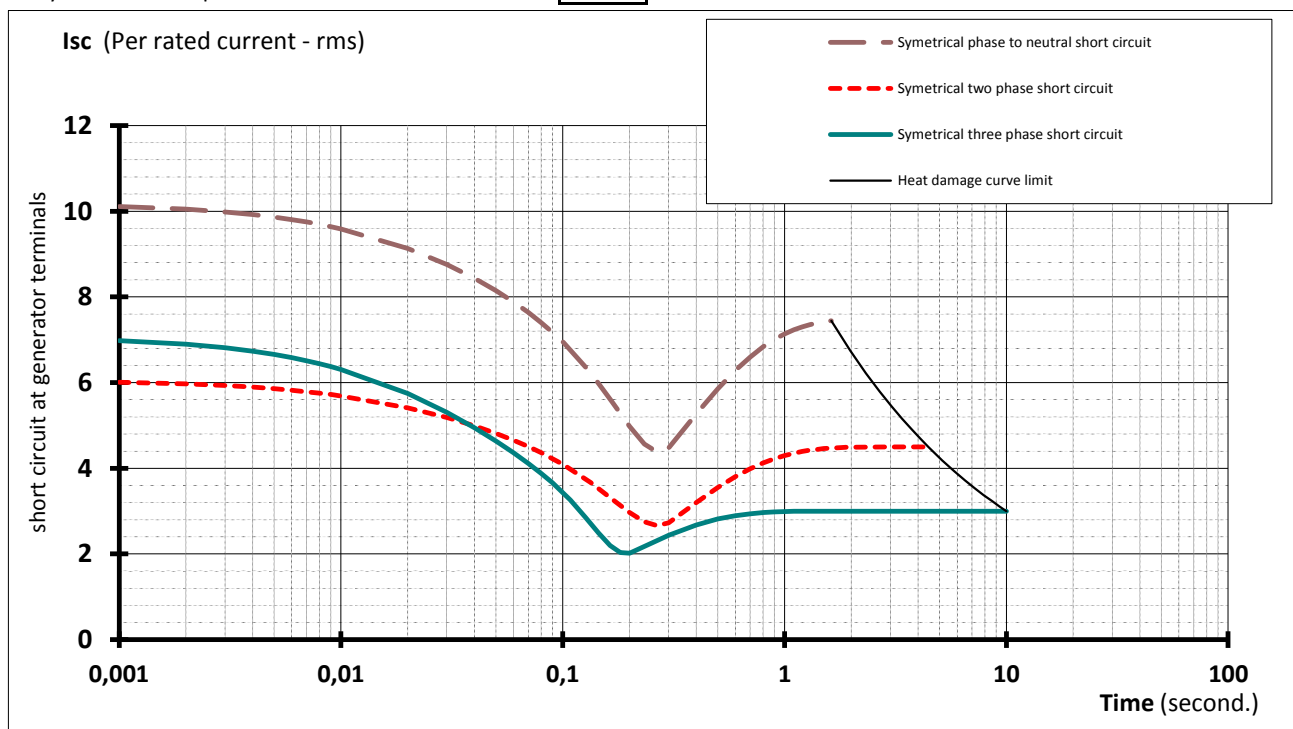
—	Umax + 10%	759	V
—	Un	690	V
- - -	Umin - 10%	621	V
- - -	Thermal Limit		



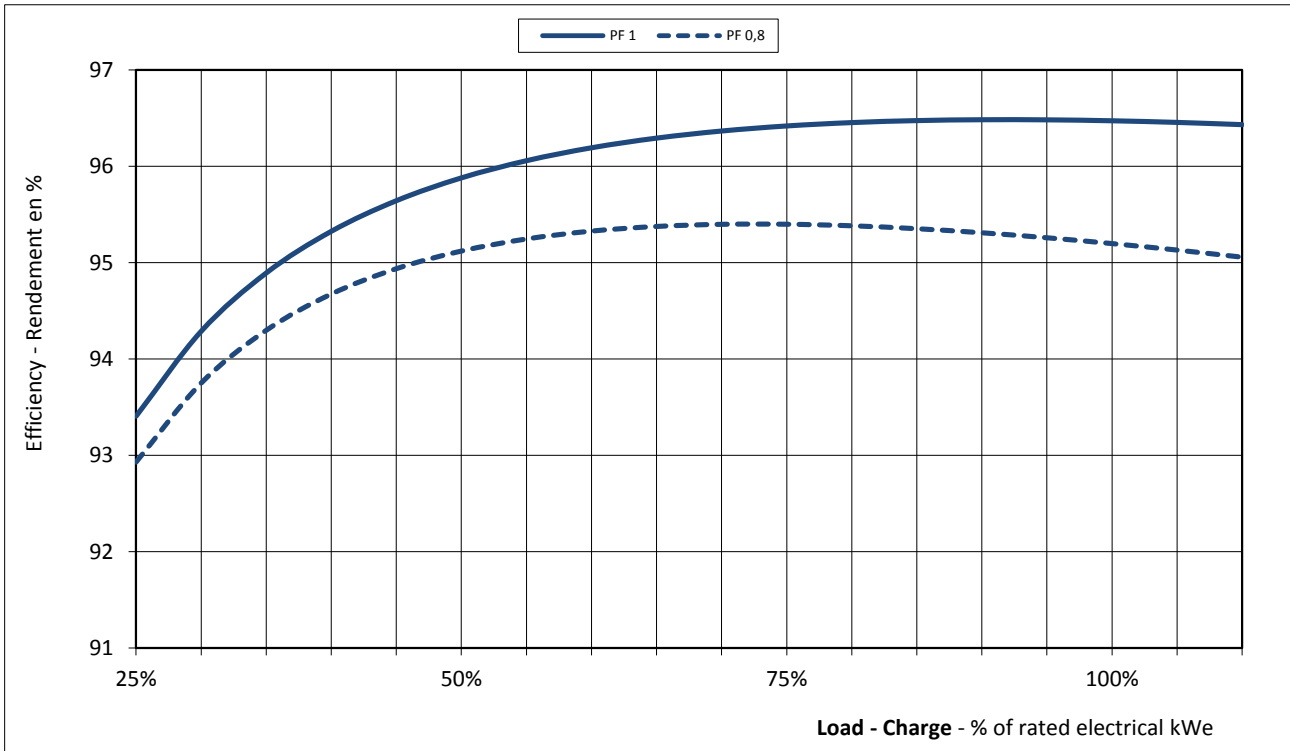
### Stator Current decrement curves

symetrical phase to neutral short circuit  
symetrical two phase short circuit  
symetrical three phase short circuit

initial	8 110	A	10,1 x In	
max	4 818	A	6 x In	In = 802 A
value	5 599	A	7 x In	

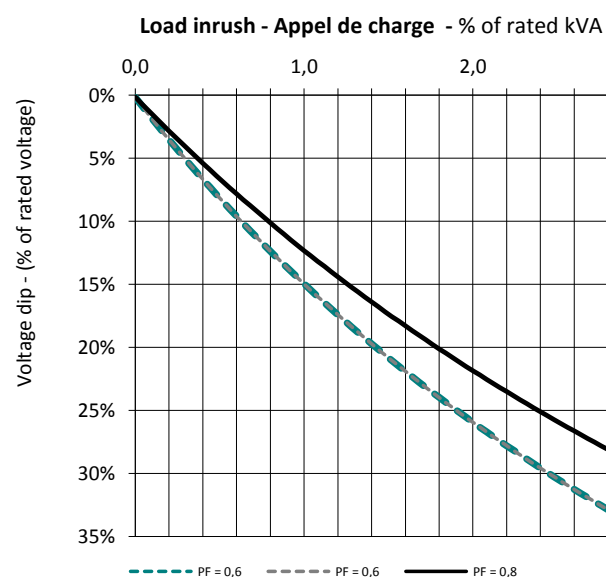


## Efficiency Curves

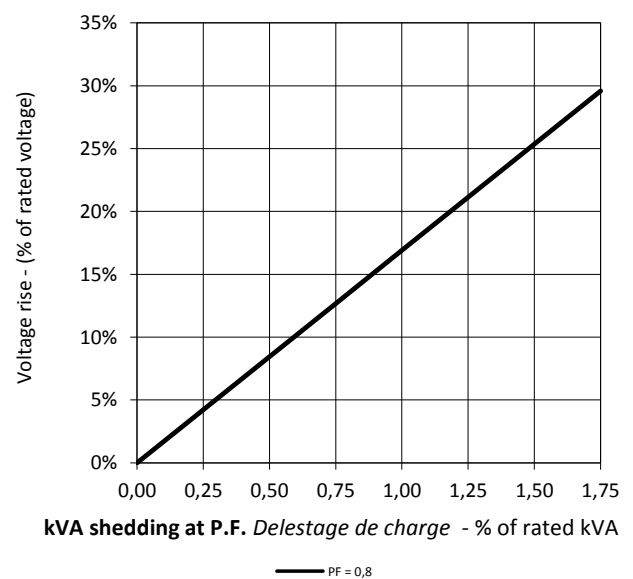


## Transient Voltage Variation

### Transient voltage dip curve versus load impact



### Transient voltage rise curve versus load rejection



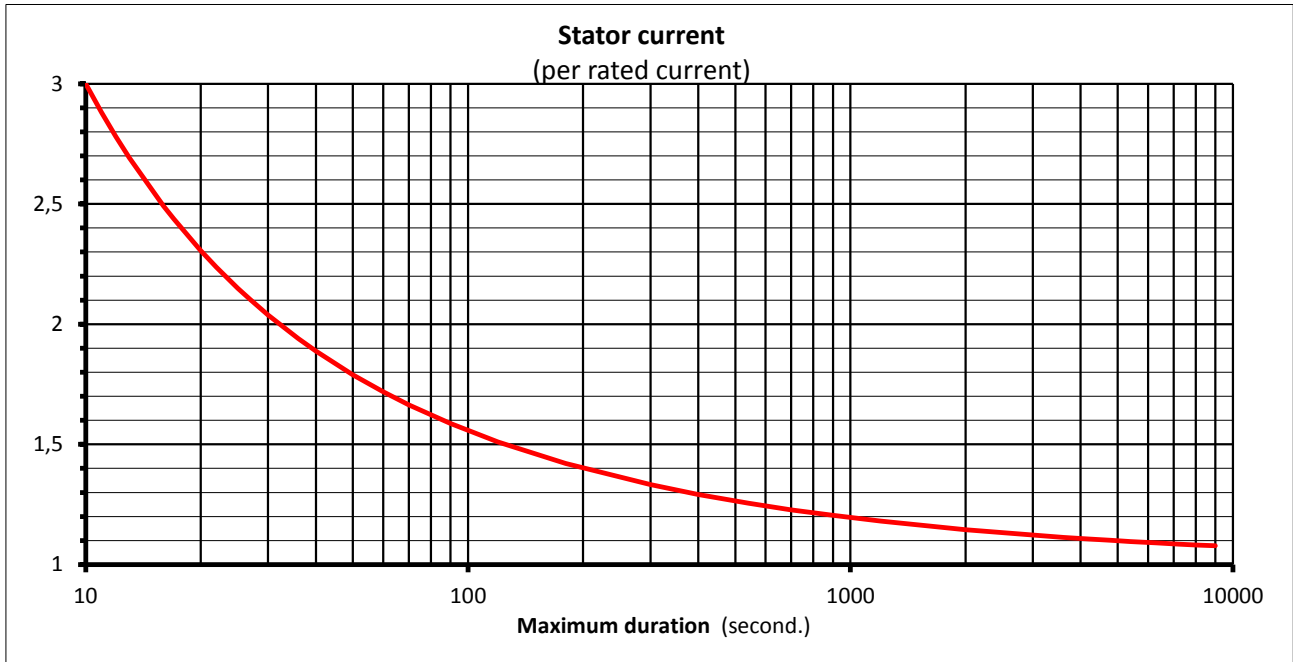


Date : 24.11.2014

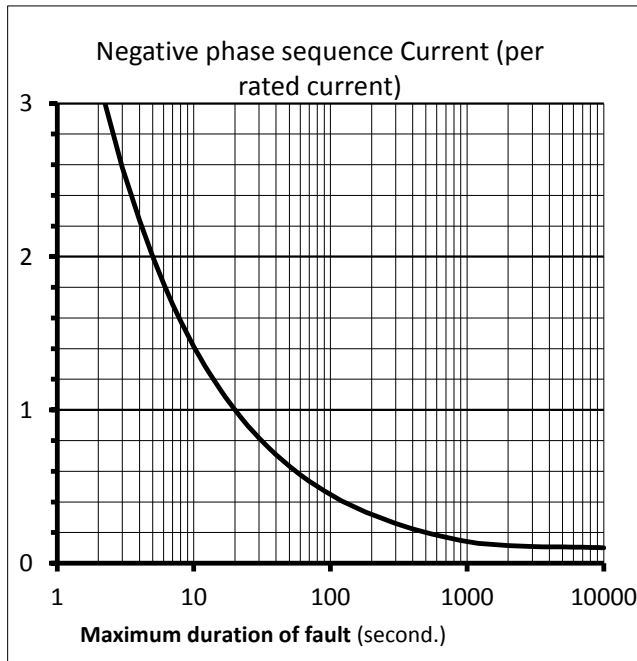
959kVA - 690V - 50 Hz

V4.02 - 11/2014

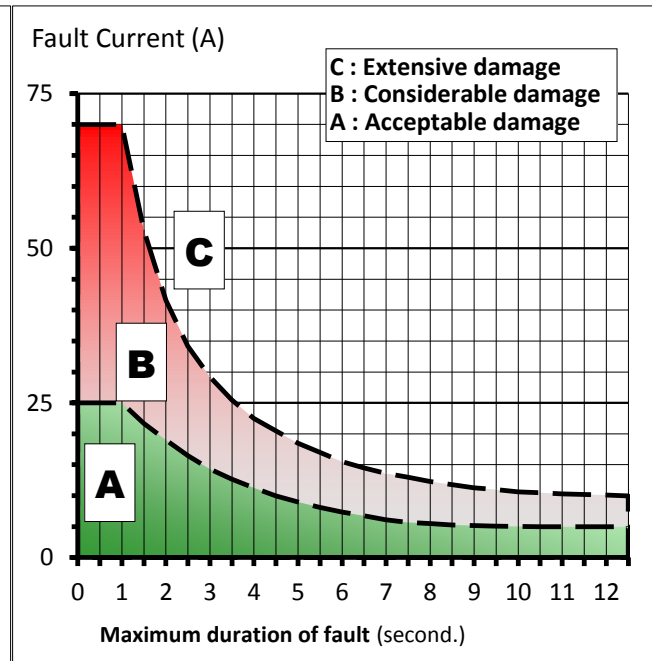
### Thermal Damage Curve



### Unbalance Load Curve



### Stator Earth Fault Current



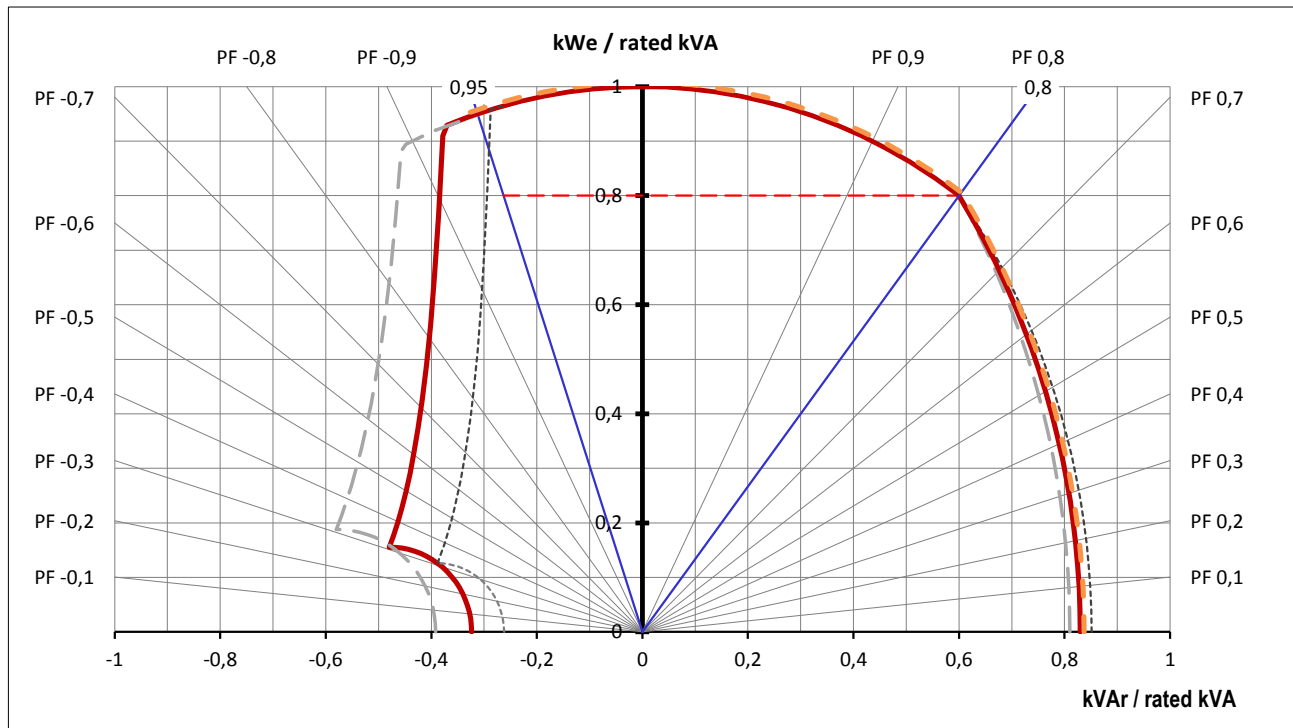
Date : 19.11.2014

1315kVA - 400V - 50 Hz

V4.02 - 11/2014

### Capability Curve

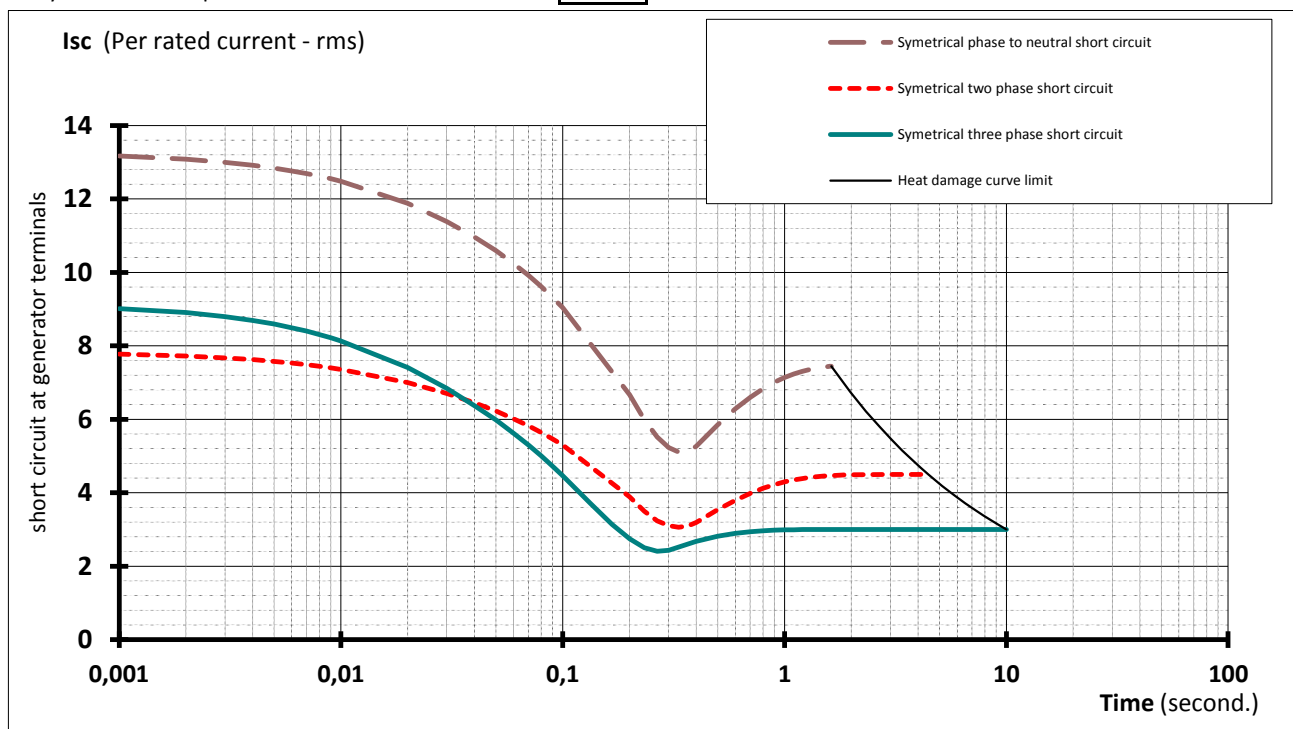
—	Umax + 10%	440	V
—	Un	<b>400</b>	V
- - -	Umin - 10%	360	V
- - -	Thermal Limit		



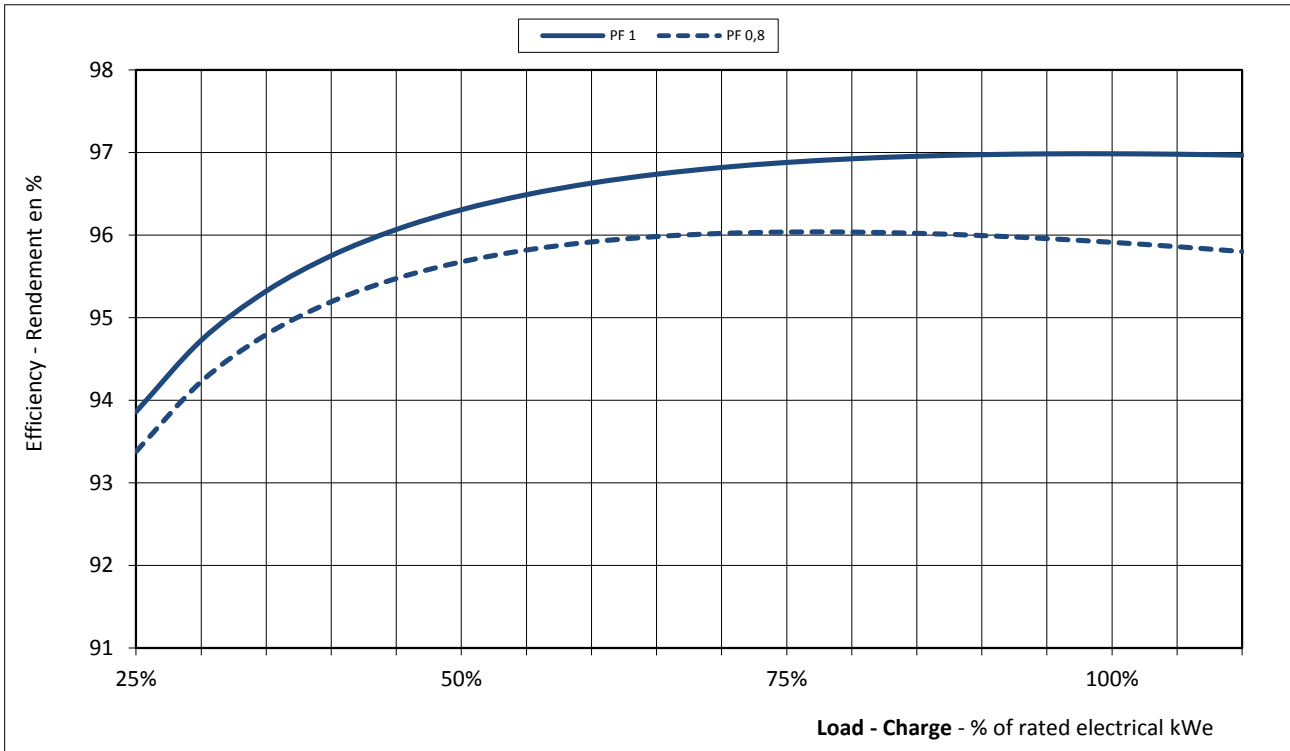
### Stator Current decrement curves

symetrical phase to neutral short circuit  
symetrical two phase short circuit  
symetrical three phase short circuit

initial	24 997	A	13,2 x In	
max	14 759	A	7,8 x In	In = <b>1898 A</b>
value	17 114	A	9 x In	

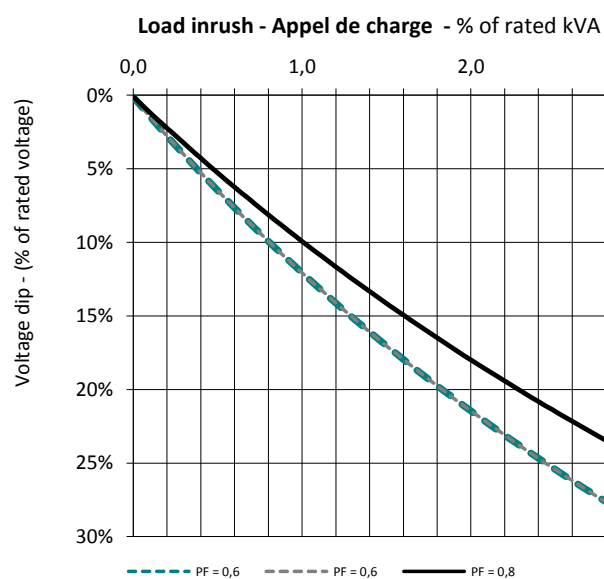


### Efficiency Curves

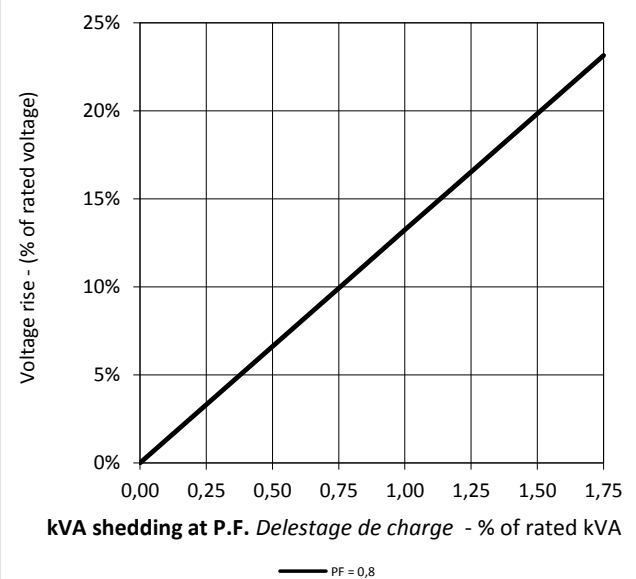


### Transient Voltage Variation

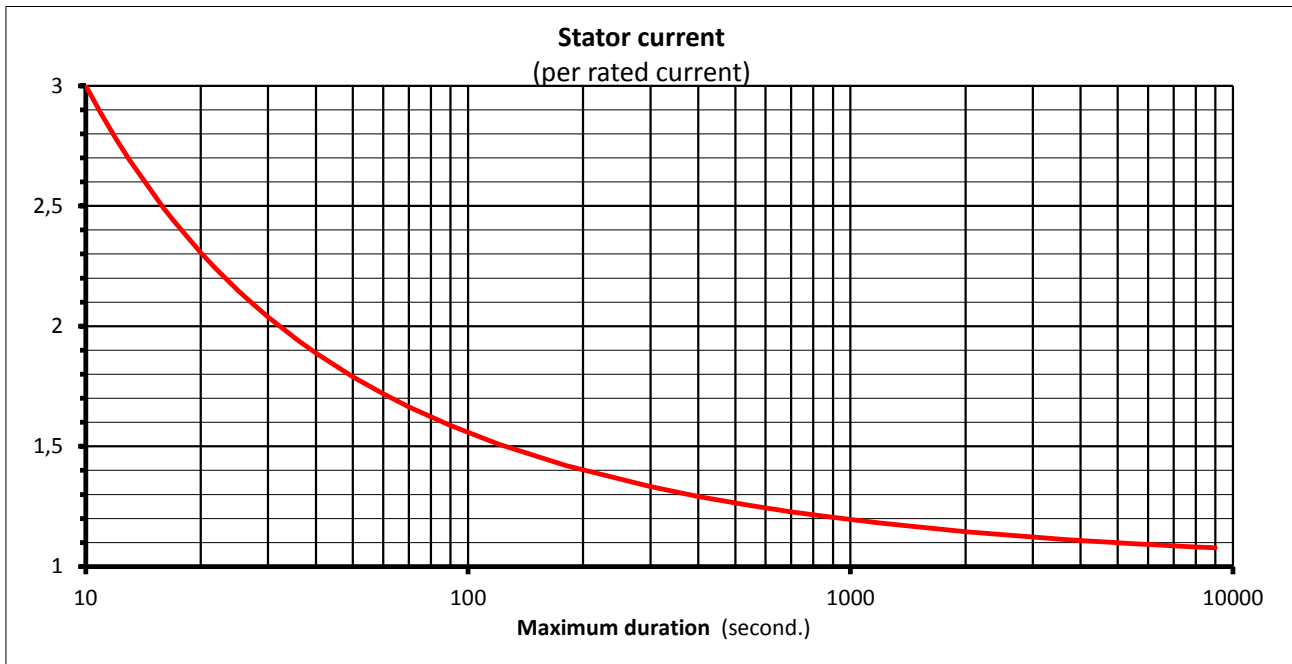
#### Transient voltage dip curve versus load impact



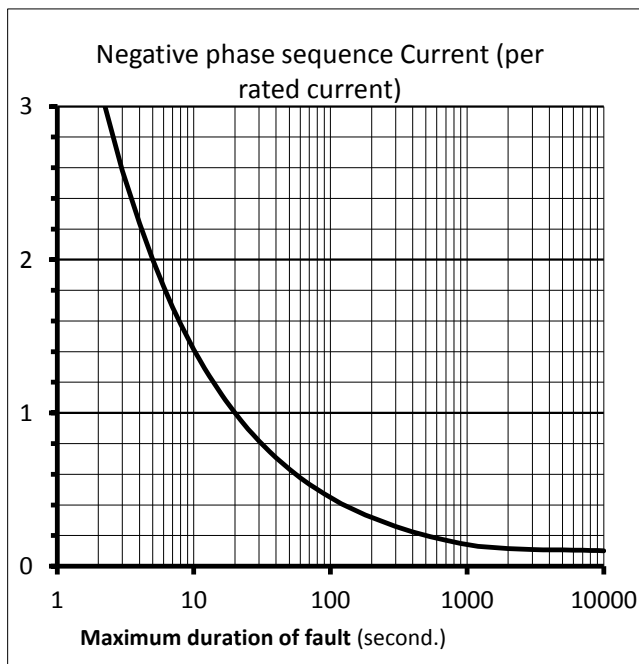
#### Transient voltage rise curve versus load rejection



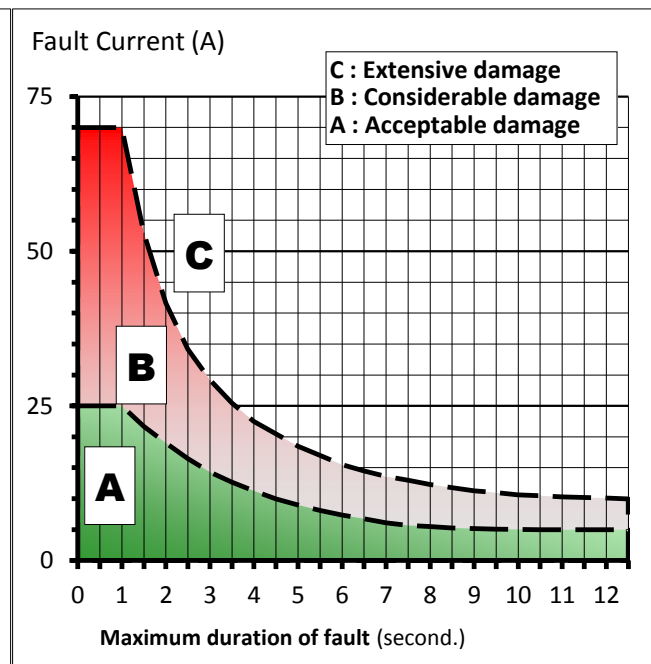
### Thermal Damage Curve



### Unbalance Load Curve



### Stator Earth Fault Current



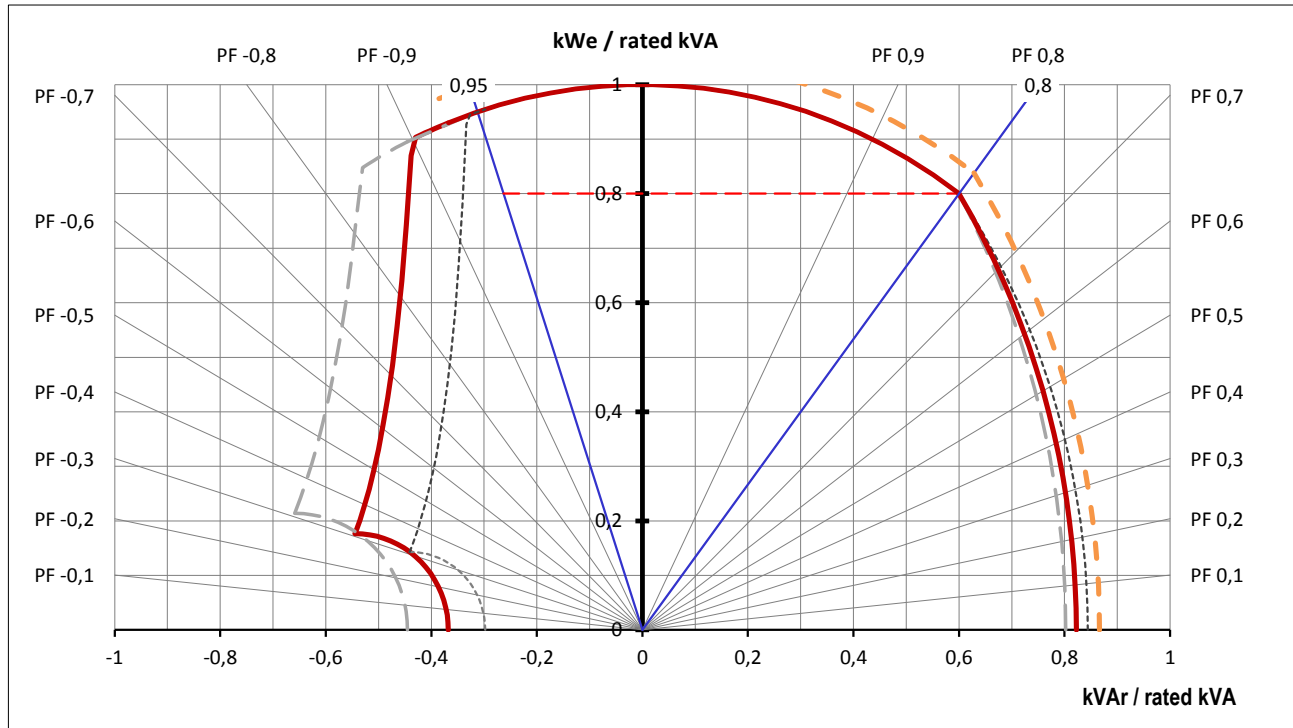
Date : 21.11.2014

1315kVA - 415V - 50 Hz

V4.02 - 11/2014

### Capability Curve

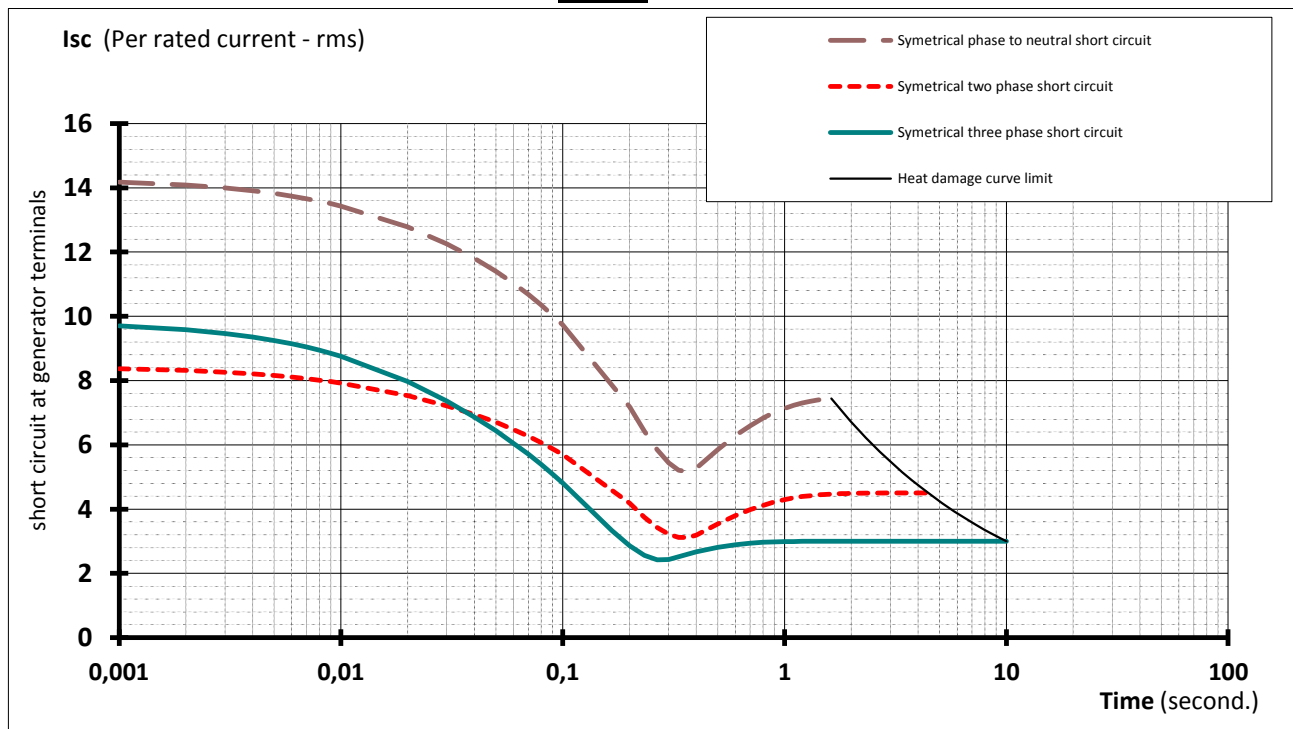
—	Umax + 10%	457	V
—	Un	415	V
- - -	Umin - 10%	374	V
- - -	Thermal Limit		



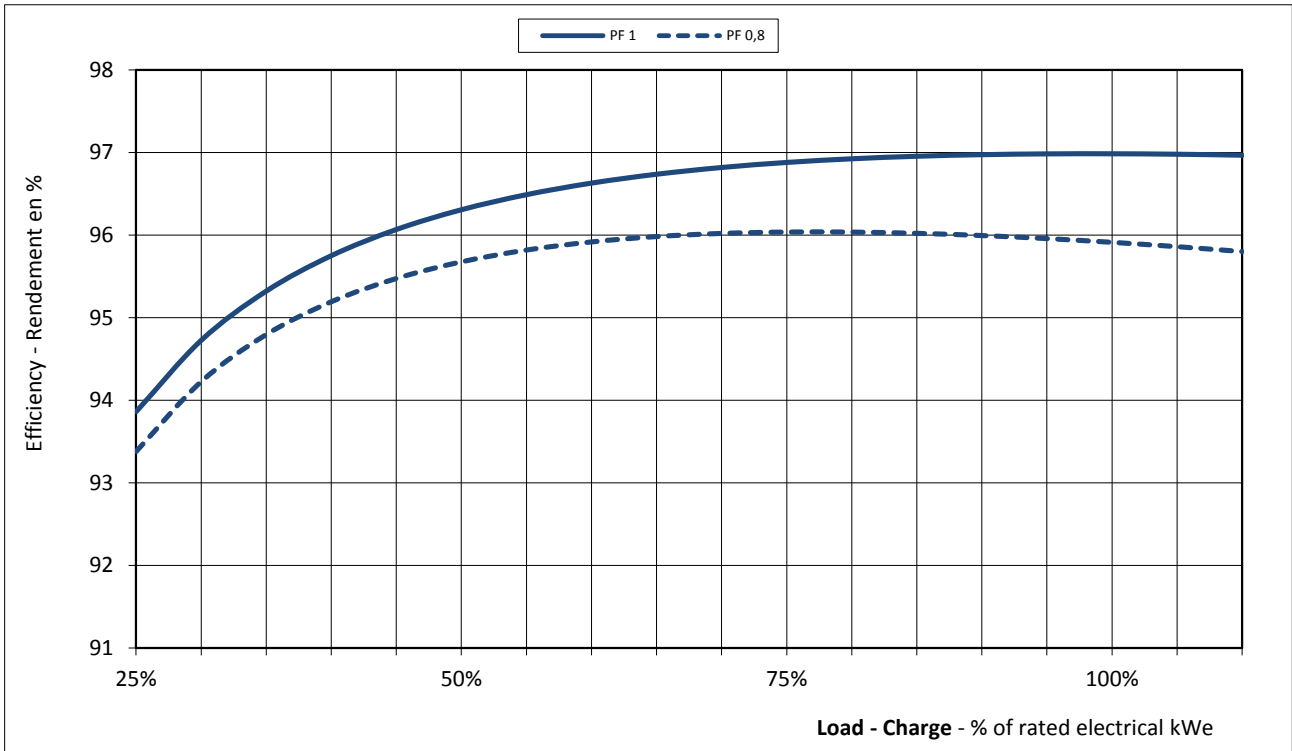
### Stator Current decrement curves

symetrical phase to neutral short circuit  
symetrical two phase short circuit  
symetrical three phase short circuit

initial	26 906	A	14,2 x In	In = 1898 A
max	15 886	A	8,4 x In	
value	18 422	A	9,7 x In	

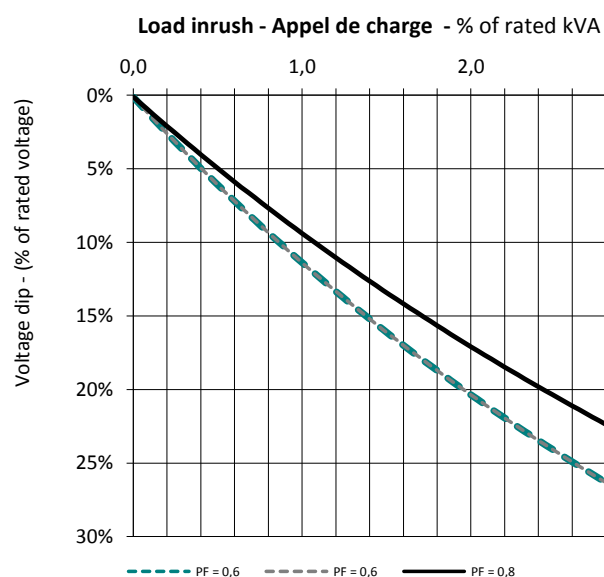


### Efficiency Curves

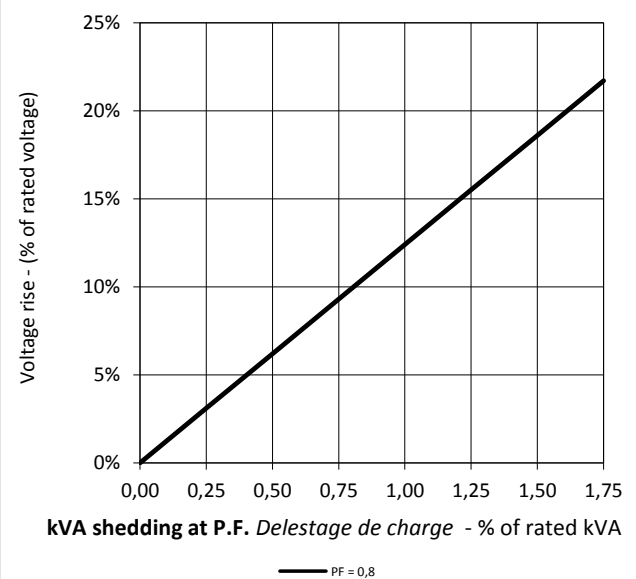


### Transient Voltage Variation

#### Transient voltage dip curve versus load impact



#### Transient voltage rise curve versus load rejection



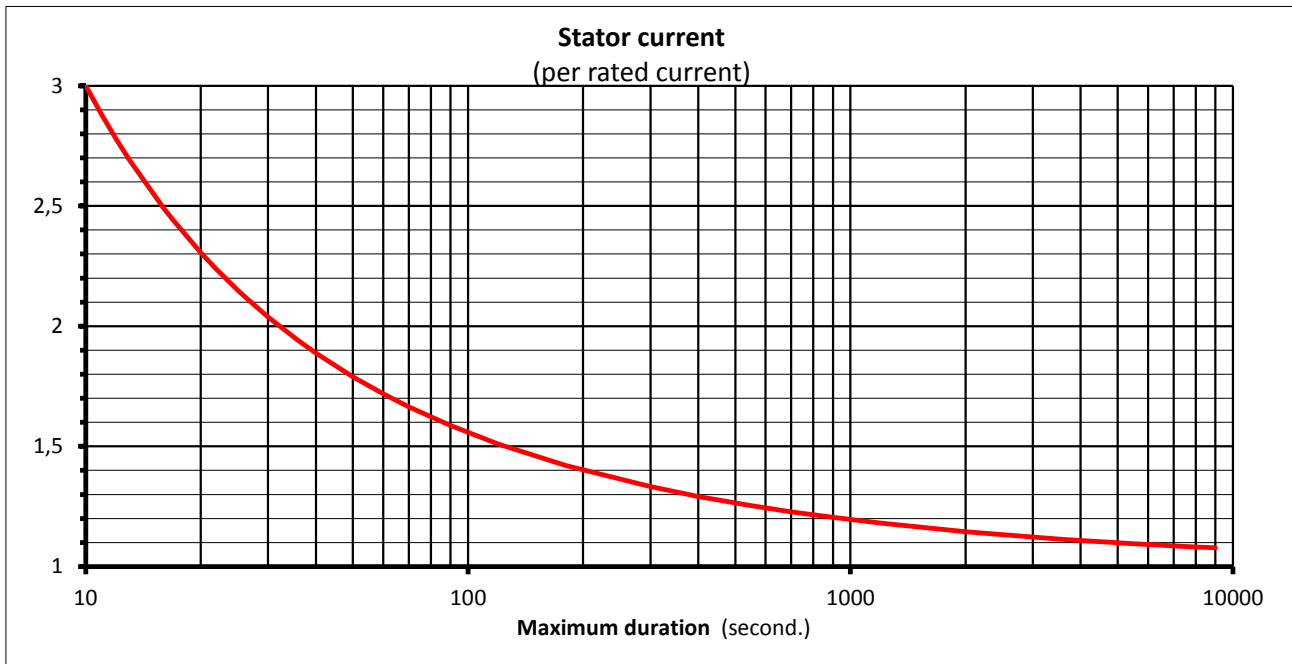


Date : 21.11.2014

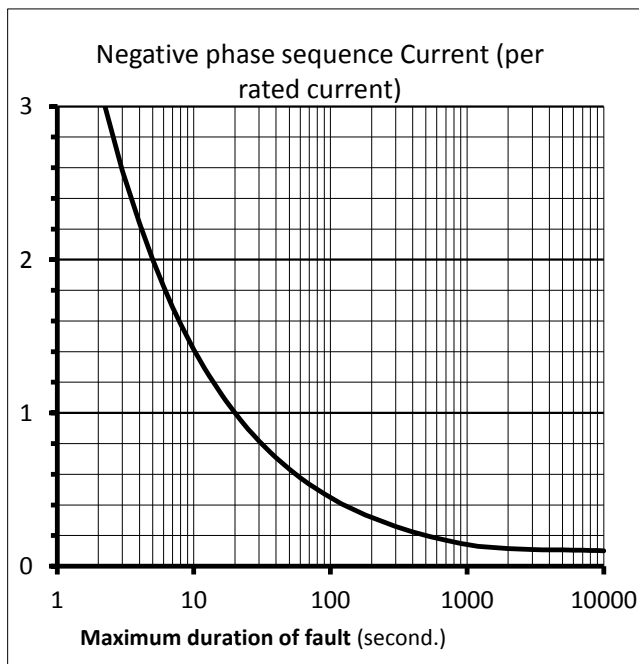
1315kVA - 415V - 50 Hz

V4.02 - 11/2014

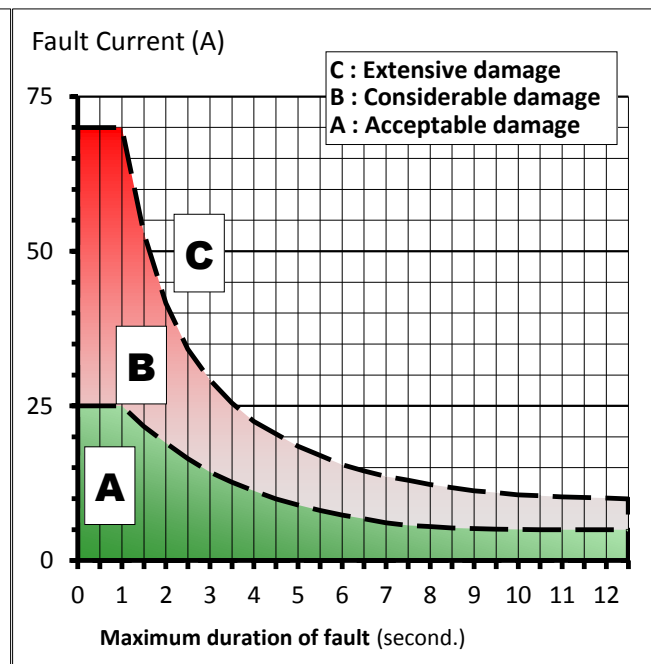
### Thermal Damage Curve



### Unbalance Load Curve



### Stator Earth Fault Current



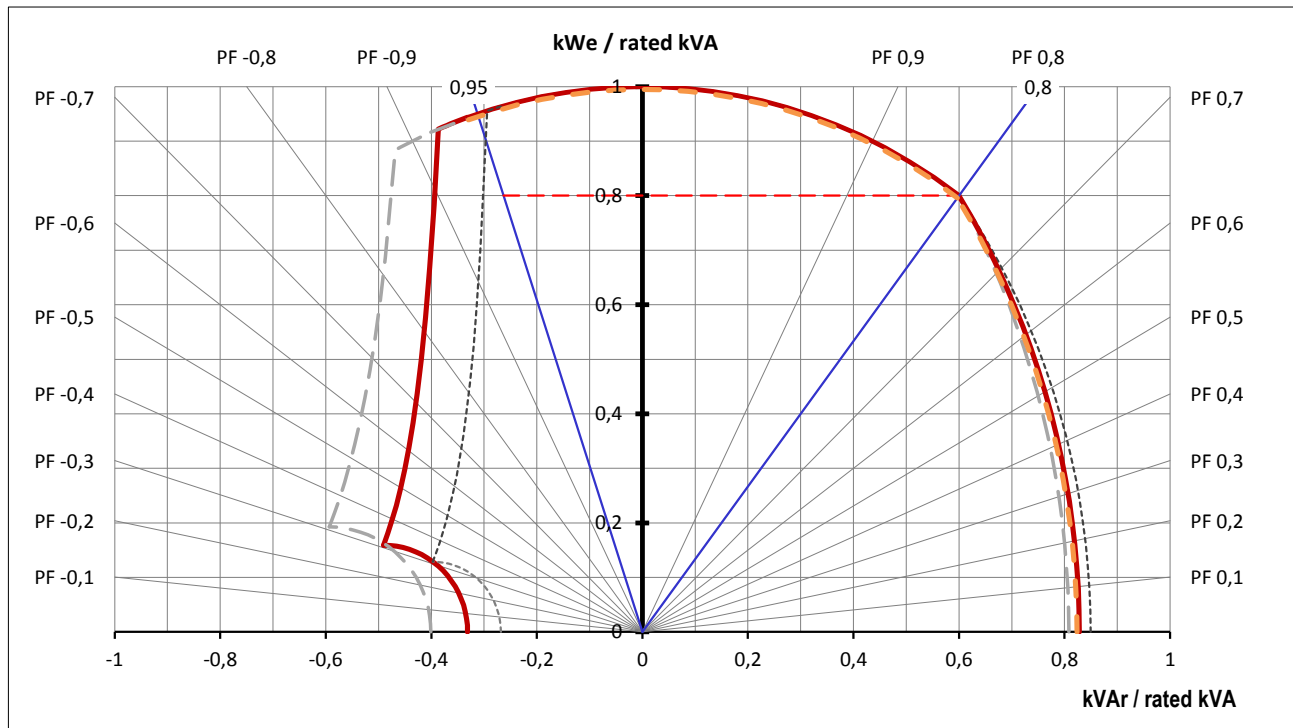
Date : 24.11.2014

1307kVA - 690V - 50 Hz

V4.02 - 11/2014

### Capability Curve

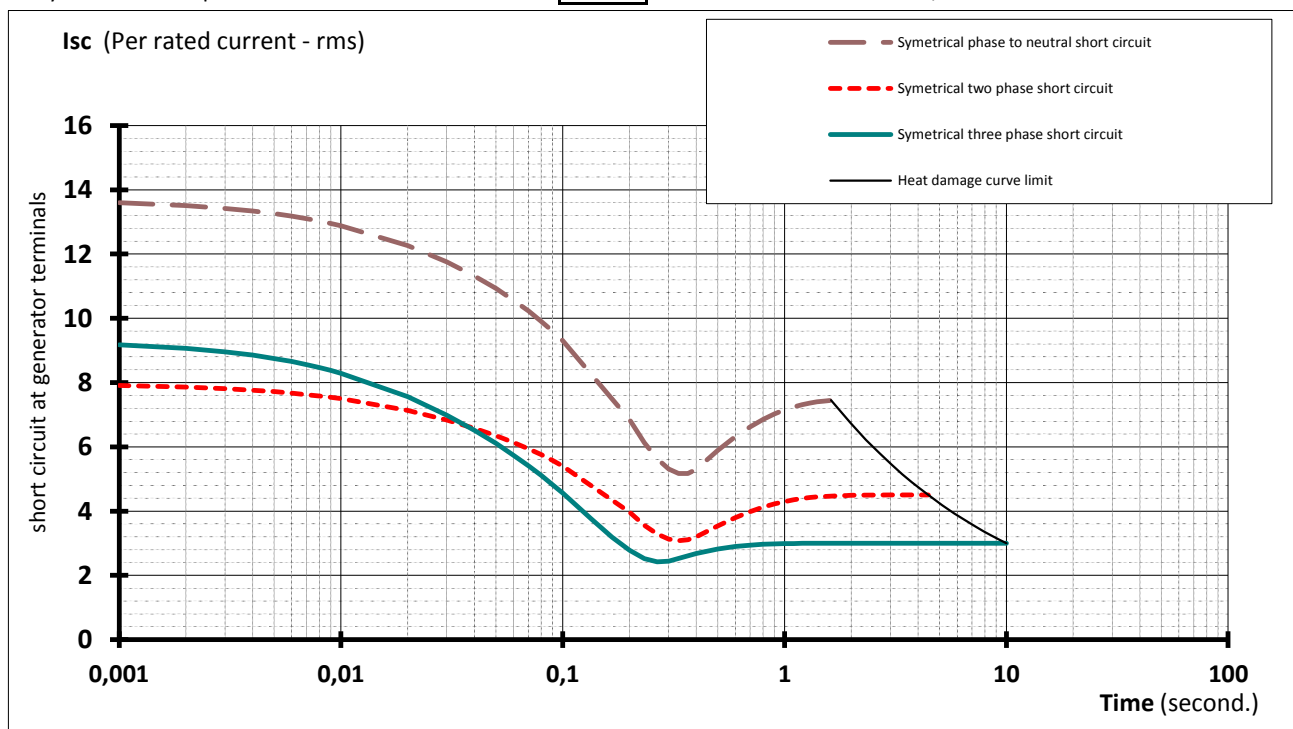
—	Umax + 10%	759	V
—	Un	690	V
- - -	Umin - 10%	621	V
- - -	Thermal Limit		



### Stator Current decrement curves

symmetrical phase to neutral short circuit  
symmetrical two phase short circuit  
symmetrical three phase short circuit

initial	14 872	A	13,6 x In	
max	8 658	A	7,9 x In	In = 1094 A
value	10 040	A	9,2 x In	

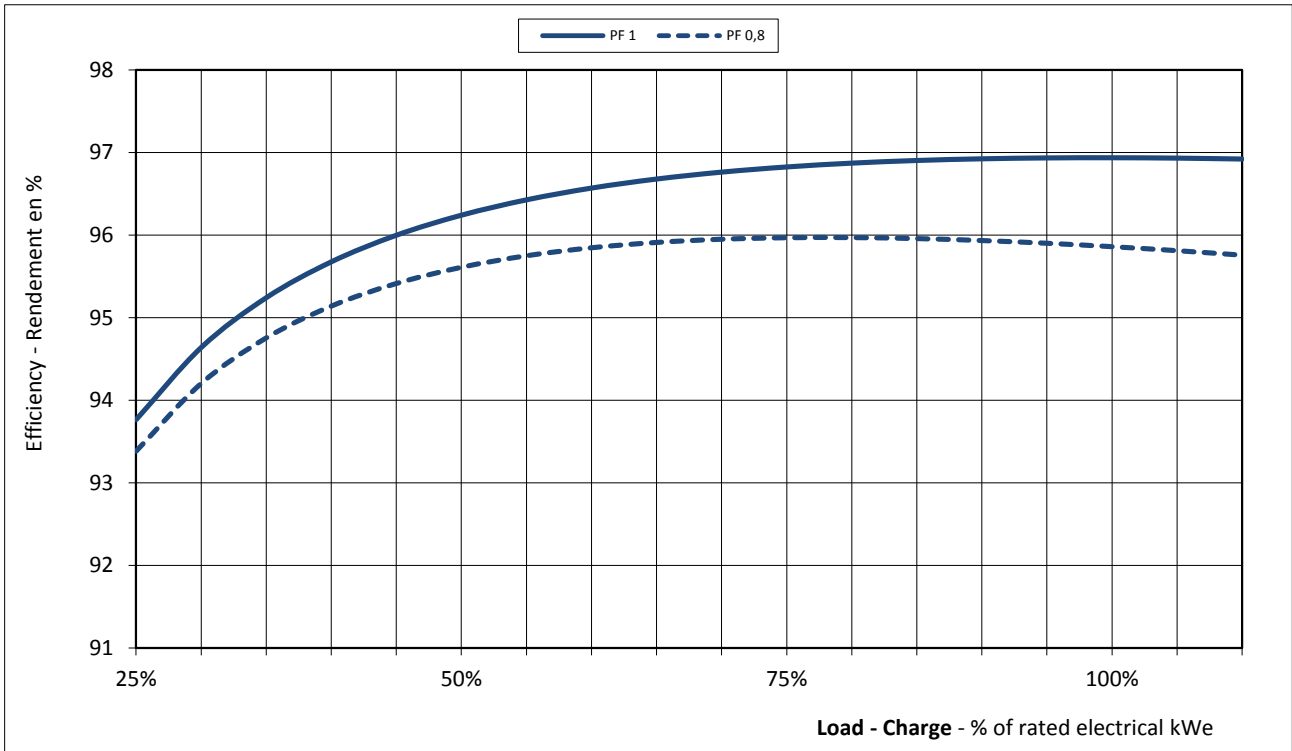


Date : 24.11.2014

1307kVA - 690V - 50 Hz

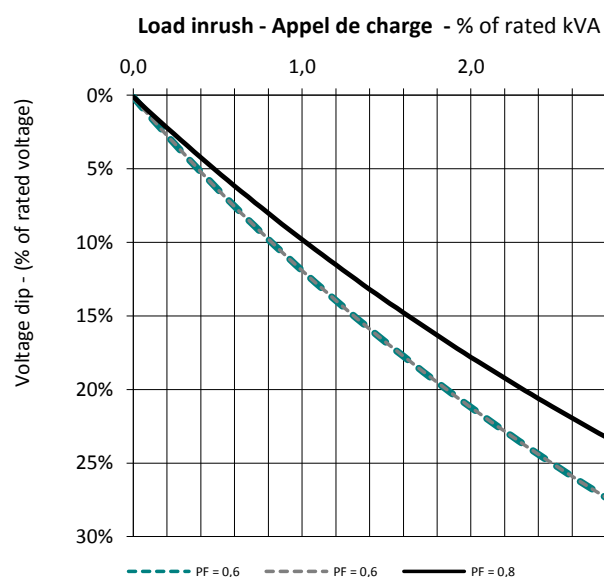
V4.02 - 11/2014

### Efficiency Curves

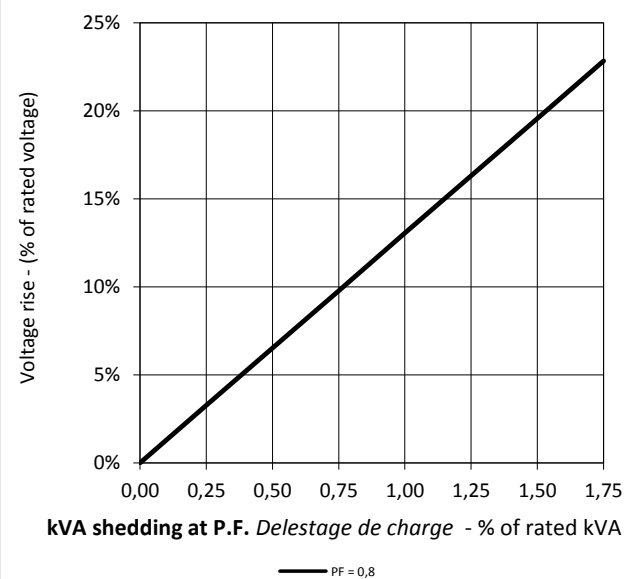


### Transient Voltage Variation

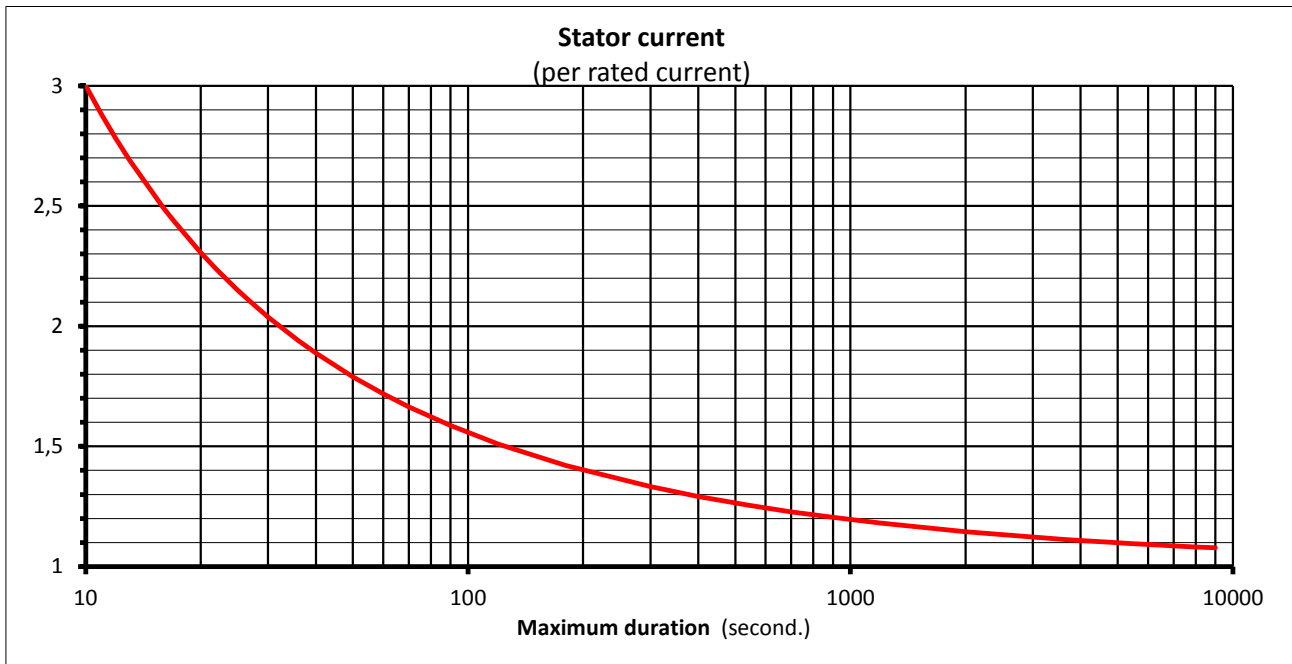
#### Transient voltage dip curve versus load impact



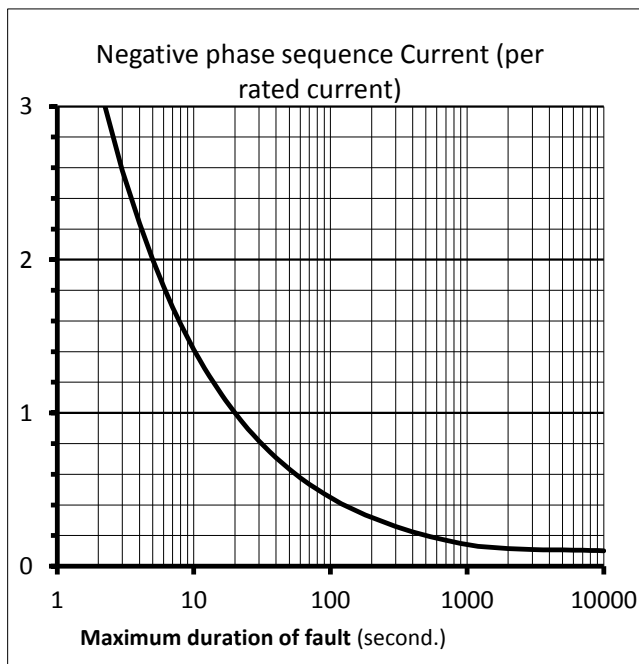
#### Transient voltage rise curve versus load rejection



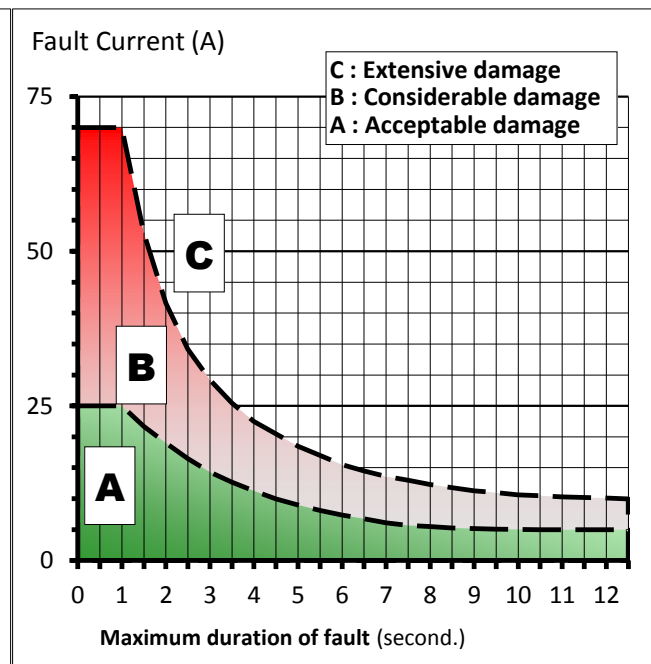
### Thermal Damage Curve



### Unbalance Load Curve



### Stator Earth Fault Current



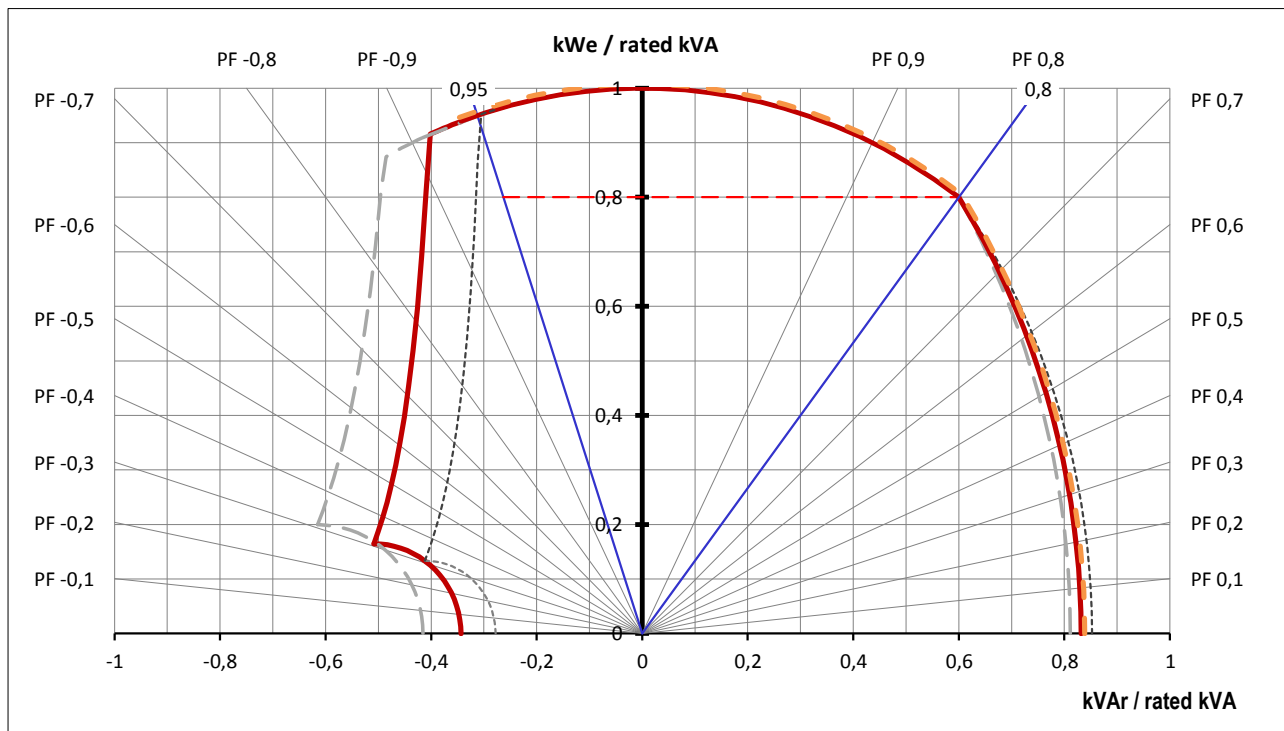
Date : 20.11.2014

1720kVA - 400V - 50 Hz

V4.02 - 11/2014

### Capability Curve

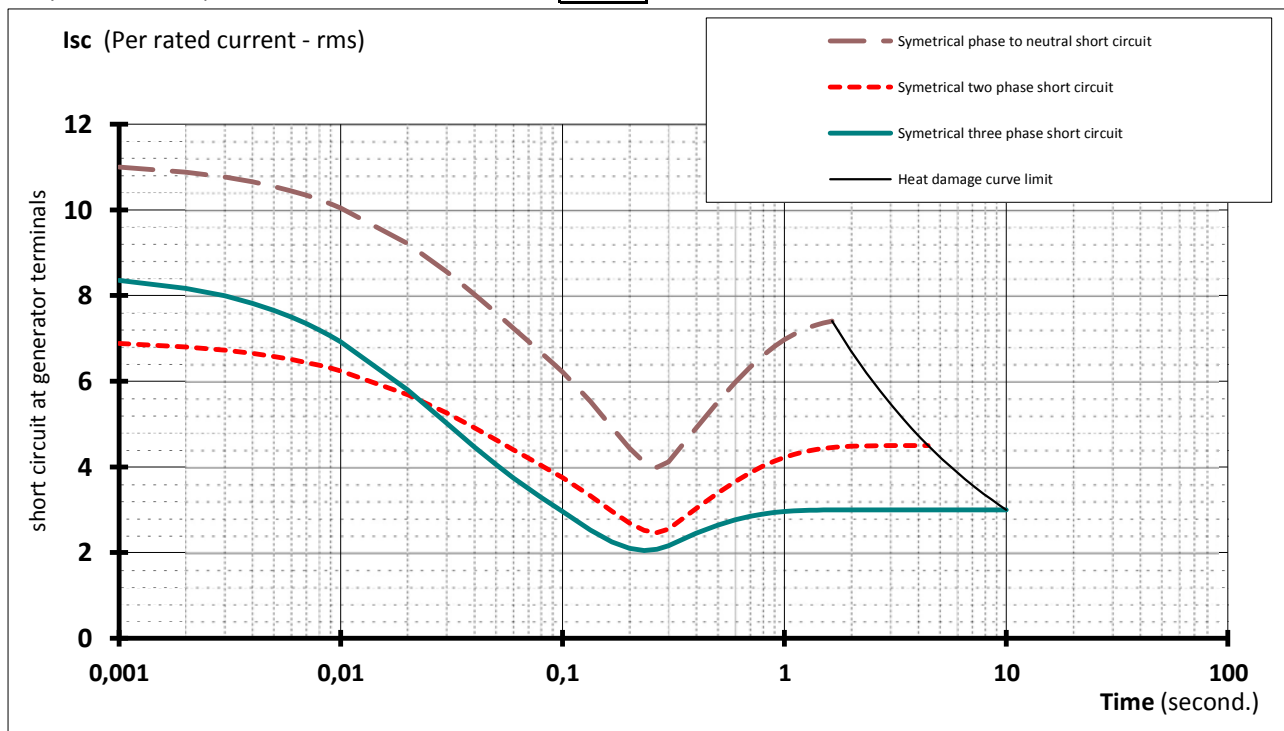
—	Umax + 10%	440	V
—	Un	400	V
- - -	Umin - 10%	360	V
- - -	Thermal Limit		



### Stator Current decrement curves

symmetrical phase to neutral short circuit  
symmetrical two phase short circuit  
symmetrical three phase short circuit

initial	27 304	A	11 x In	
max	17 078	A	6,9 x In	In = 2483 A
value	20 748	A	8,4 x In	



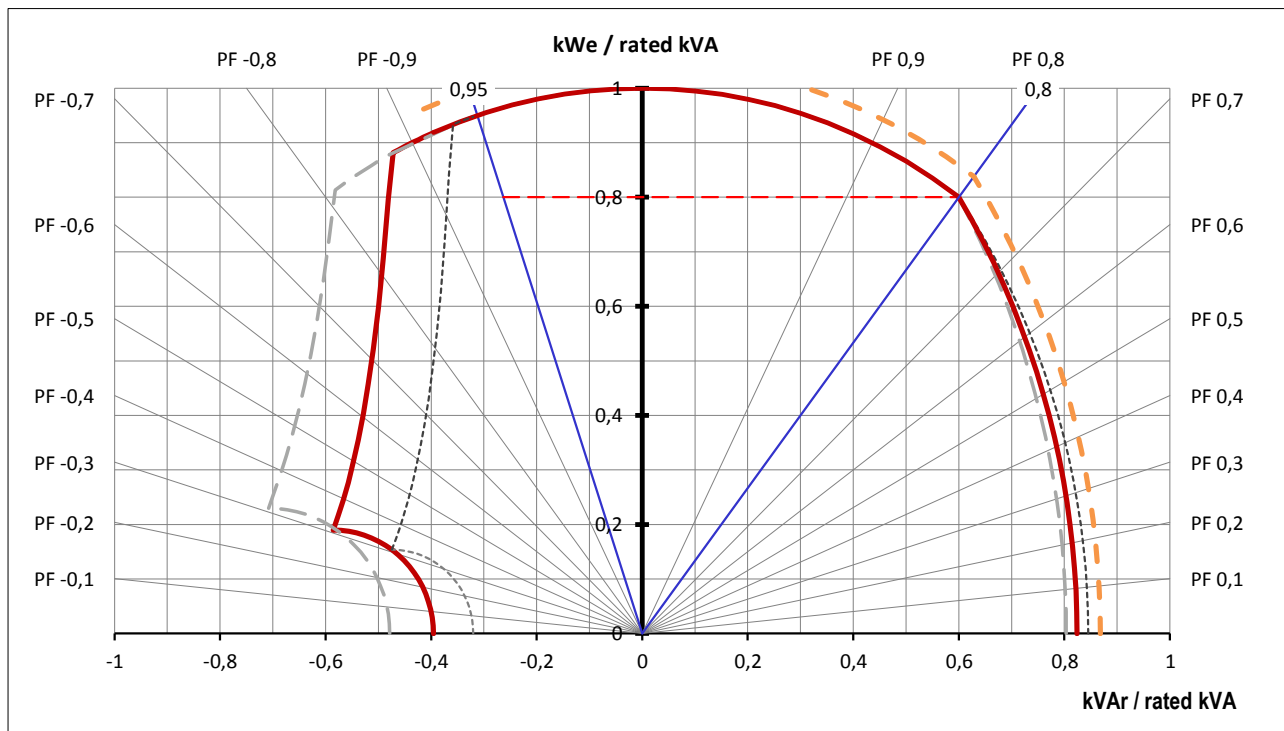
Date : 21.11.2014

1720kVA - 415V - 50 Hz

V4.02 - 11/2014

### Capability Curve

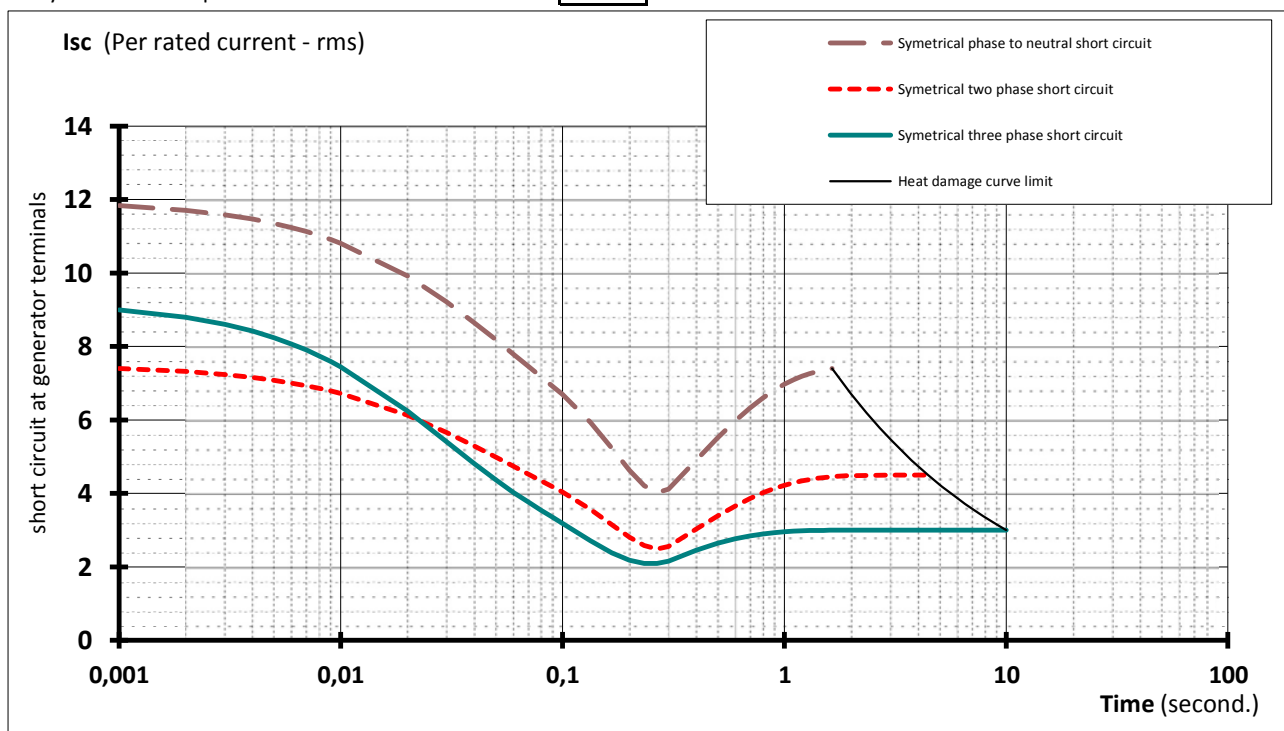
—	Umax + 10%	457	V
—	Un	415	V
- - -	Umin - 10%	374	V
- - -	Thermal Limit		



### Stator Current decrement curves

symetrical phase to neutral short circuit  
symetrical two phase short circuit  
symetrical three phase short circuit

initial	29 390	A	11,8 x In	
max	18 383	A	7,4 x In	In = 2483 A
value	22 334	A	9 x In	





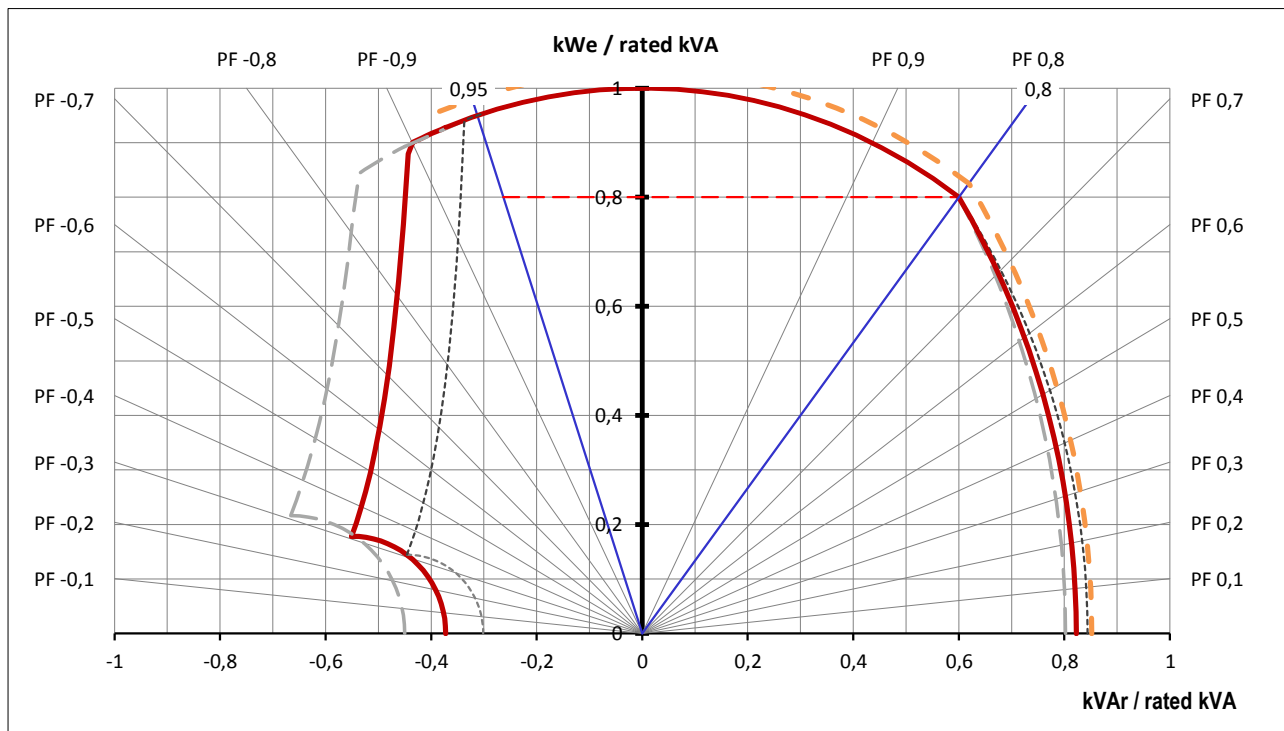
Date : 24.11.2014

1594kVA - 690V - 50 Hz

V4.02 - 11/2014

### Capability Curve

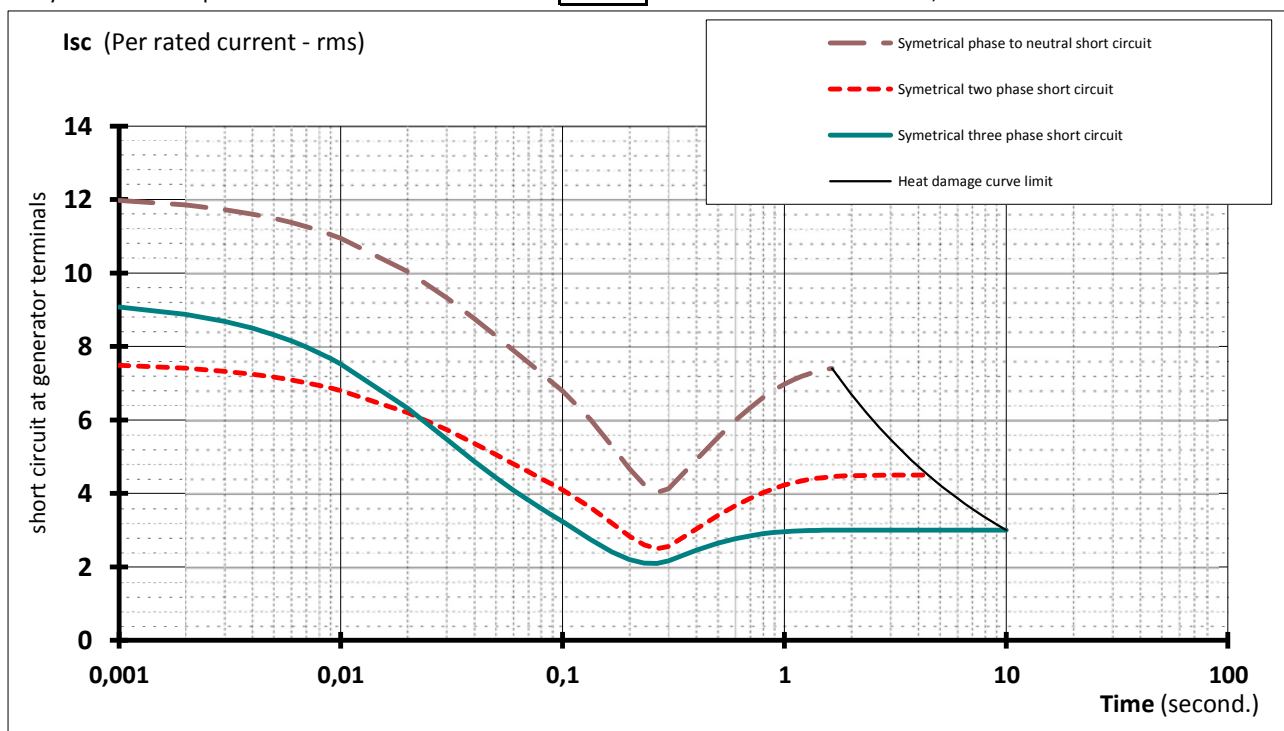
—	Umax + 10%	759	V
—	Un	690	V
- - -	Umin - 10%	621	V
- - -	Thermal Limit		



### Stator Current decrement curves

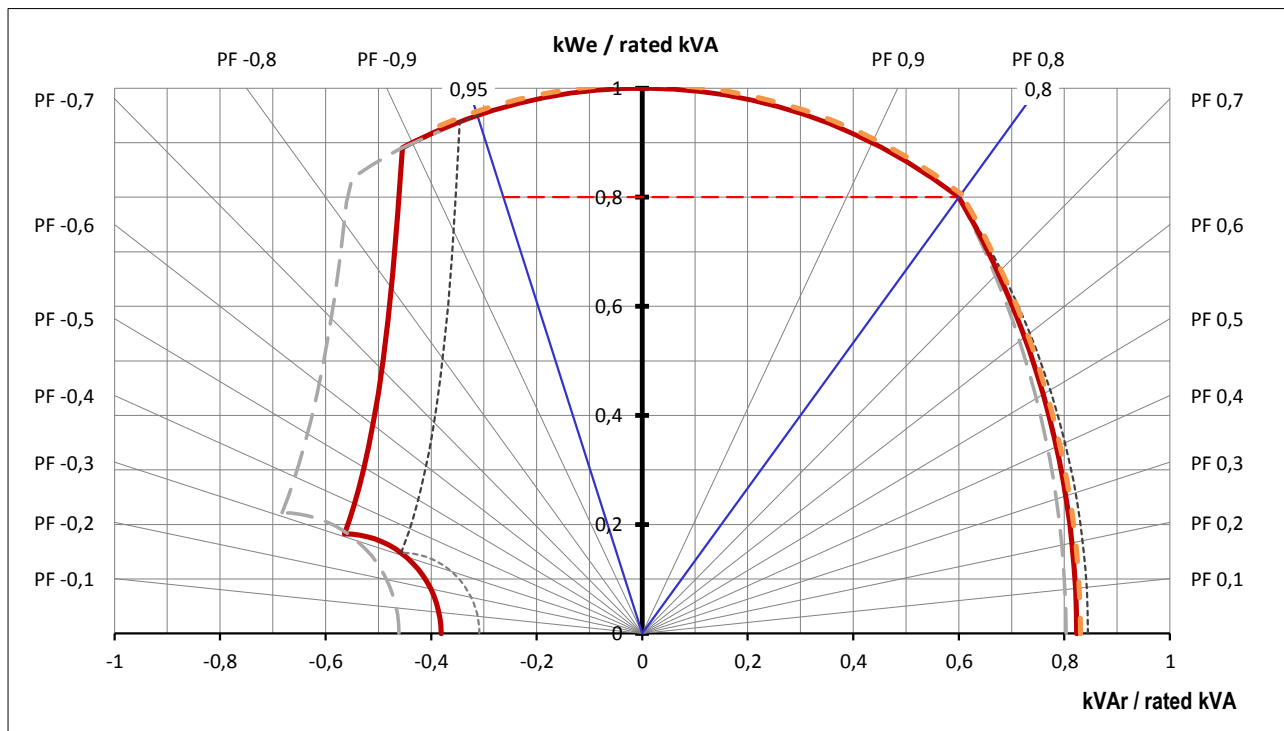
symetrical phase to neutral short circuit  
symetrical two phase short circuit  
symetrical three phase short circuit

initial	15 978	A	12 x In	
max	9 993	A	7,5 x In	In = 1334 A
value	12 110	A	9,1 x In	



### Capability Curve

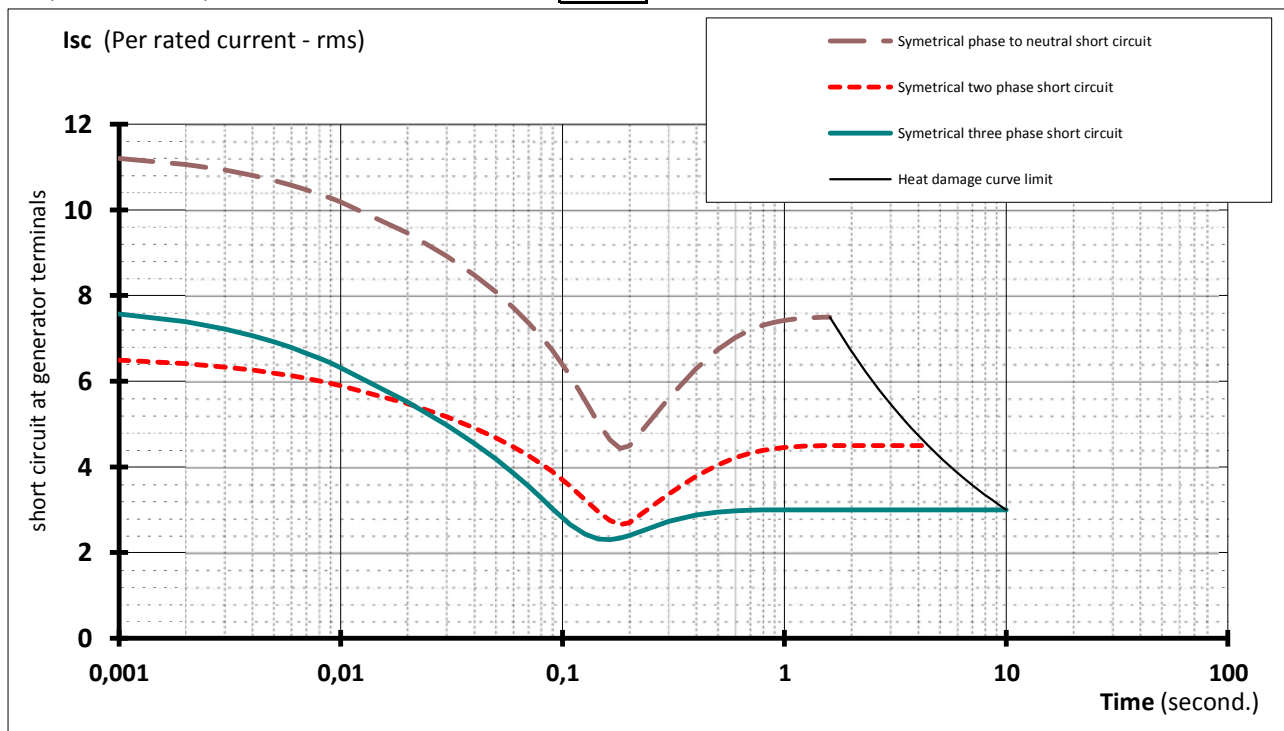
—	Umax + 10%	440	V
—	Un	400	V
- - -	Umin - 10%	360	V
- - -	Thermal Limit		



### Stator Current decrement curves

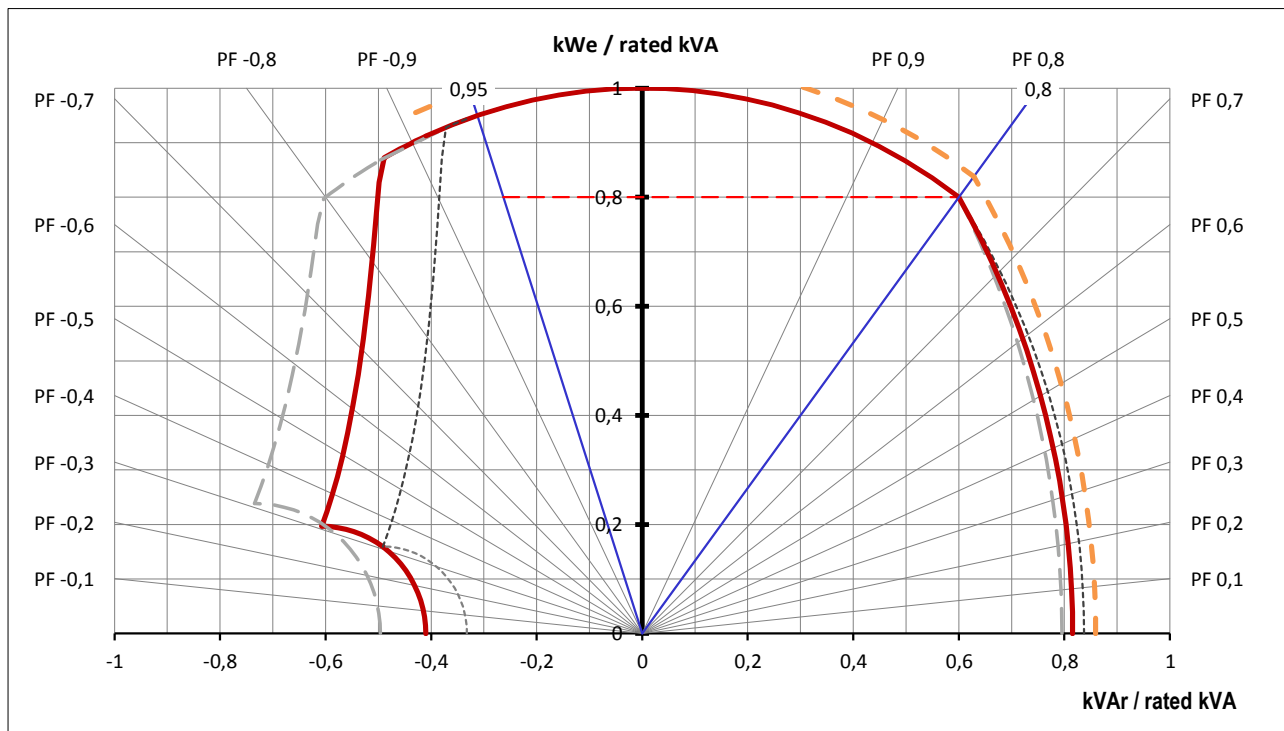
symetrical phase to neutral short circuit  
symetrical two phase short circuit  
symetrical three phase short circuit

initial	12 691	A	11,2 x In	
max	7 354	A	6,5 x In	In = 1133 A
value	8 575	A	7,6 x In	



### Capability Curve

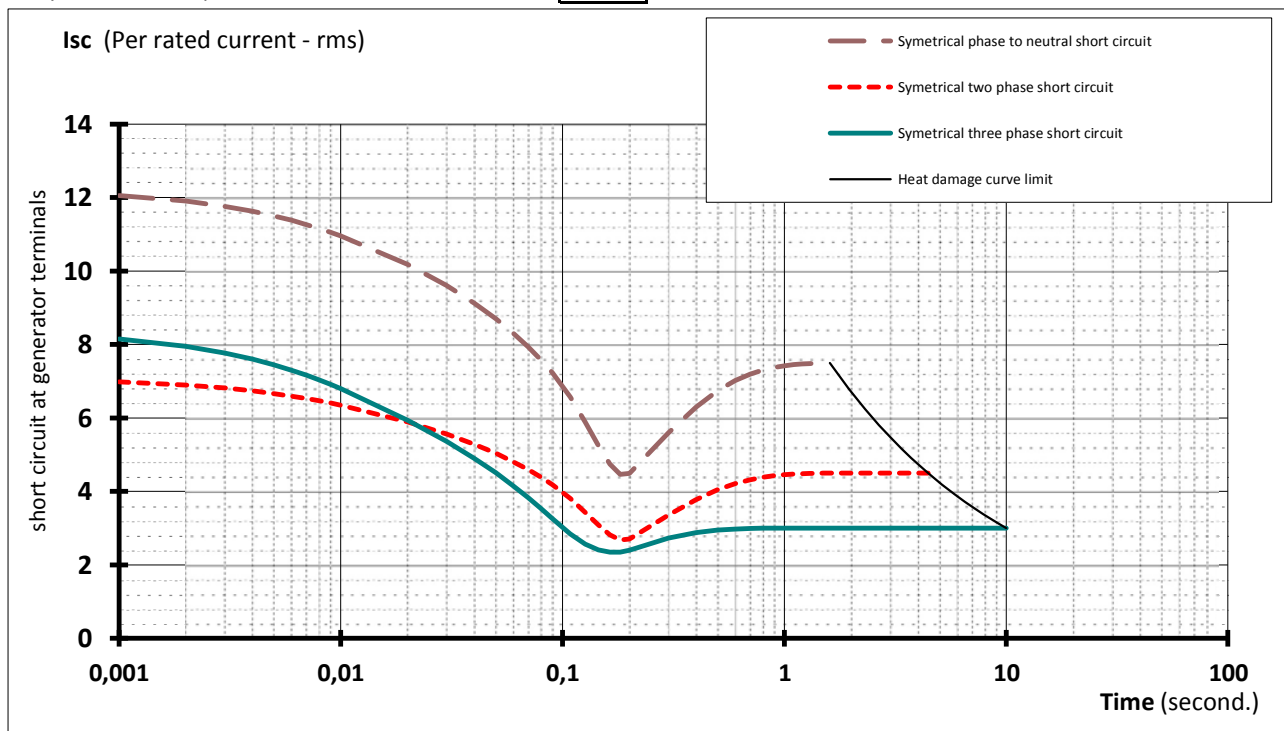
—	Umax + 10%	457	V
—	Un	415	V
- - -	Umin - 10%	374	V
- - -	Thermal Limit		



### Stator Current decrement curves

symetrical phase to neutral short circuit  
symetrical two phase short circuit  
symetrical three phase short circuit

initial	13 661	A	12,1 x In	
max	7 916	A	7 x In	In = 1133 A
value	9 230	A	8,1 x In	



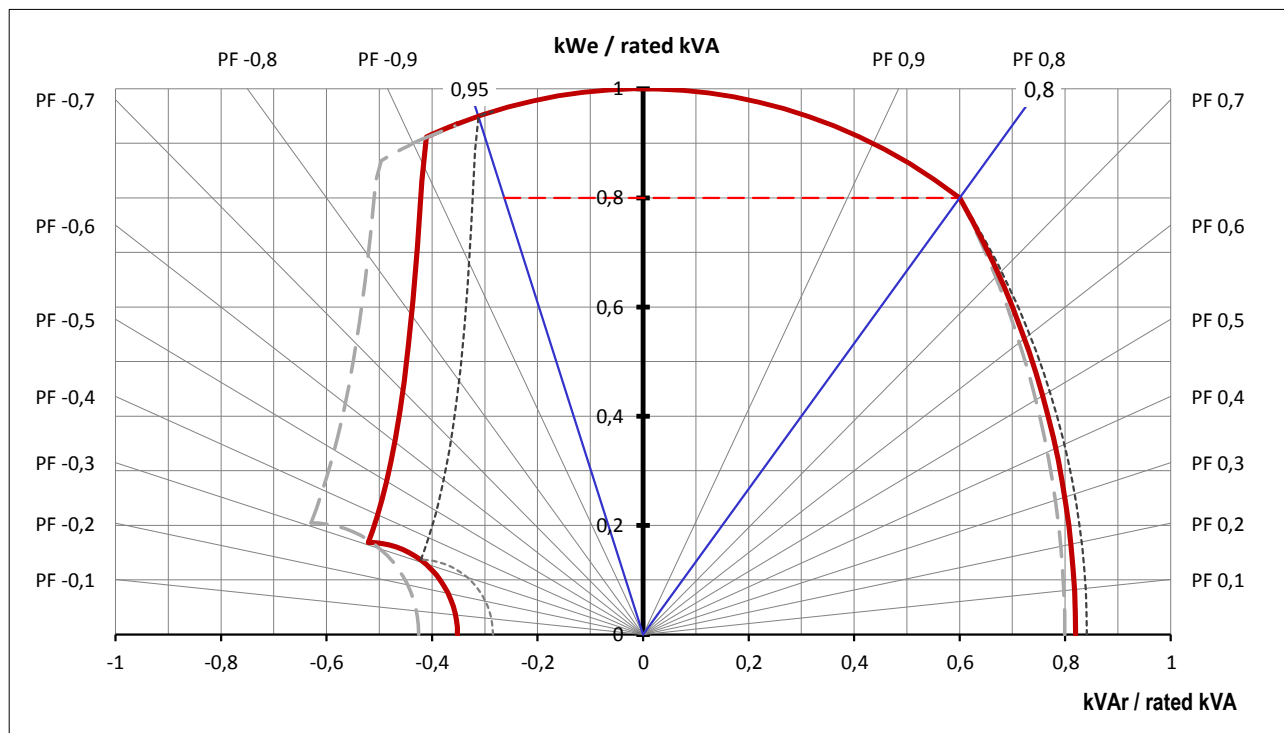
Date : 12.11.2015

697kVA - 690V - 50 Hz

V4.04a- 10/2015

### Capability Curve

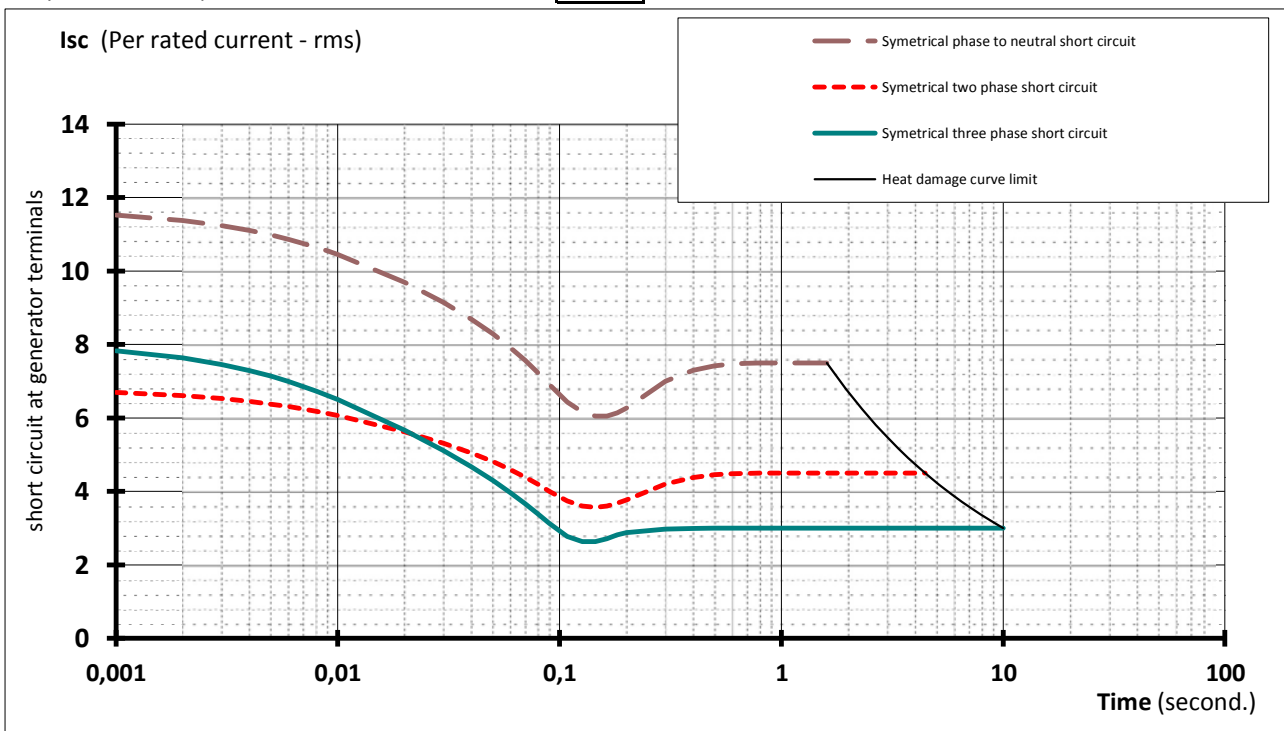
---	Umax + 10%	759	V
---	Un	690	V
---	Umin - 10%	621	V



### Stator Current decrement curves

symetrical phase to neutral short circuit  
symetrical two phase short circuit  
symetrical three phase short circuit

initial	6 720	A	11,5 x In	In = 583 A
max	3 903	A	6,7 x In	
value	4 565	A	7,8 x In	



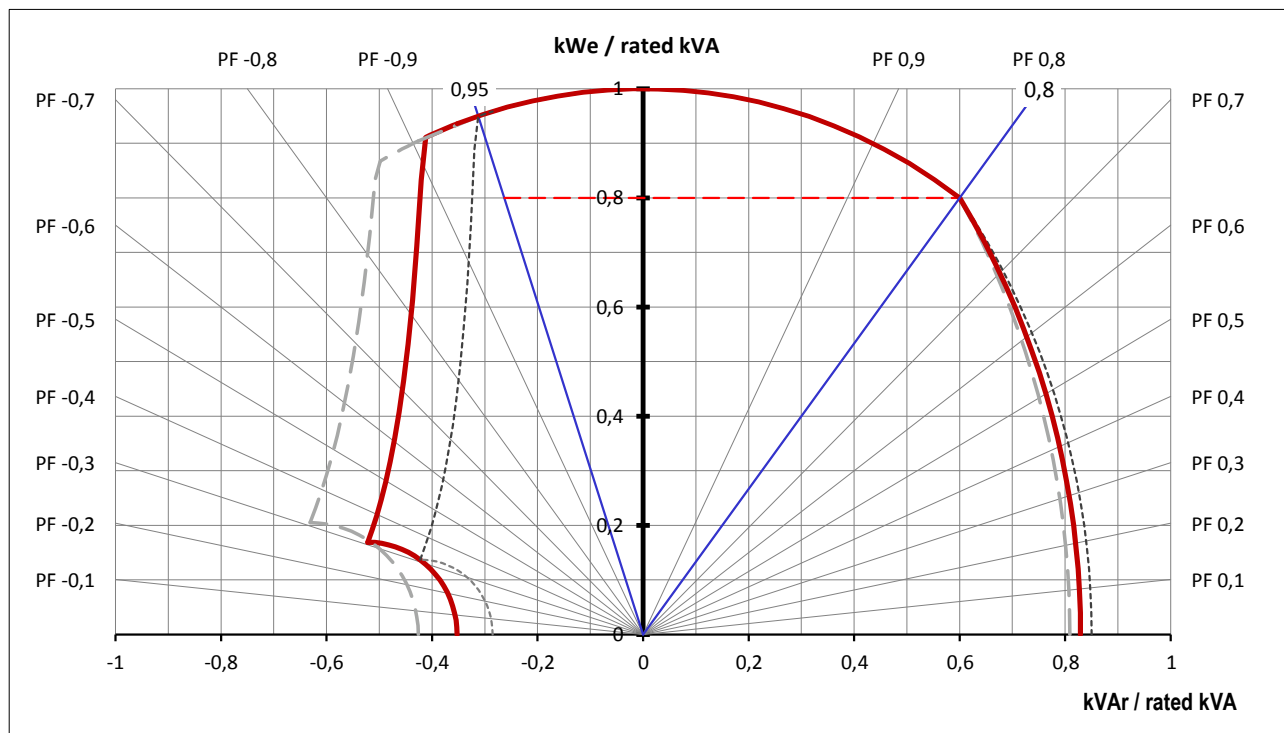
Date : 28.01.2016

830kVA - 400V - 50 Hz

V4.04c- 12/2015

### Capability Curve

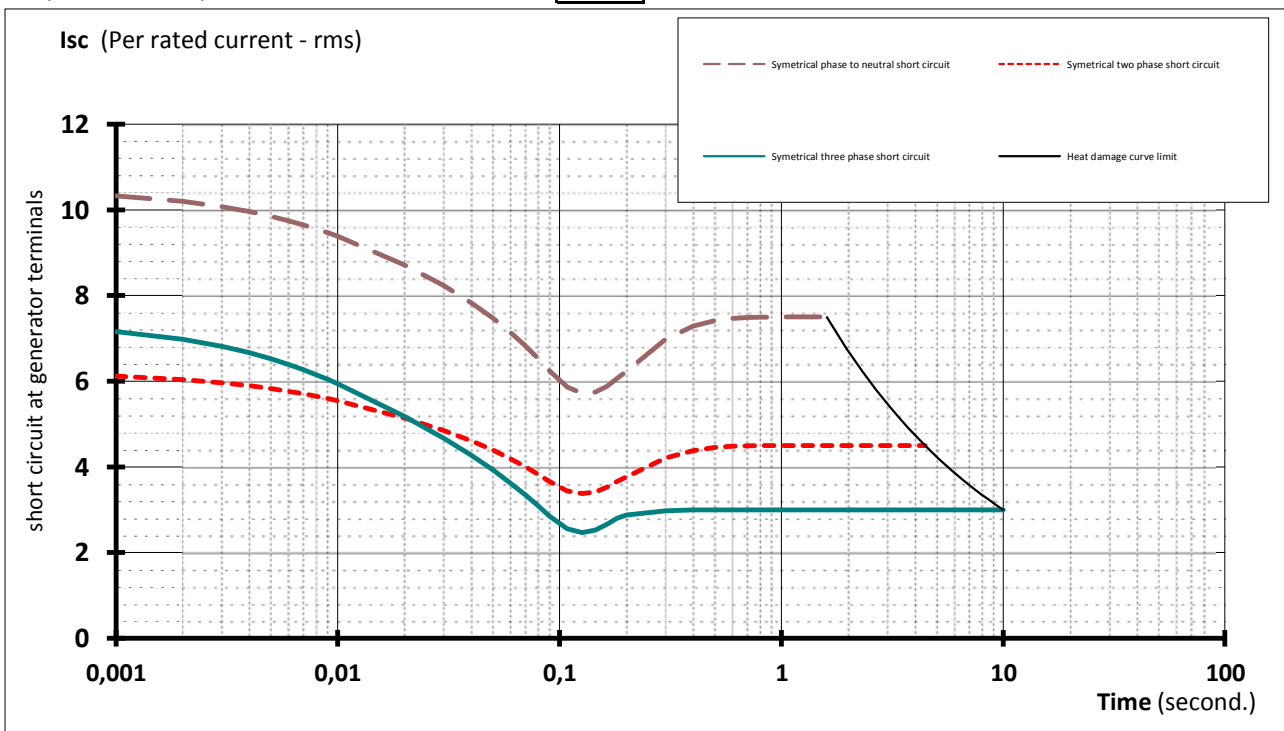
---	Umax	+ 10%	440	V
---	Un		<b>400</b>	V
---	Umin	- 10%	360	V



### Stator Current decrement curves

symmetrical phase to neutral short circuit  
symmetrical two phase short circuit  
symmetrical three phase short circuit

initial	12 373	A	10,3 x In	
max	7 329	A	6,1 x In	In = <b>1198 A</b>
value	8 572	A	7,2 x In	





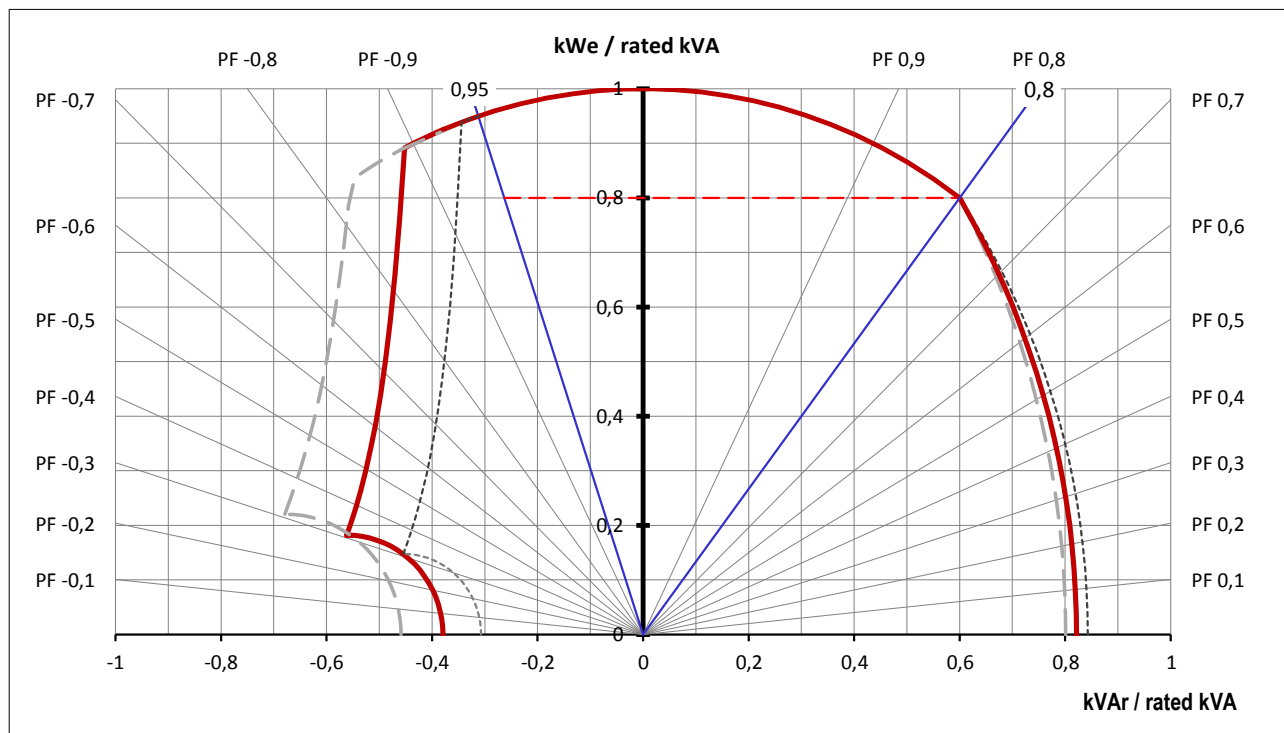
Date : 28.01.2016

830kVA - 415V - 50 Hz

V4.04c- 12/2015

### Capability Curve

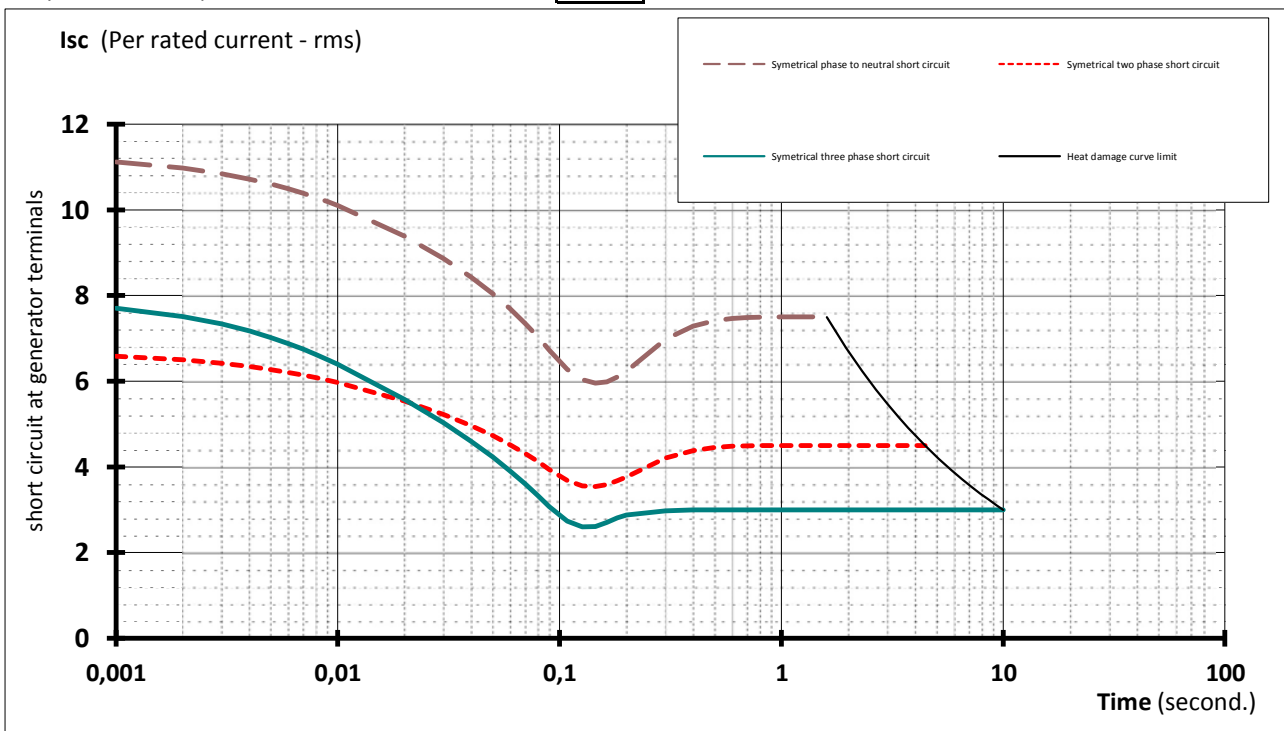
---	Umax	+ 10%	457	V
---	Un		<b>415</b>	V
---	Umin	- 10%	374	V



### Stator Current decrement curves

symmetrical phase to neutral short circuit  
symmetrical two phase short circuit  
symmetrical three phase short circuit

initial	12 840	A	11,1 x In	
max	7 606	A	6,6 x In	In = <b>1155 A</b>
value	8 896	A	7,7 x In	





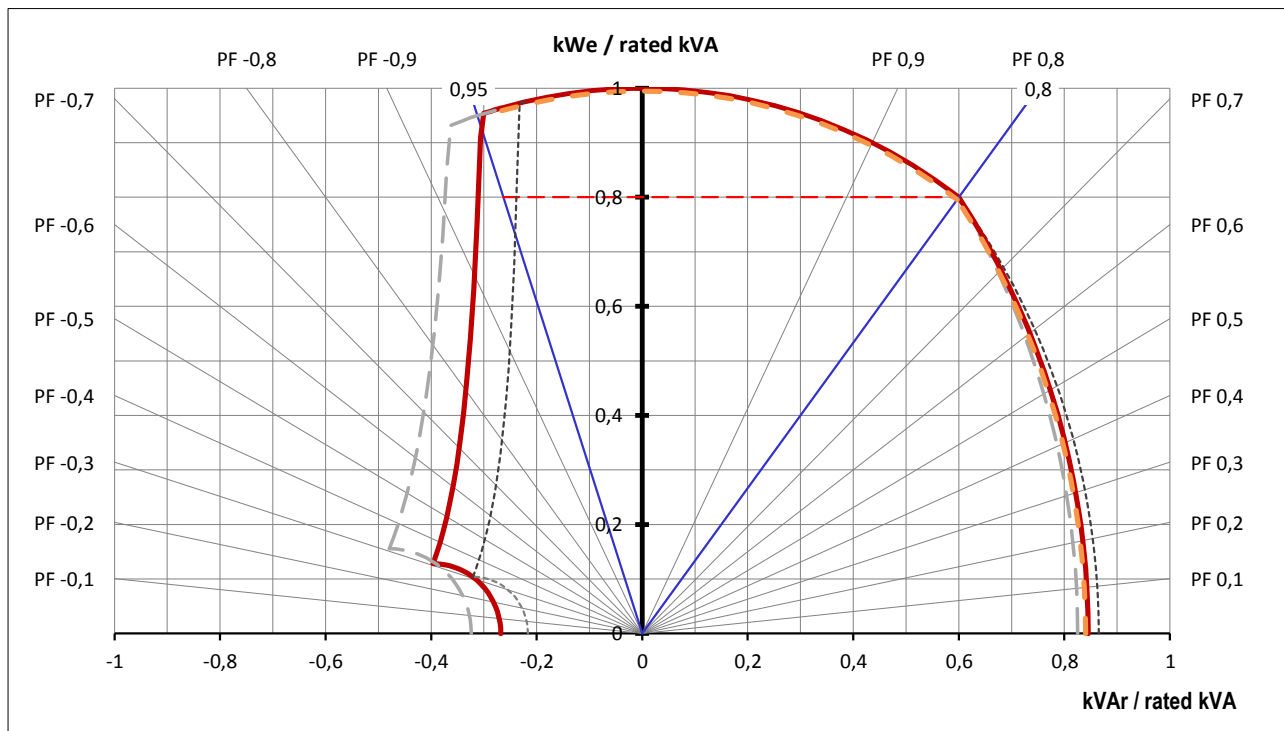
Date : 24.11.2014

959kVA - 690V - 50 Hz

V4.02 - 11/2014

### Capability Curve

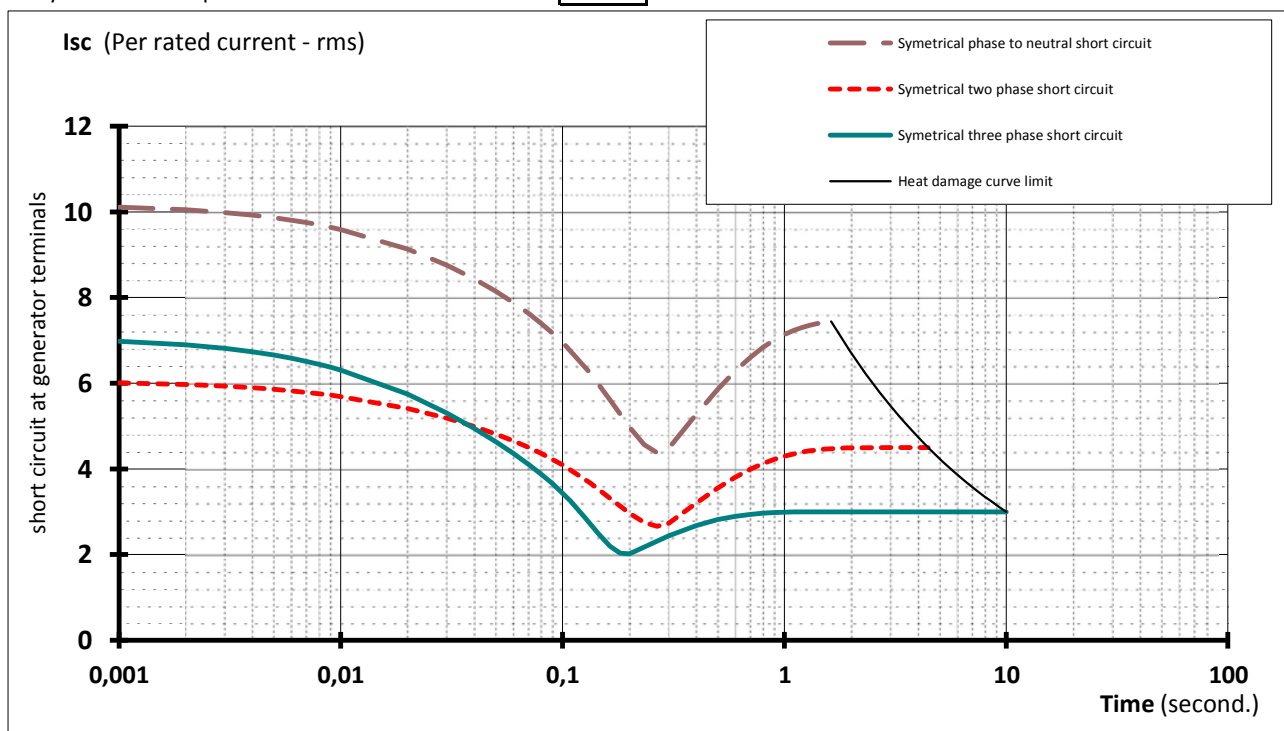
—	Umax + 10%	759	V
—	Un	690	V
- - -	Umin - 10%	621	V
- - -	Thermal Limit		



### Stator Current decrement curves

symetrical phase to neutral short circuit  
symetrical two phase short circuit  
symetrical three phase short circuit

initial	8 110	A	10,1 x In	
max	4 818	A	6 x In	In = 802 A
value	5 599	A	7 x In	



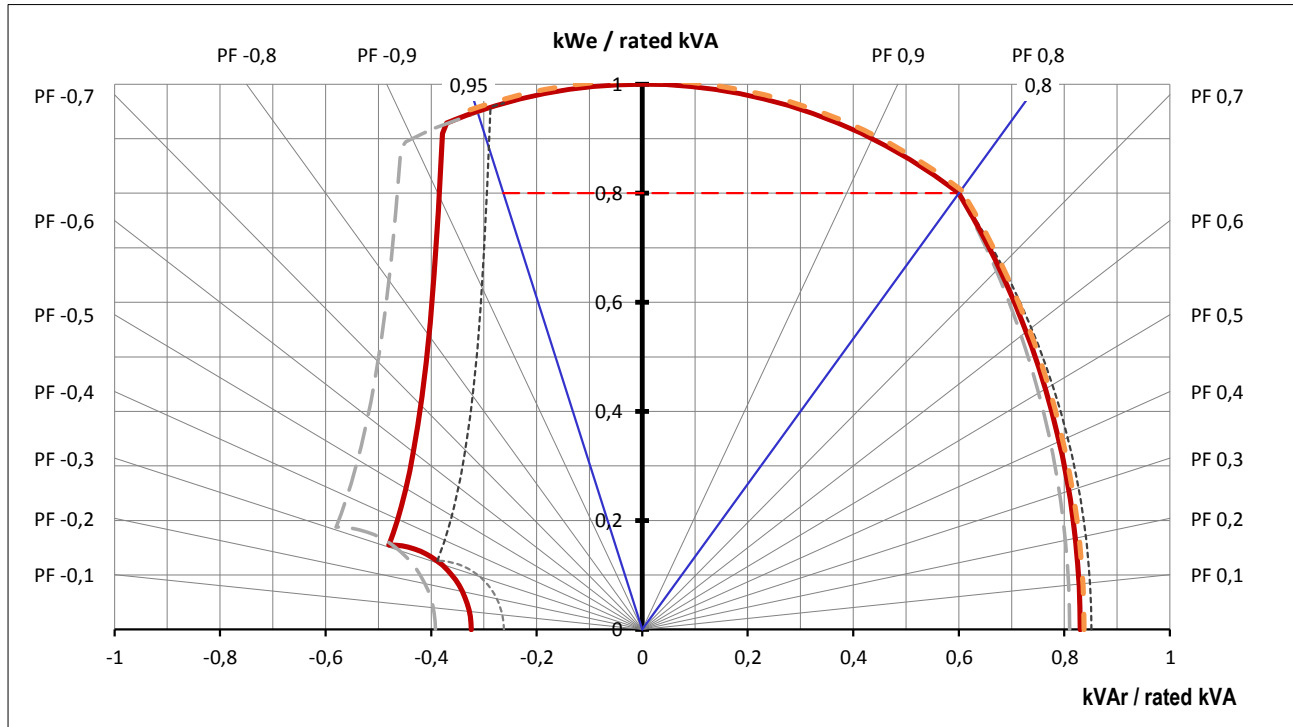
Date : 19.11.2014

1315kVA - 400V - 50 Hz

V4.02 - 11/2014

### Capability Curve

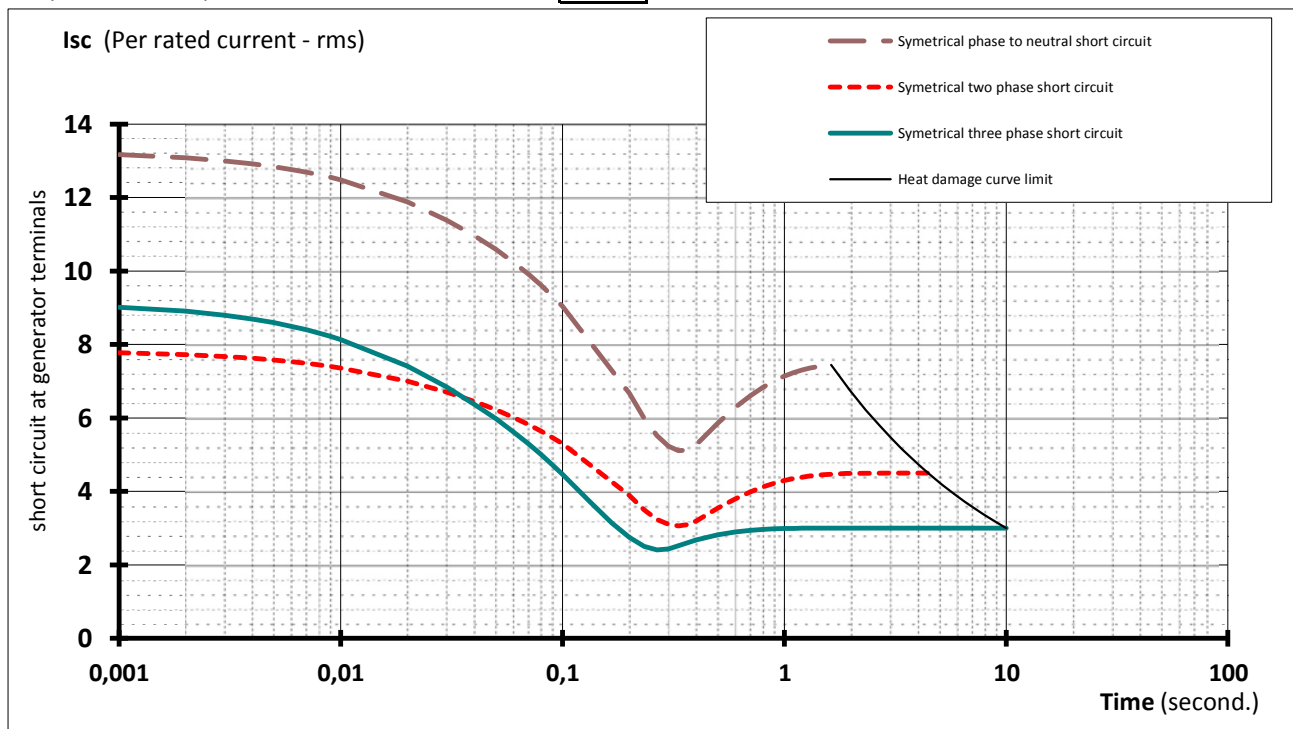
—	Umax	+ 10%	440	V
—	Un		<b>400</b>	V
- - -	Umin	- 10%	360	V
- - -	Thermal Limit			



### Stator Current decrement curves

symetrical phase to neutral short circuit  
symetrical two phase short circuit  
symetrical three phase short circuit

initial	24 997	A	13,2 x In	
max	14 759	A	7,8 x In	In = <b>1898 A</b>
value	17 114	A	9 x In	



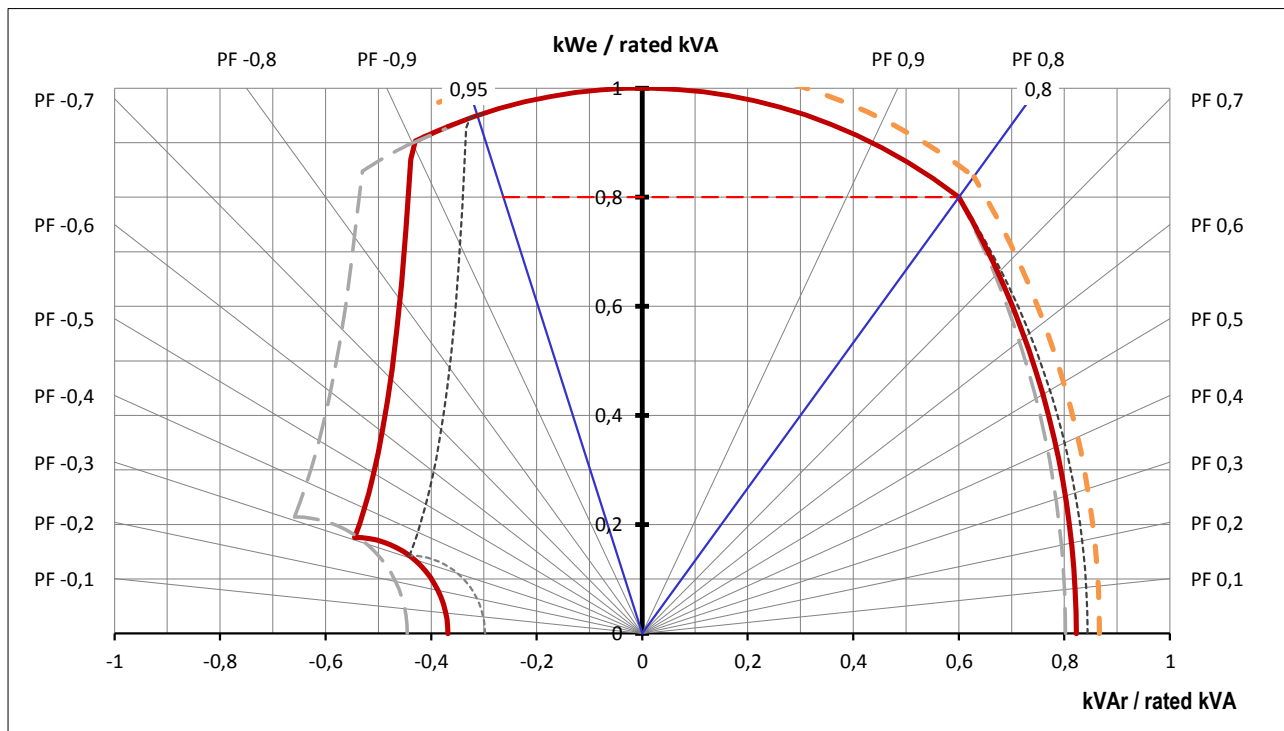
Date : 21.11.2014

1315kVA - 415V - 50 Hz

V4.02 - 11/2014

### Capability Curve

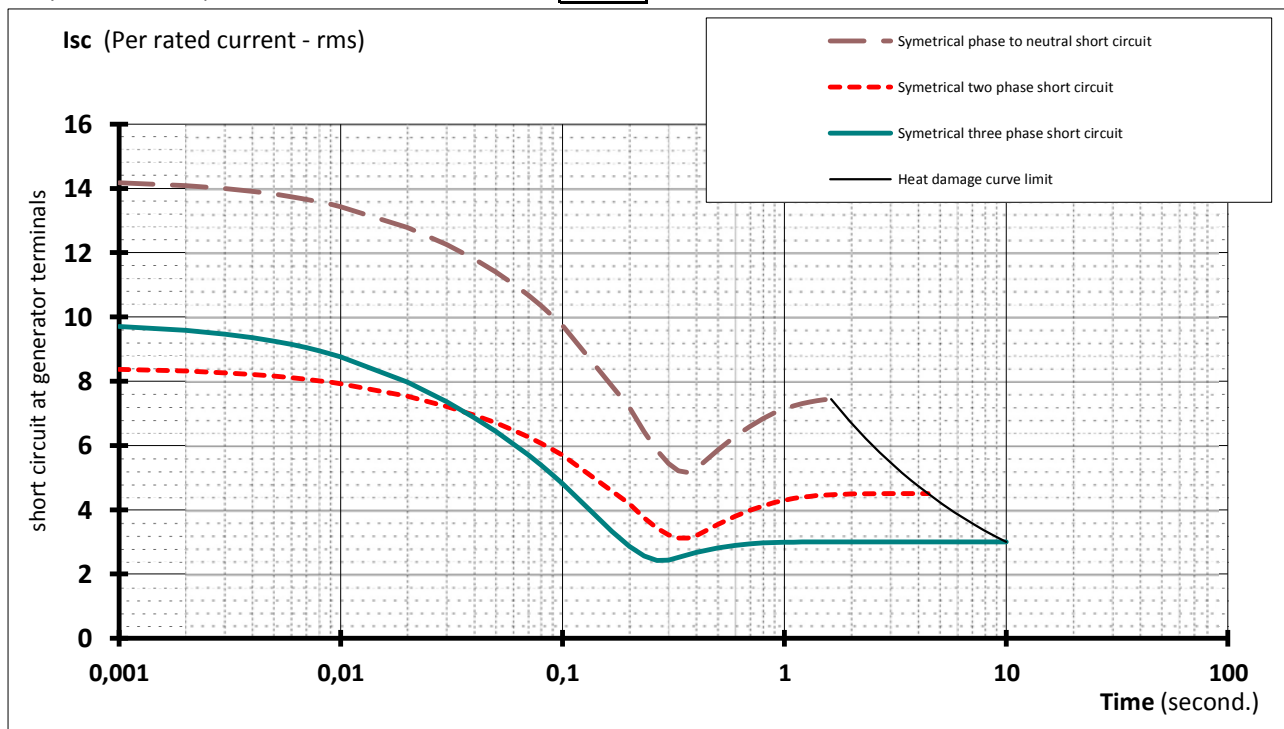
—	Umax + 10%	457	V
—	Un	415	V
- - -	Umin - 10%	374	V
- - -	Thermal Limit		



### Stator Current decrement curves

symetrical phase to neutral short circuit  
symetrical two phase short circuit  
symetrical three phase short circuit

initial	26 906	A	14,2 x In	In = <b>1898 A</b>
max	15 886	A	8,4 x In	
value	18 422	A	9,7 x In	



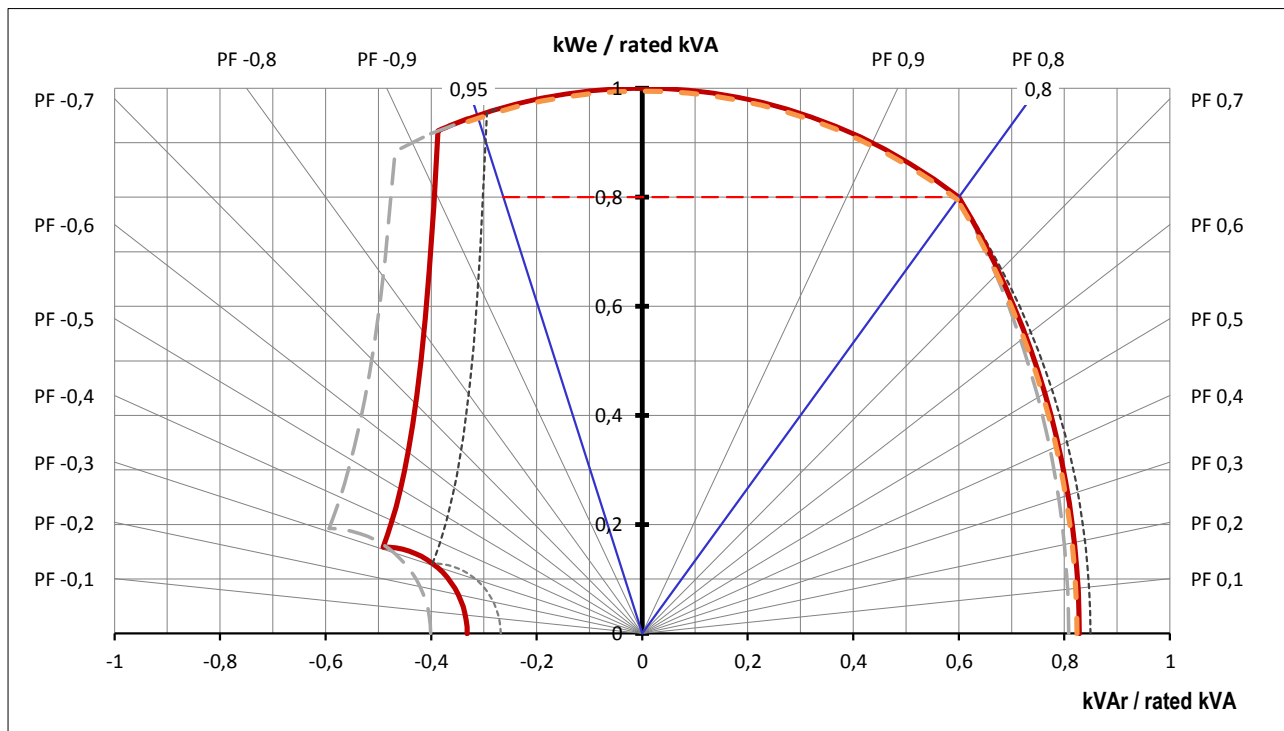
Date : 24.11.2014

1307kVA - 690V - 50 Hz

V4.02 - 11/2014

### Capability Curve

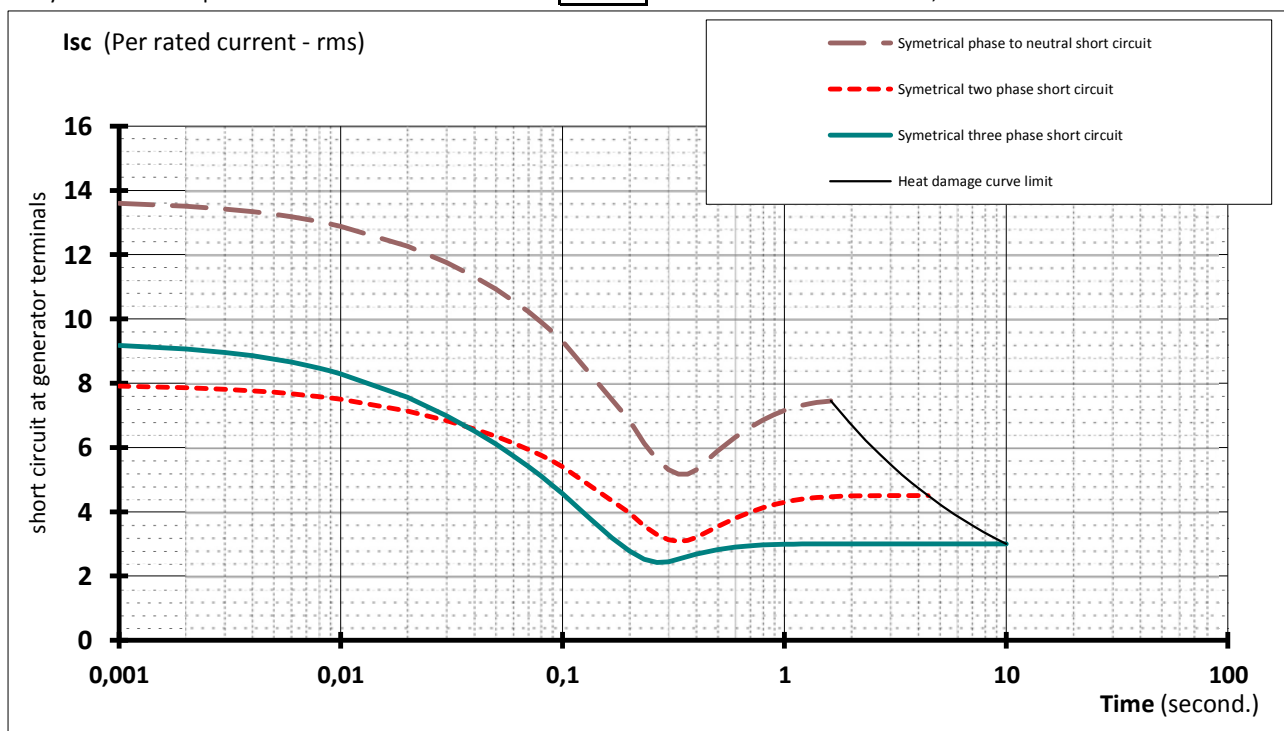
—	Umax + 10%	759	V
—	Un	690	V
- - -	Umin - 10%	621	V
- - -	Thermal Limit		



### Stator Current decrement curves

symetrical phase to neutral short circuit  
symetrical two phase short circuit  
symetrical three phase short circuit

initial	14 872	A	13,6 x In	
max	8 658	A	7,9 x In	In = 1094 A
value	10 040	A	9,2 x In	



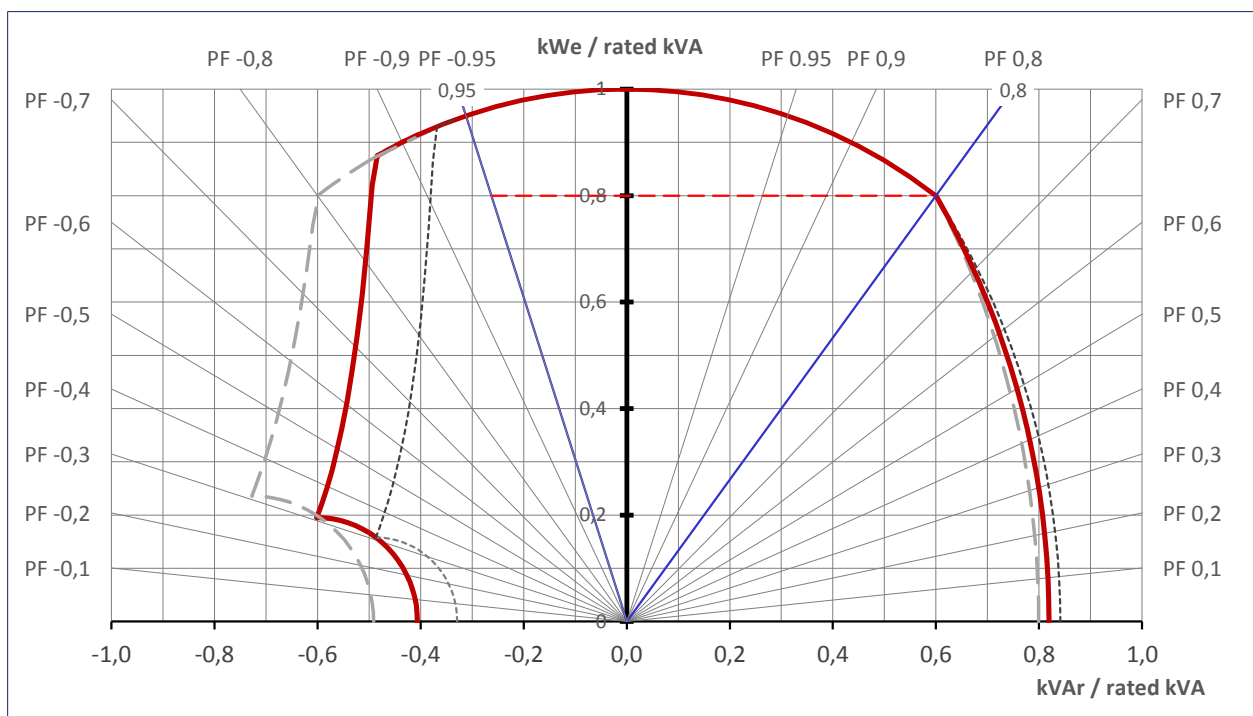
Date: 02.03.2017

1307kVA - 600V - 50 Hz

V4.05L - 02/2017

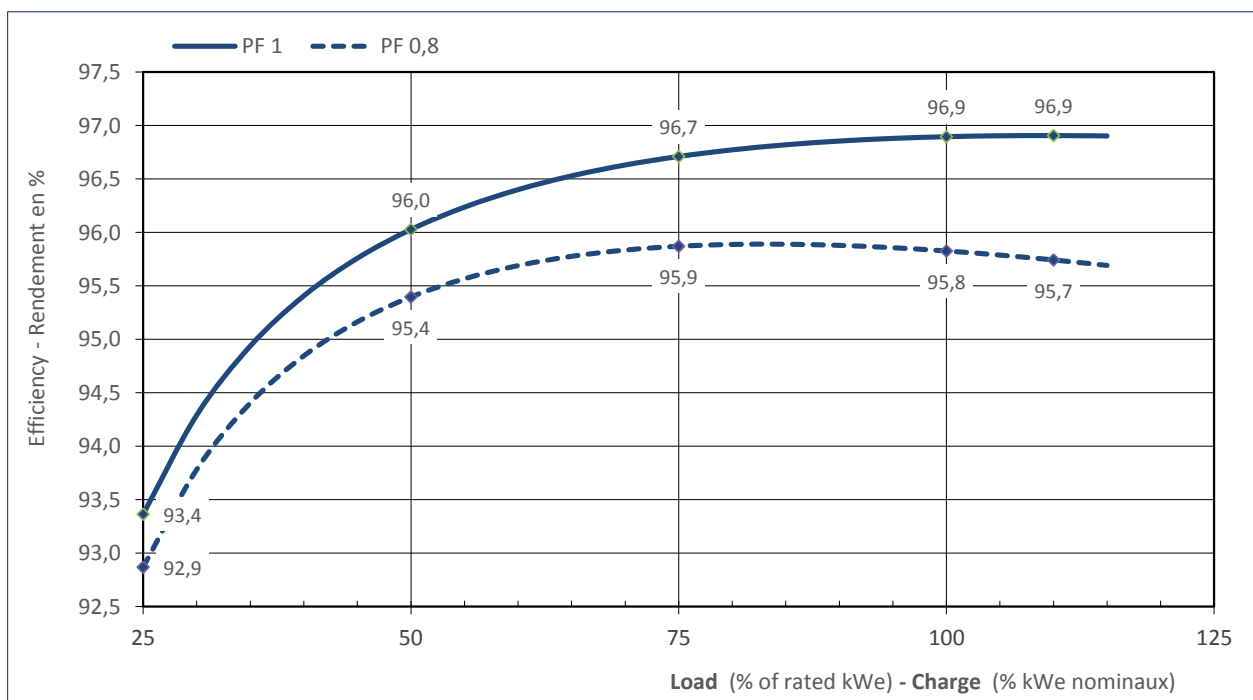
### Capability Curve

---	Umax	+ 10%	660	V
---	Un		<b>600</b>	V
---	Umin	- 10%	540	V



### Efficiency Curves

According to: IEC



Date: 02.03.2017

1307kVA - 600V - 50 Hz

V4.05L - 02/2017

### Stator Current decrement curves

Symmetrical phase to neutral short-circuit

Symmetrical two phase short-circuit

Symmetrical three phase short-circuit

Thermal Limit

initial  
max  
value

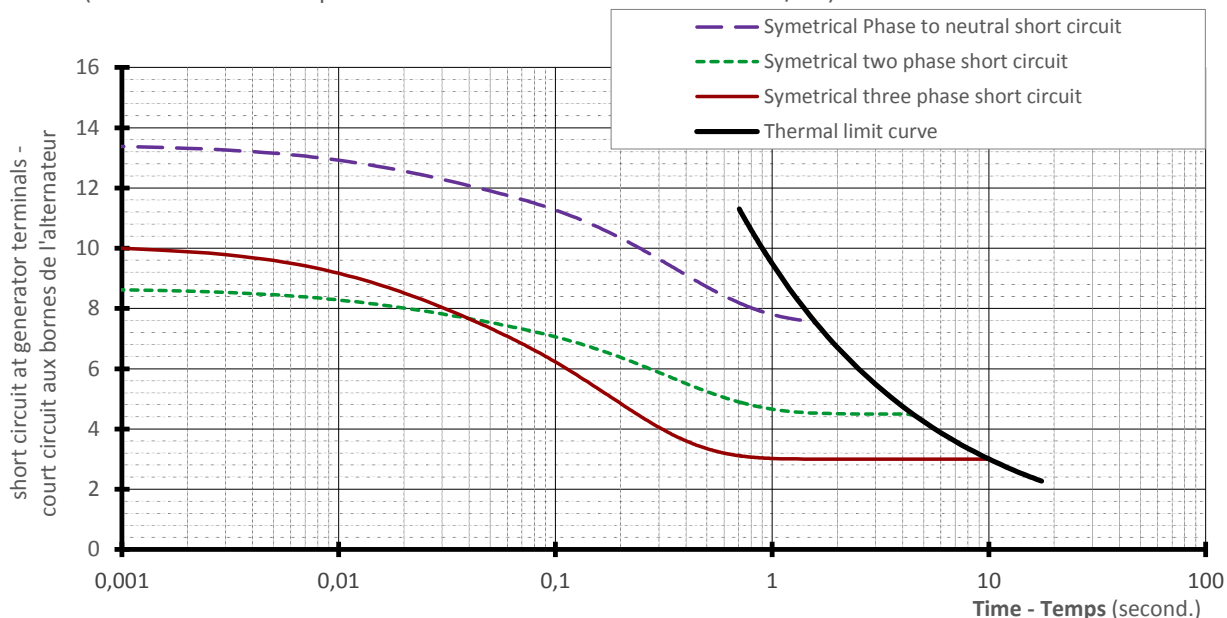
16 833 A 13,4 x  $I_n$

10 843 A 8,6 x  $I_n$

12 575 A 10 x  $I_n$

$I_n = 1258$  A

$I_{sc}$  ( Short circuit current per rated current - Courant de court circuit /  $I_n$  )



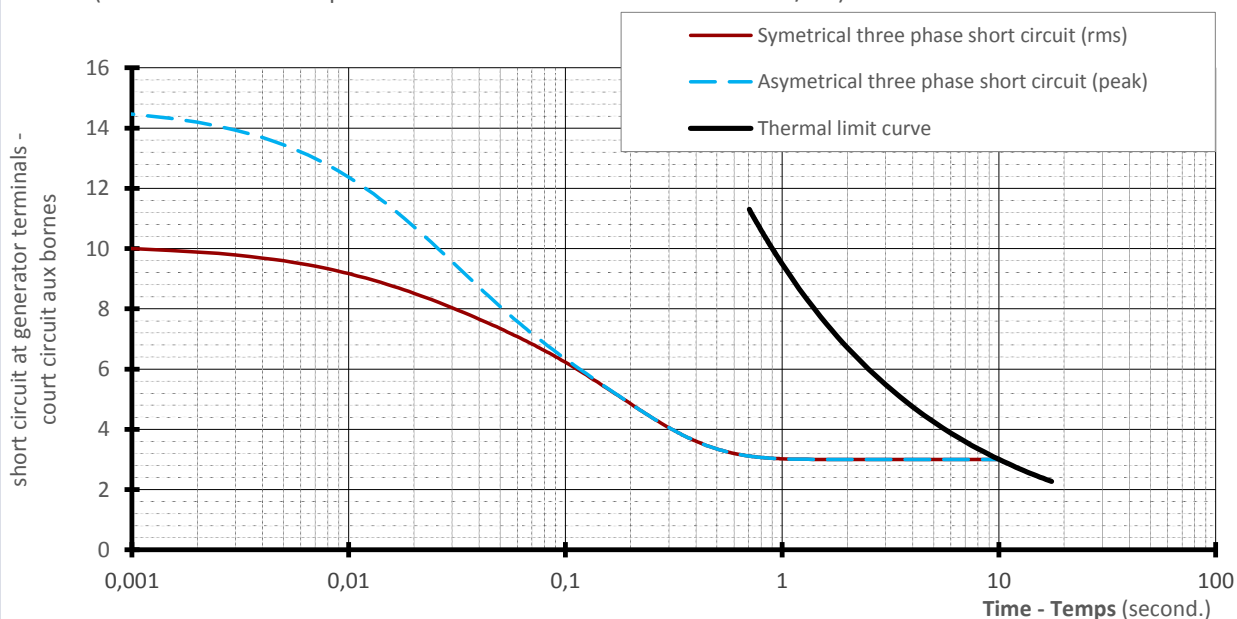
Asymmetrical three phase short-circuit

IP

17 975 A

14,3 x  $I_n$

$I_{sc}$  ( Short circuit current per rated current - Courant de court circuit /  $I_n$  )





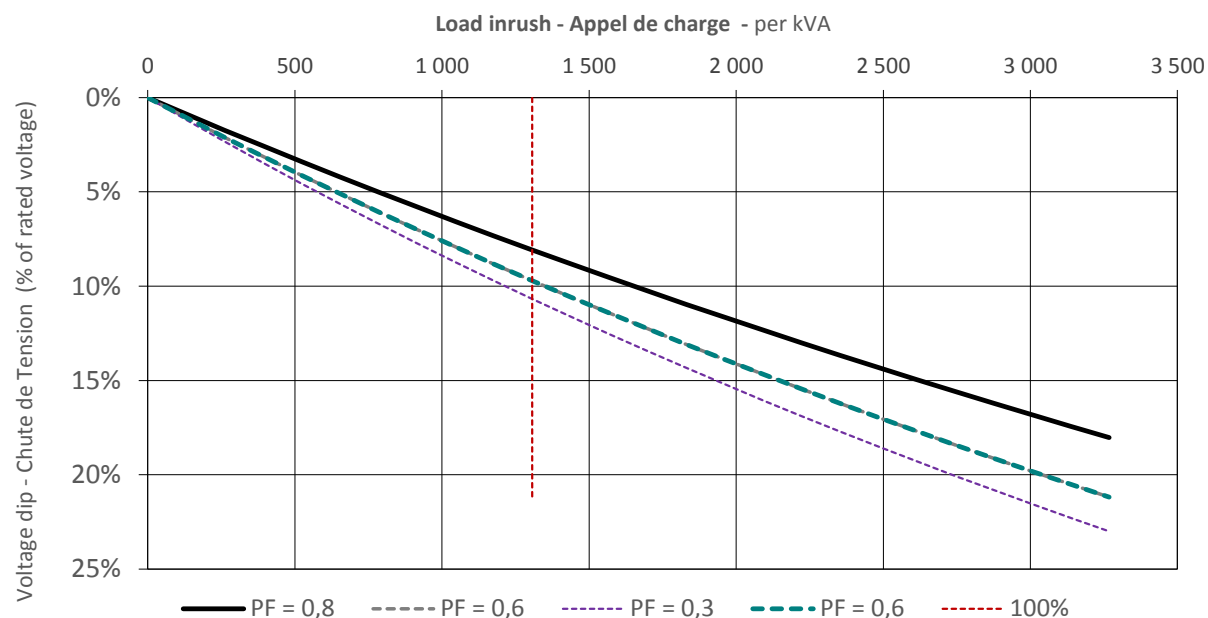
Date: 02.03.2017

1307kVA - 600V - 50 Hz

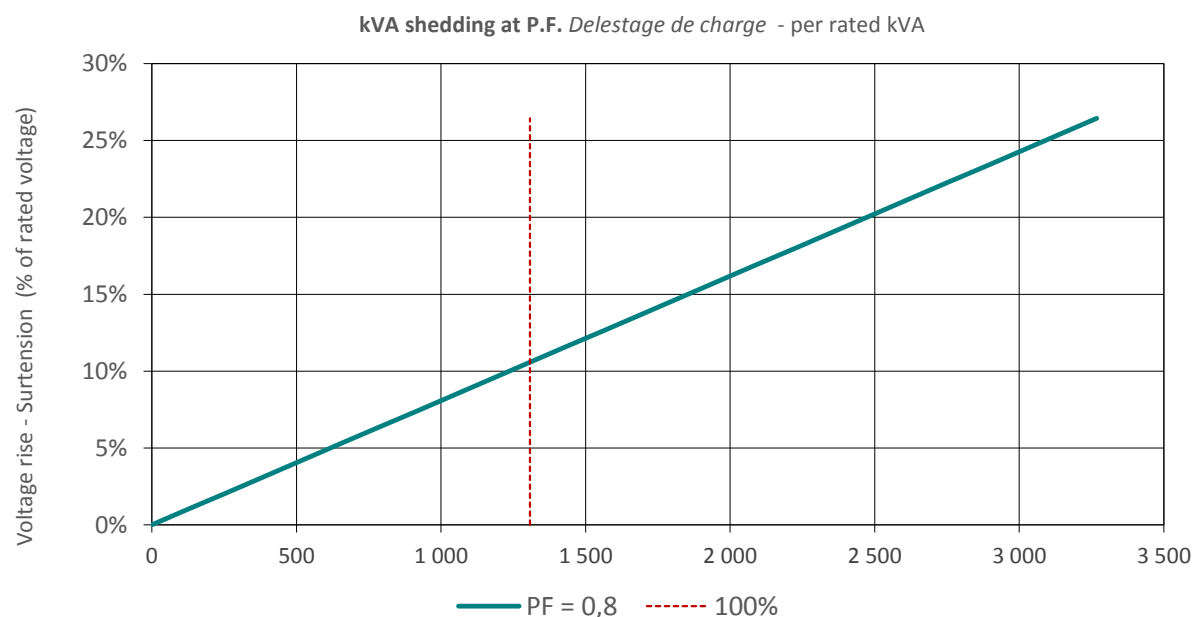
V4.05L - 02/2017

### Transient Voltage Variation

#### Transient voltage dip curve versus load impact



#### Transient voltage rise curve versus load rejection



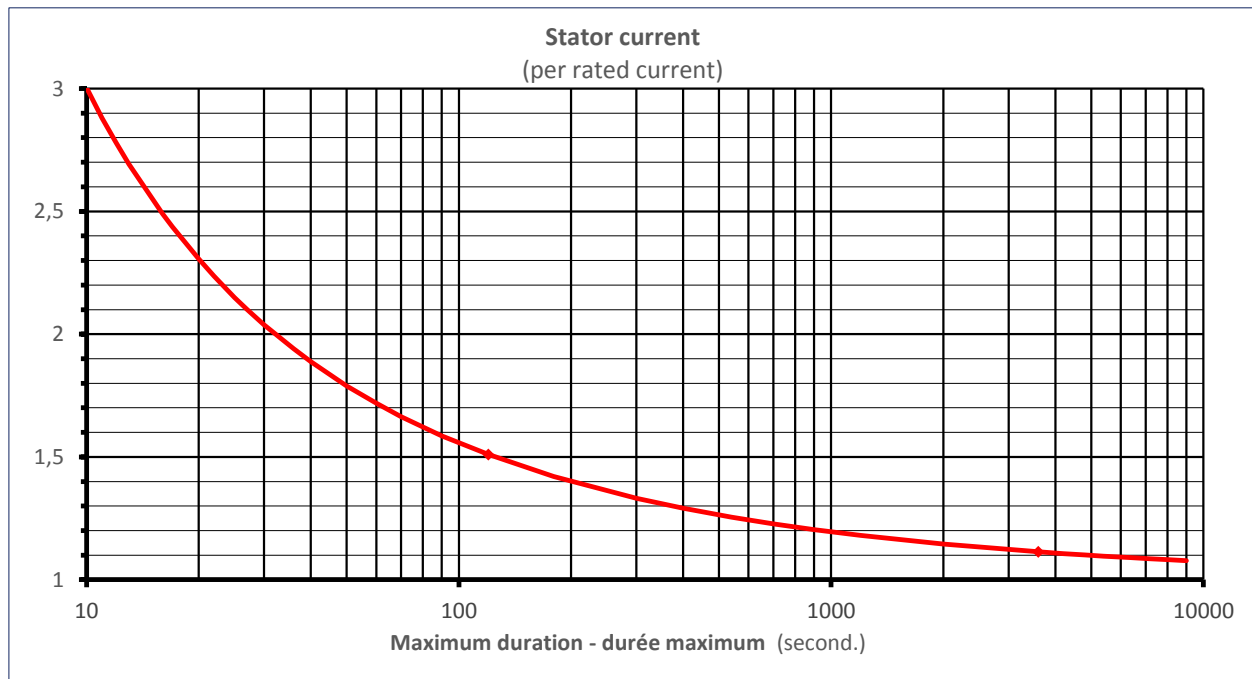


Date: 02.03.2017

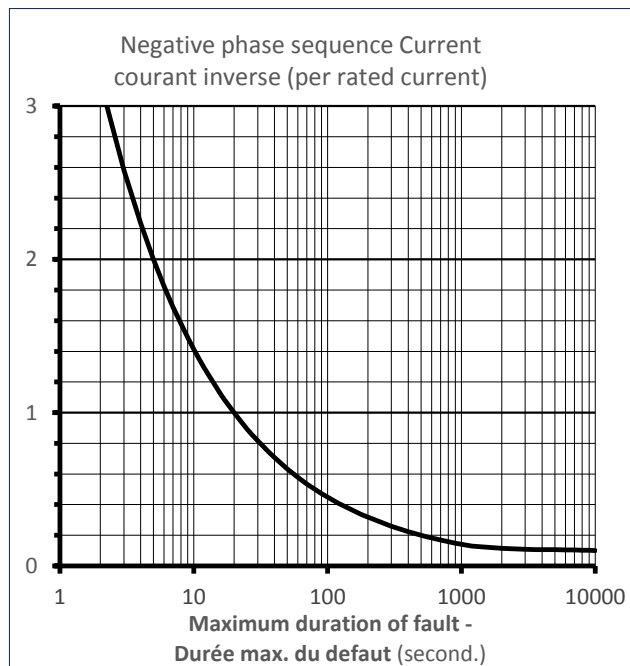
1307kVA - 600V - 50 Hz

V4.05L - 02/2017

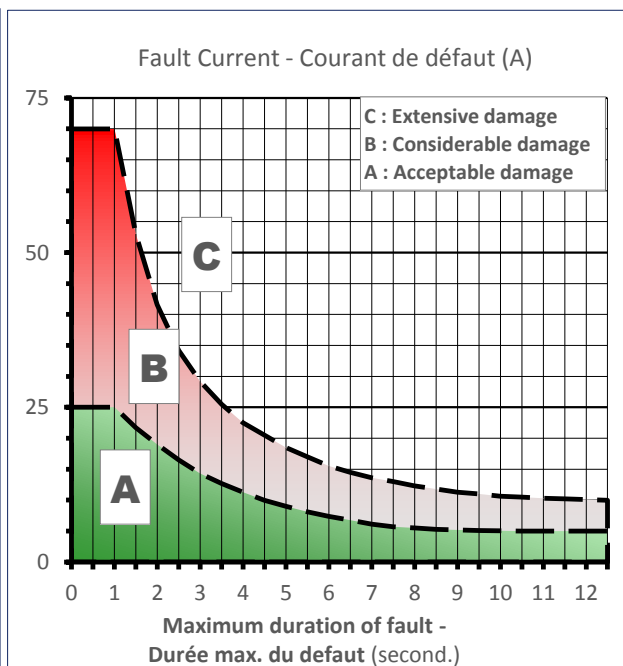
### Thermal Damage Curve



### Unbalance Load Curve



### Stator Earth Fault Current



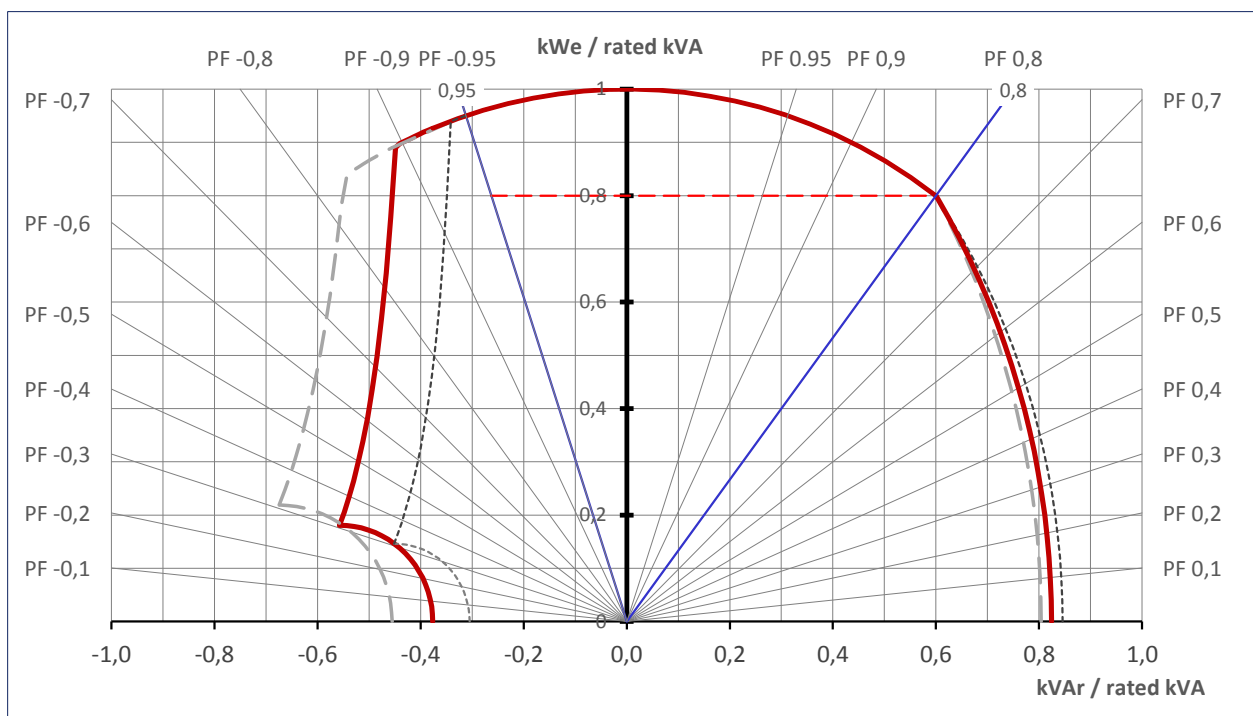
Date: 24.02.2017

792kVA - 400V - 50 Hz

V4.05L - 02/2017

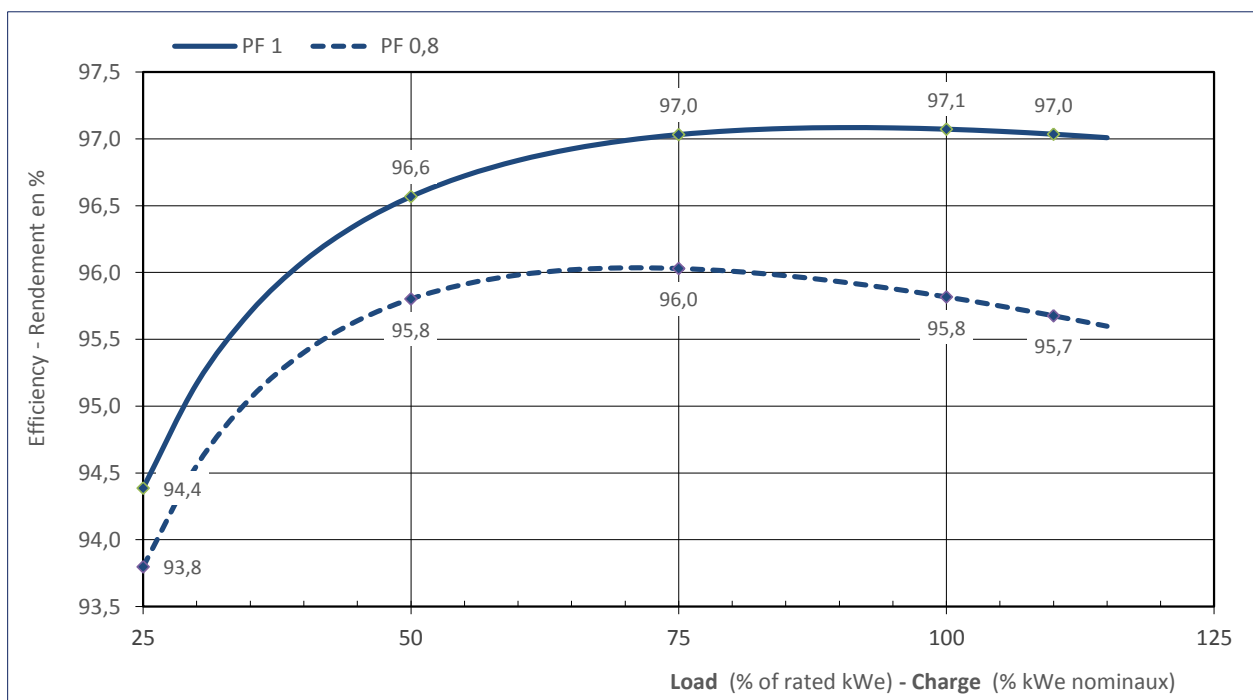
### Capability Curve

---	Umax	+ 10%	440	V
---	Un		<b>400</b>	V
---	Umin	- 10%	360	V



### Efficiency Curves

According to: IEC



Date: 24.02.2017

792kVA - 400V - 50 Hz

V4.05L - 02/2017

### Stator Current decrement curves

Symmetrical phase to neutral short-circuit

Symmetrical two phase short-circuit

Symmetrical three phase short-circuit

Thermal Limit

initial  
max  
value

14 242 A

12,5 x  $I_n$

9 216 A

8,1 x  $I_n$

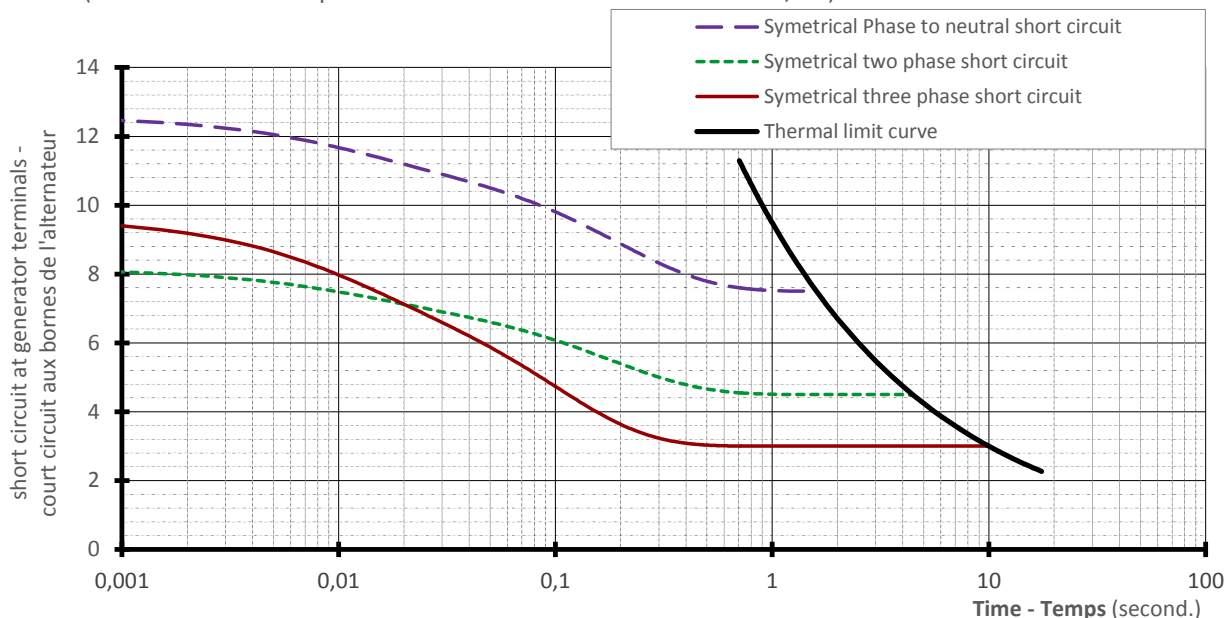
10 741 A

9,4 x  $I_n$

$I_n =$

**1143 A**

$I_{sc}$  ( Short circuit current per rated current - Courant de court circuit /  $I_n$  )



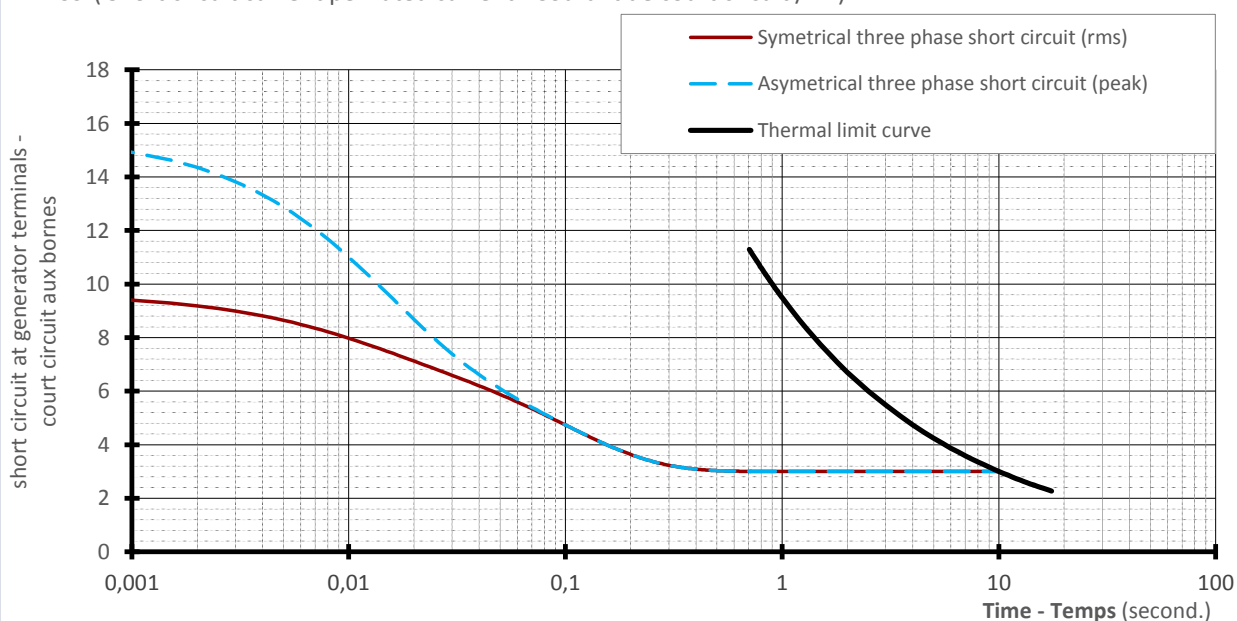
Asymmetrical three phase short-circuit

IP

16 787 A

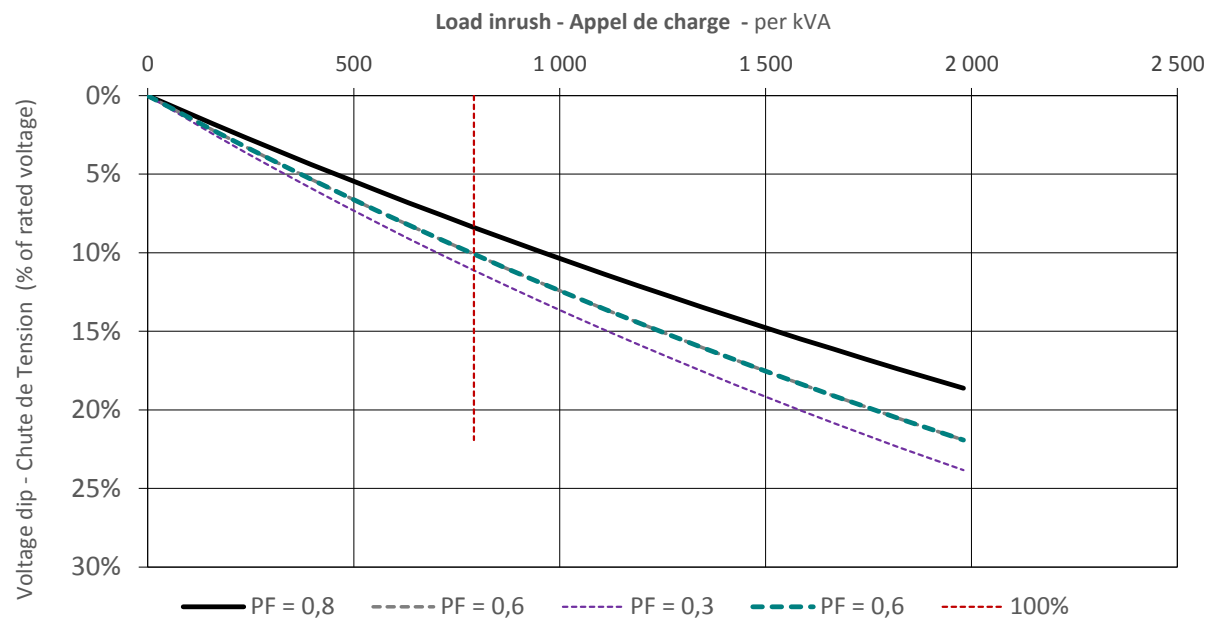
14,7 x  $I_n$

$I_{sc}$  ( Short circuit current per rated current - Courant de court circuit /  $I_n$  )

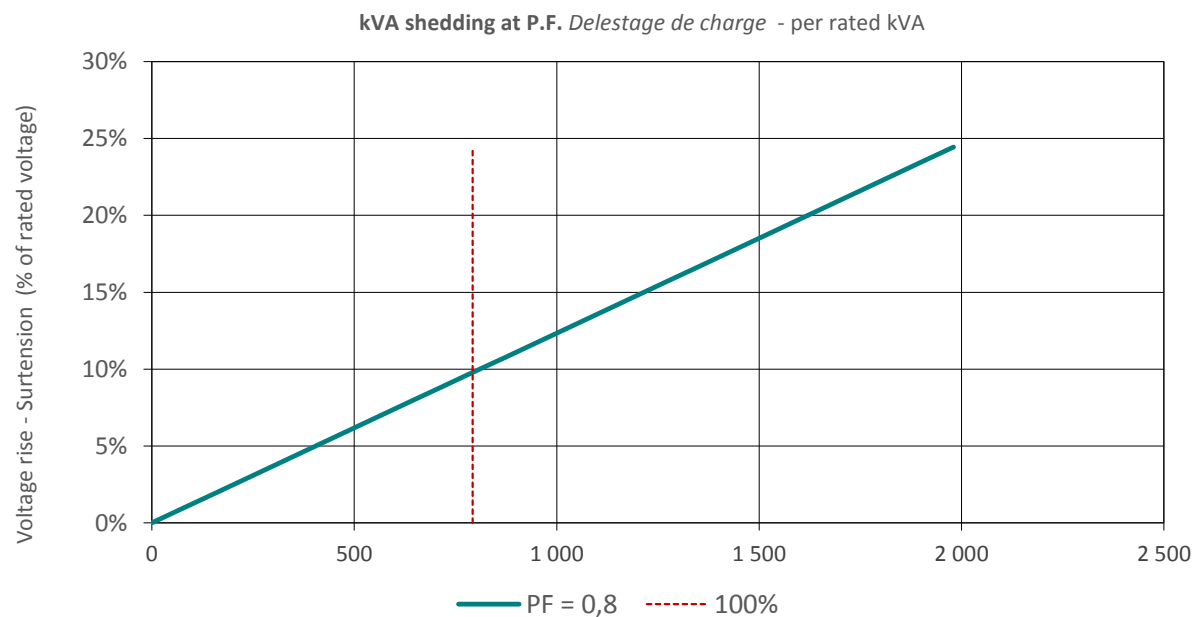


## Transient Voltage Variation

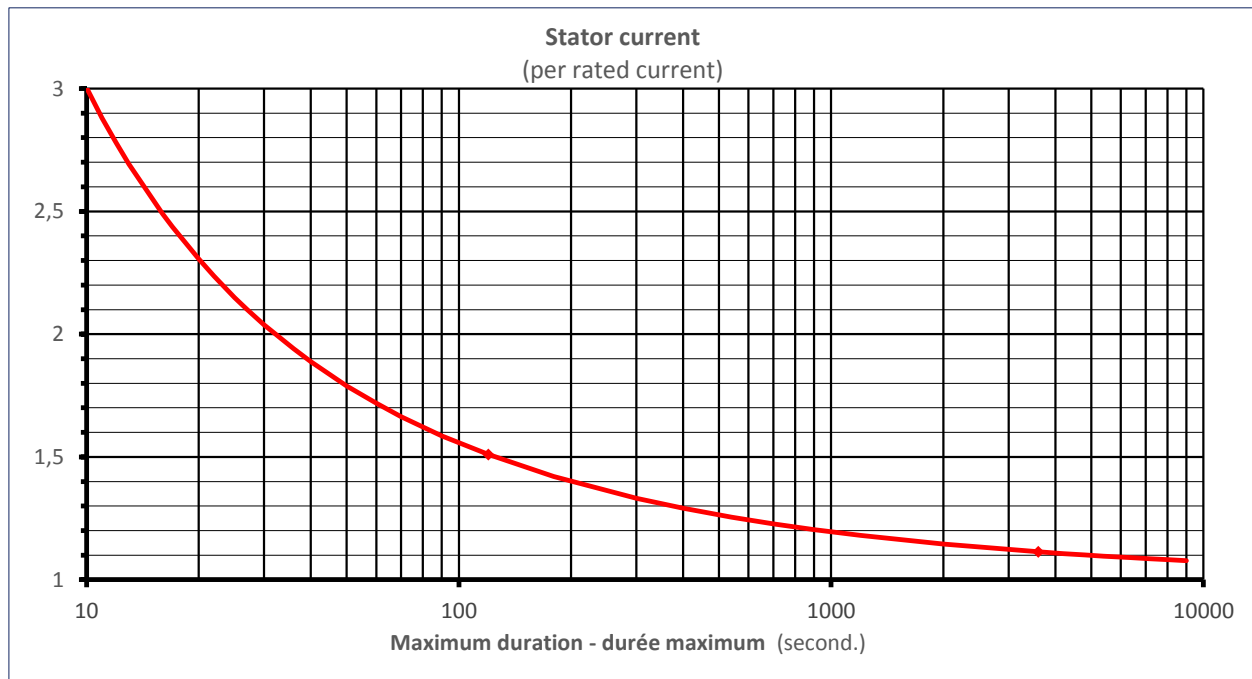
### Transient voltage dip curve versus load impact



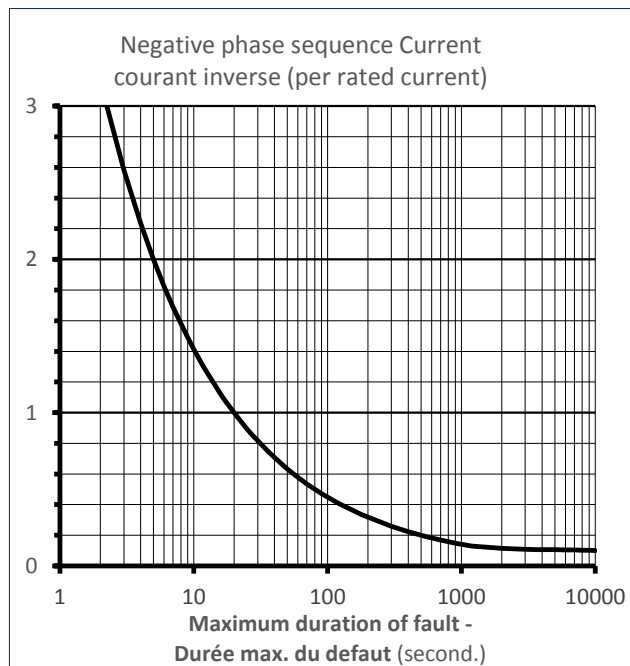
### Transient voltage rise curve versus load rejection



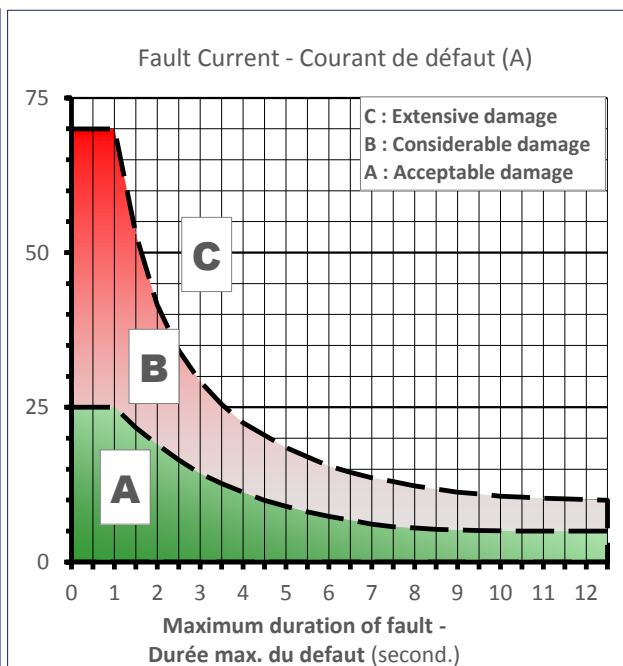
### Thermal Damage Curve



### Unbalance Load Curve

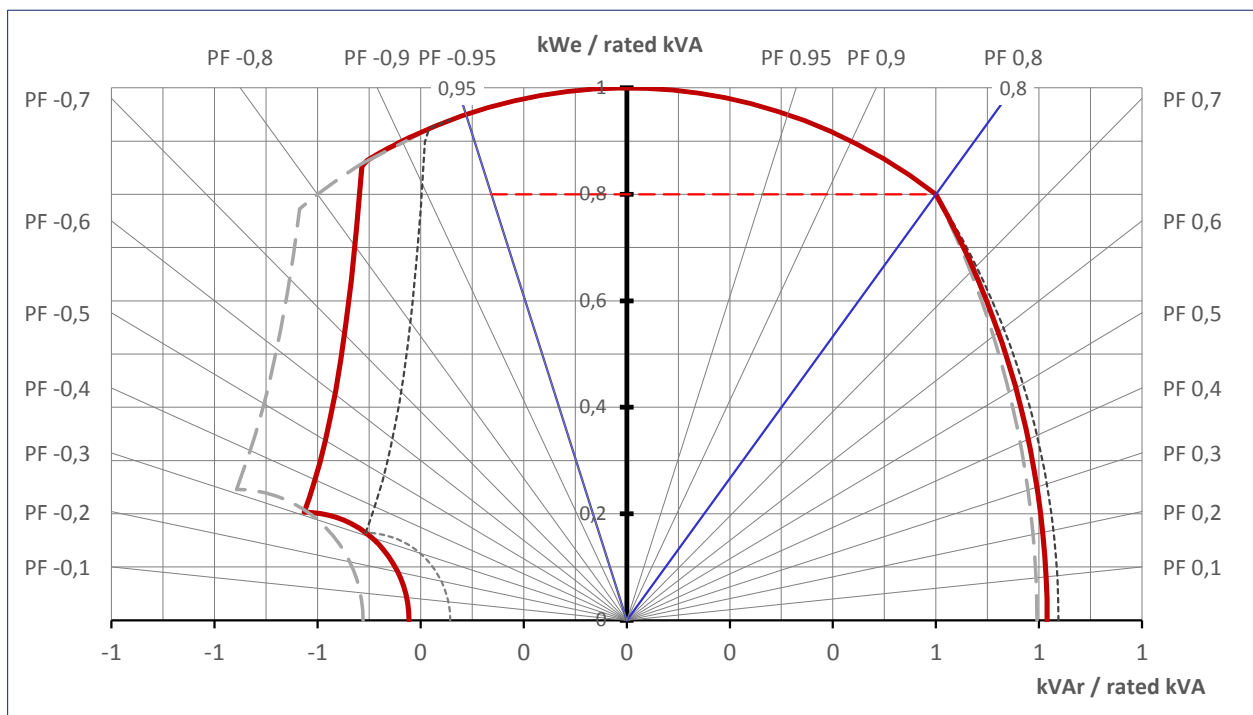


### Stator Earth Fault Current



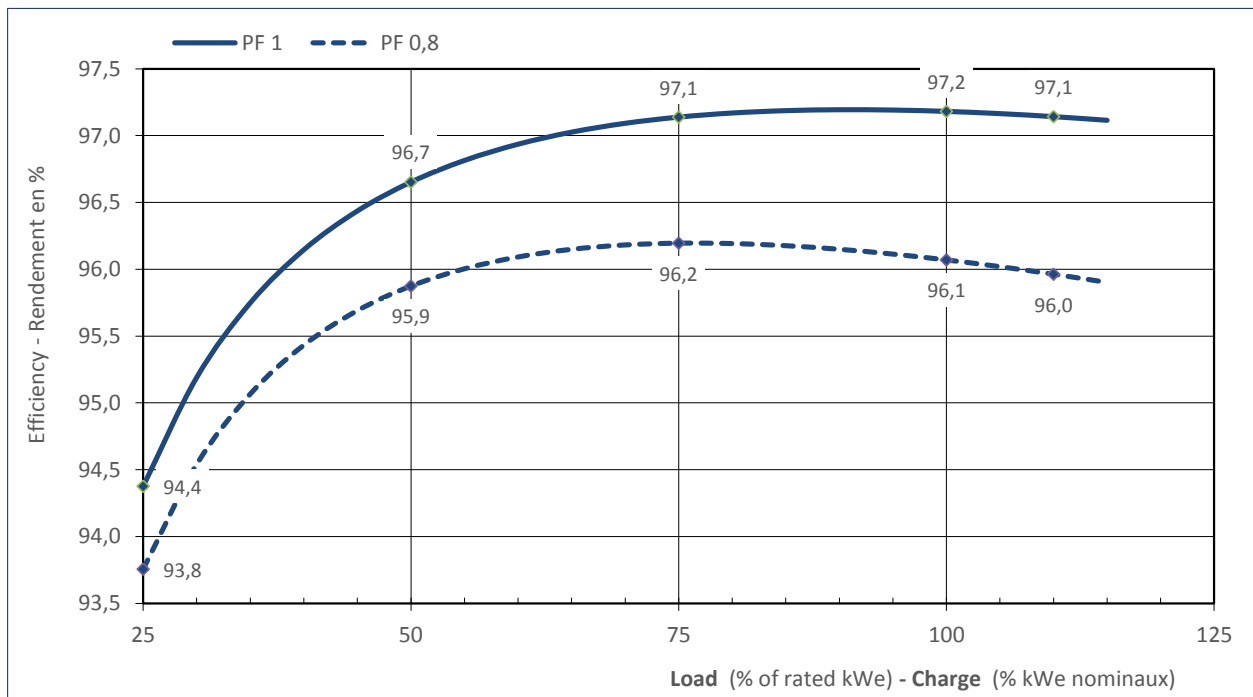
**Capability Curve**

---	Umax + 10%	759	V
—	Un	690	V
---	Umin - 10%	621	V



**Efficiency Curves**

According to: IEC



### Stator Current decrement curves

Symmetrical phase to neutral short-circuit

Symmetrical two phase short-circuit

Symmetrical three phase short-circuit

Thermal Limit

initial  
max  
value

15 861 A

12,6 x  $I_n$

10 210 A

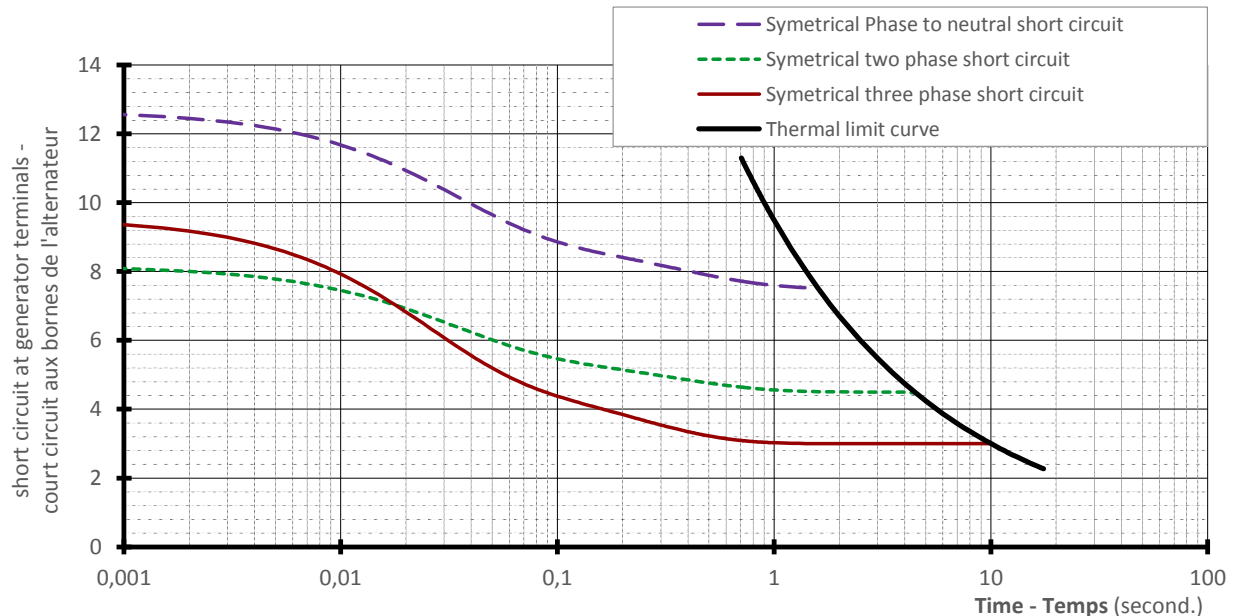
8,1 x  $I_n$

11 818 A

9,4 x  $I_n$

$I_n = 1263 \text{ A}$

$I_{sc}$  ( Short circuit current per rated current - Courant de court circuit /  $I_n$  )



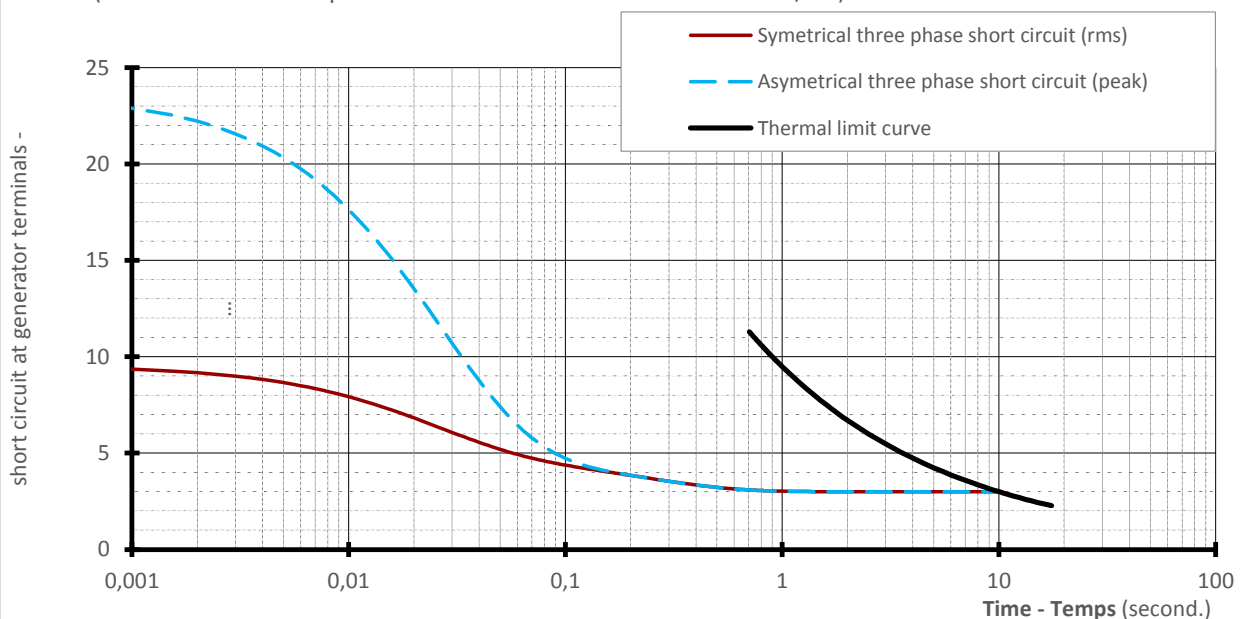
Asymmetrical three phase short-circuit

IP

28 647 A

22,7 x  $I_n$

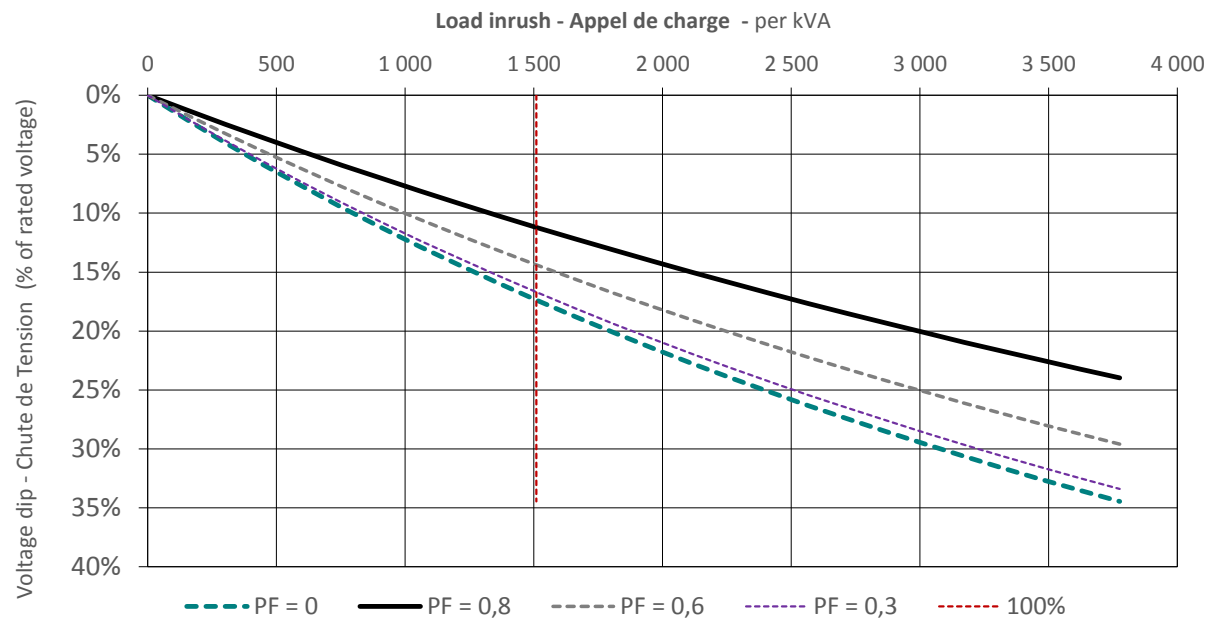
$I_{sc}$  ( Short circuit current per rated current - Courant de court circuit /  $I_n$  )



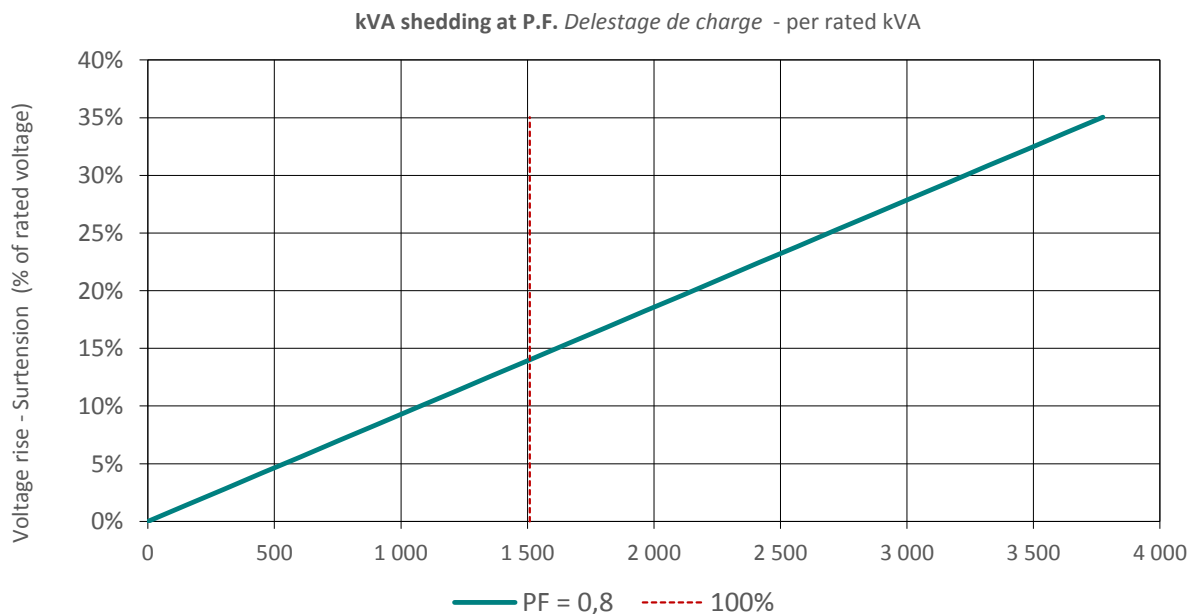


### Transient Voltage Variation

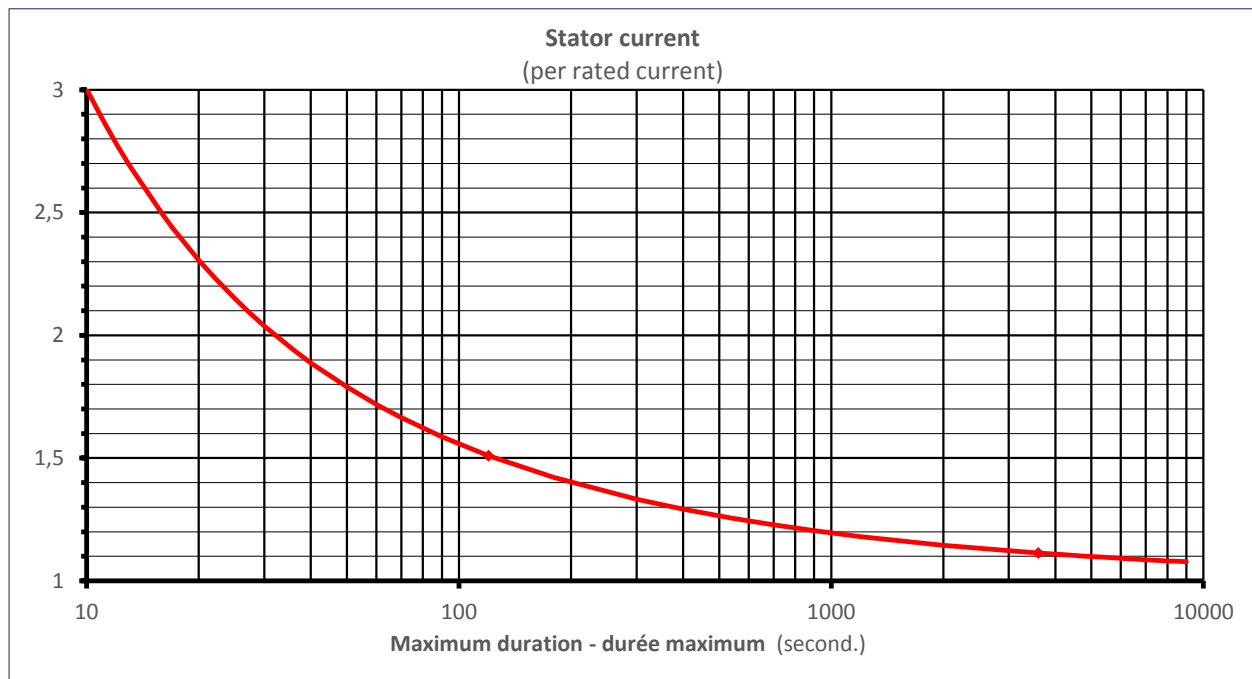
#### Transient voltage dip curve versus load impact



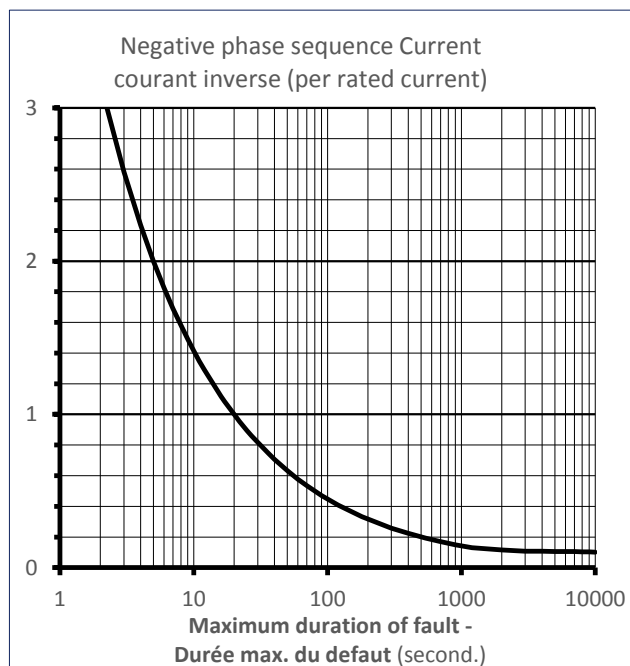
#### Transient voltage rise curve versus load rejection



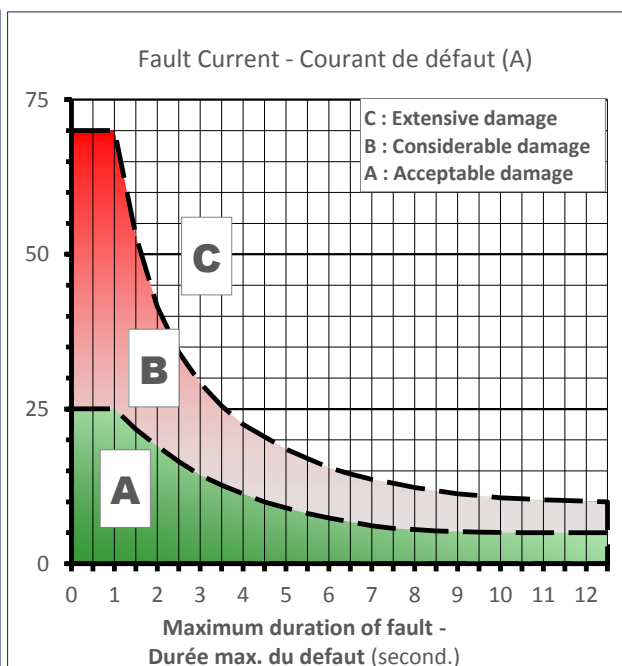
### Thermal Damage Curve



### Unbalance Load Curve



### Stator Earth Fault Current



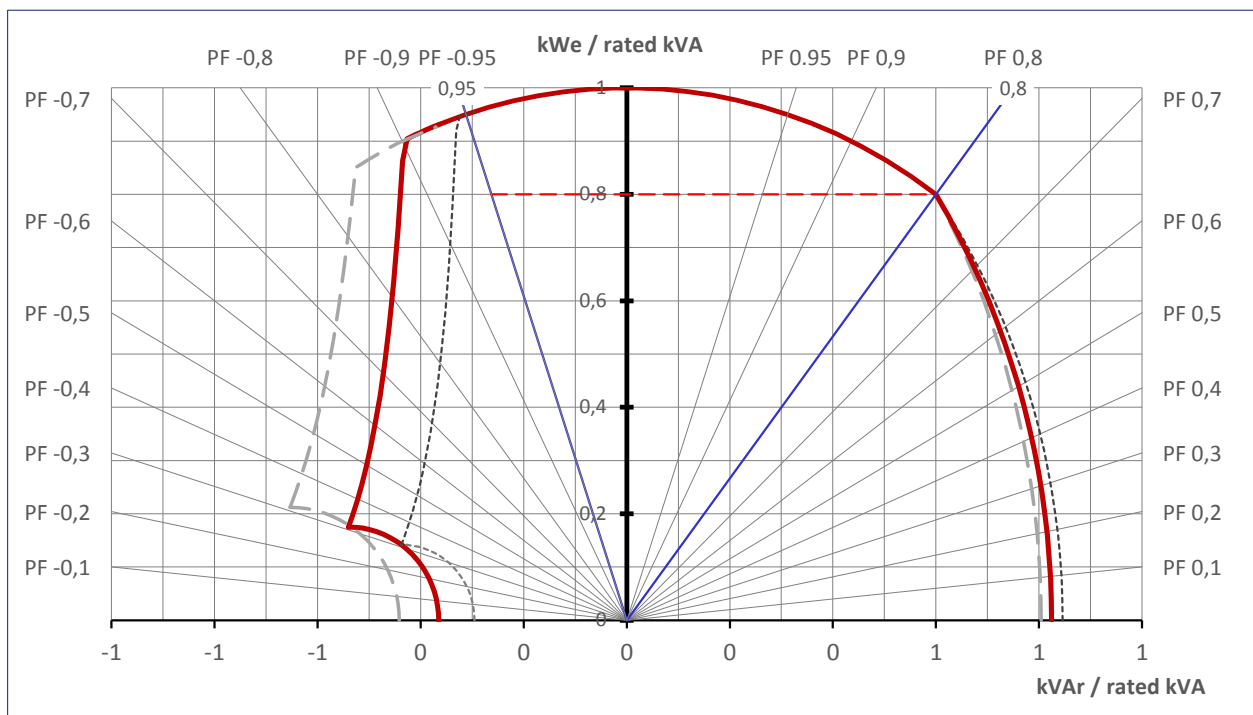
Date: 04.11.2016

**1350kVA - 690V - 50 Hz**

V4.05G - 10/2016

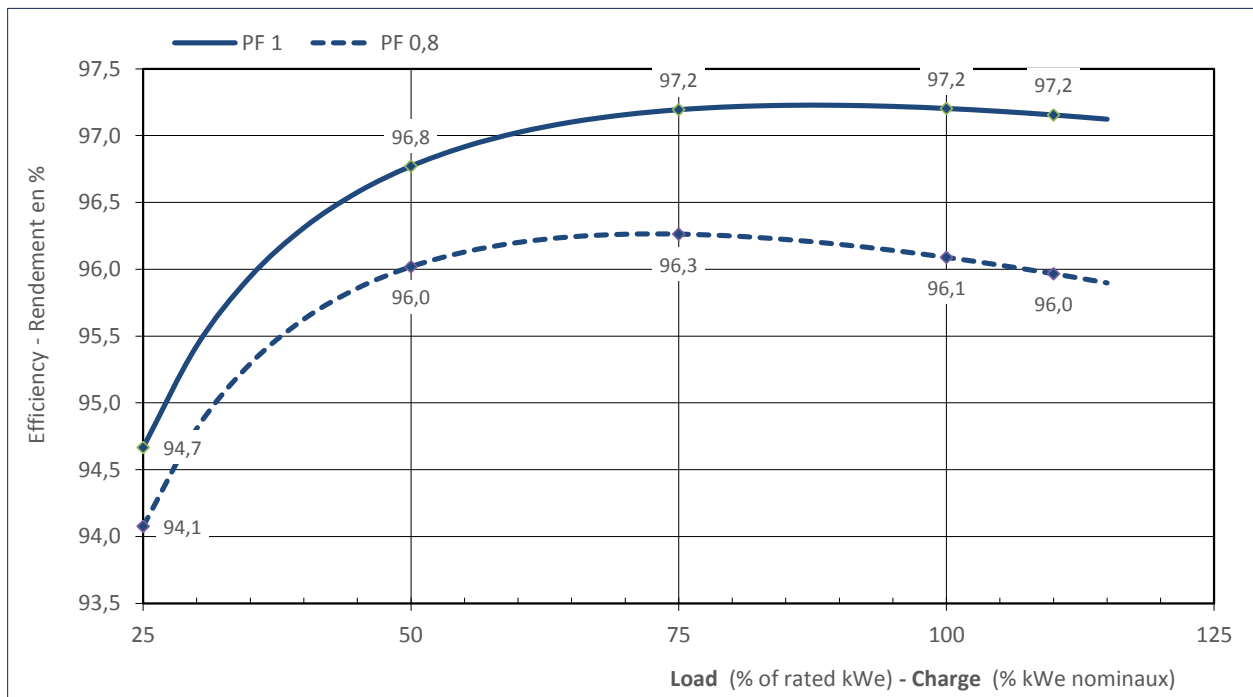
**Capability Curve**

---	Umax + 10%	759	V
---	Un	690	V
---	Umin - 10%	621	V



**Efficiency Curves**

According to: IEC



### Stator Current decrement curves

Symmetrical phase to neutral short-circuit

Symmetrical two phase short-circuit

Symmetrical three phase short-circuit

Thermal Limit

initial  
max  
value

12 867 A

11,4 x  $I_n$

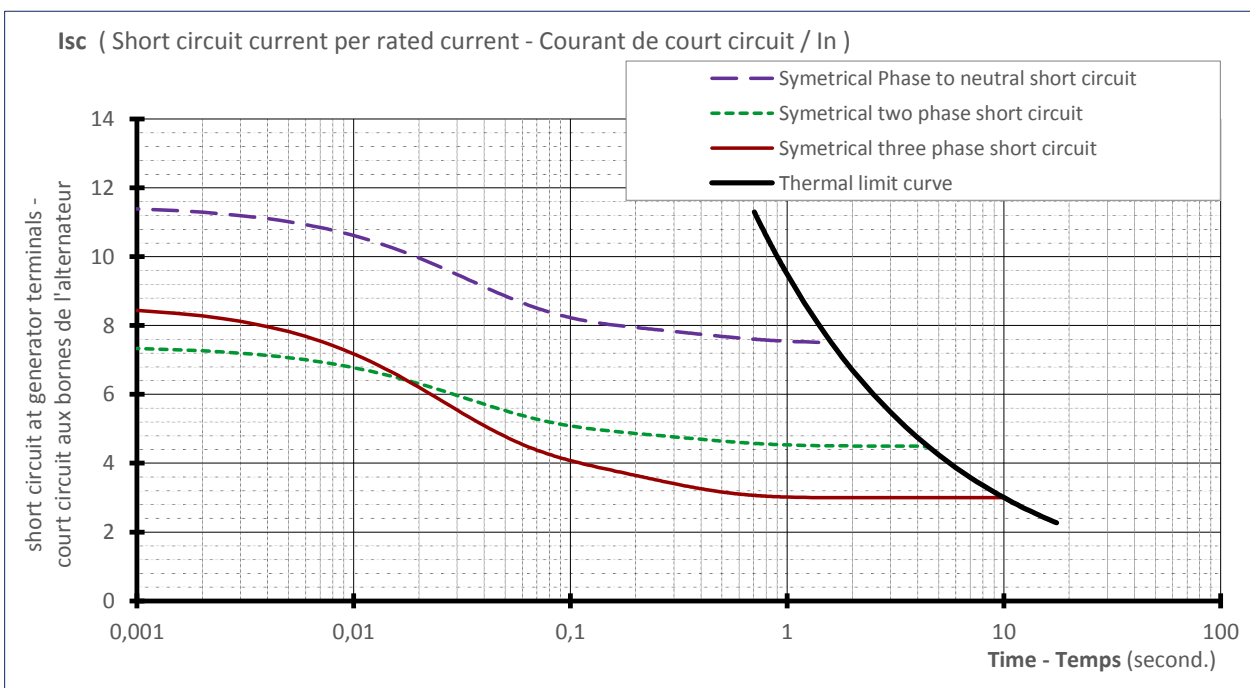
8 287 A

7,3 x  $I_n$

9 540 A

8,4 x  $I_n$

$I_n = 1130 \text{ A}$

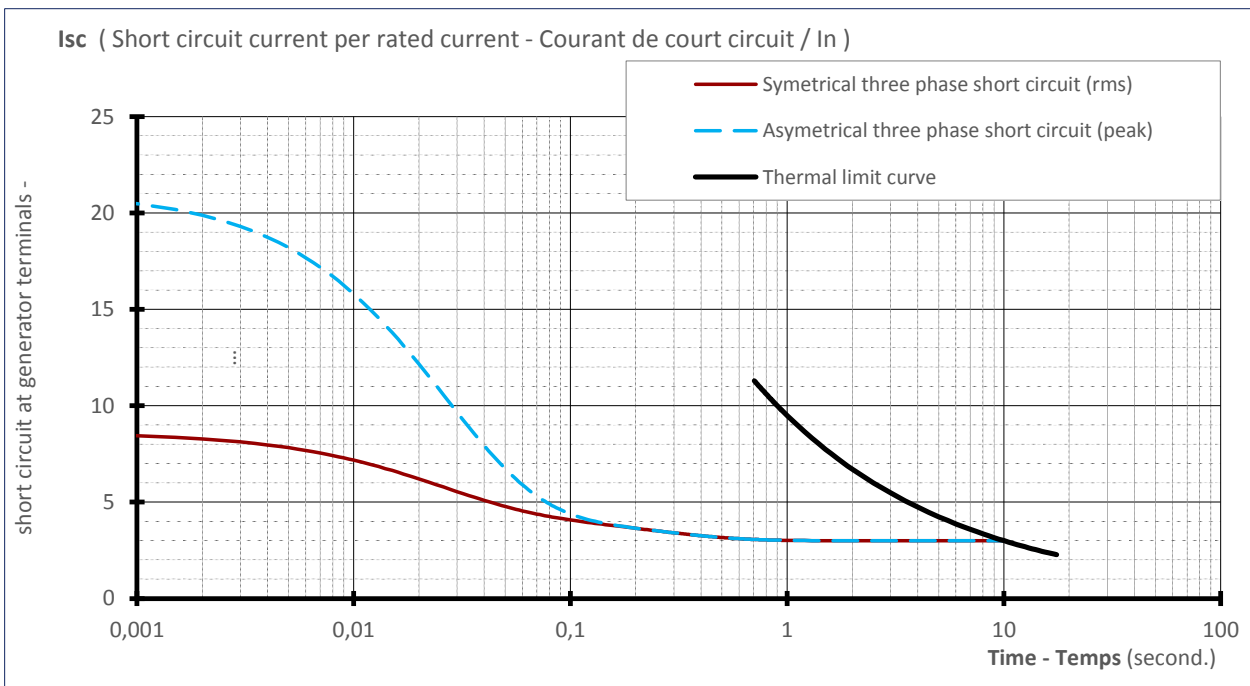


Asymmetrical three phase short-circuit

IP

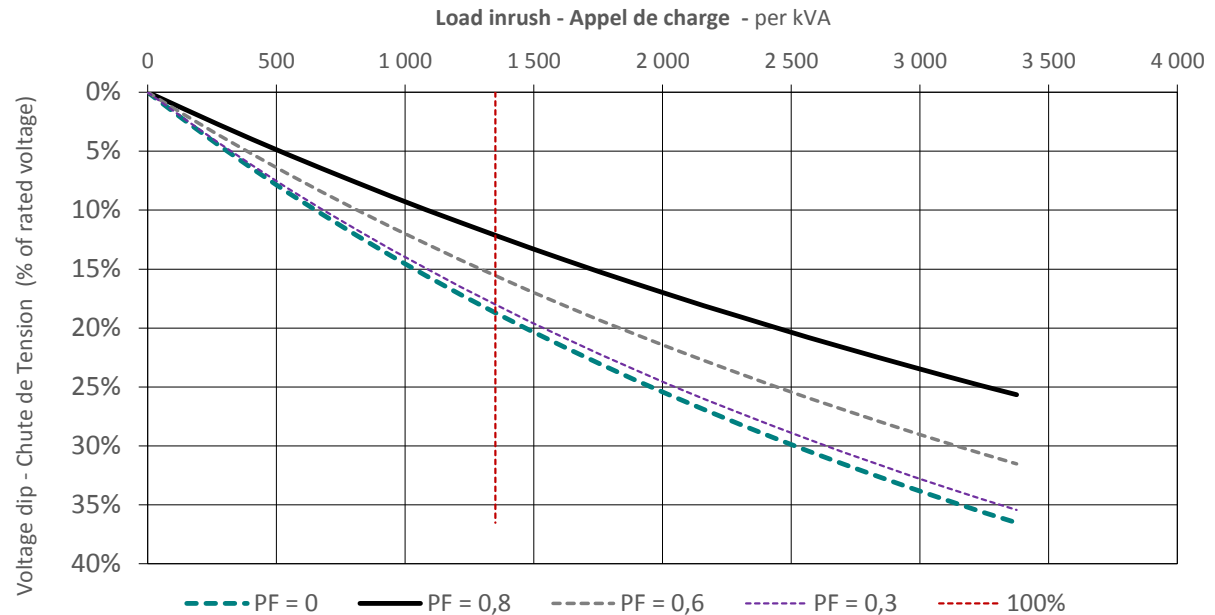
22 921 A

20,3 x  $I_n$

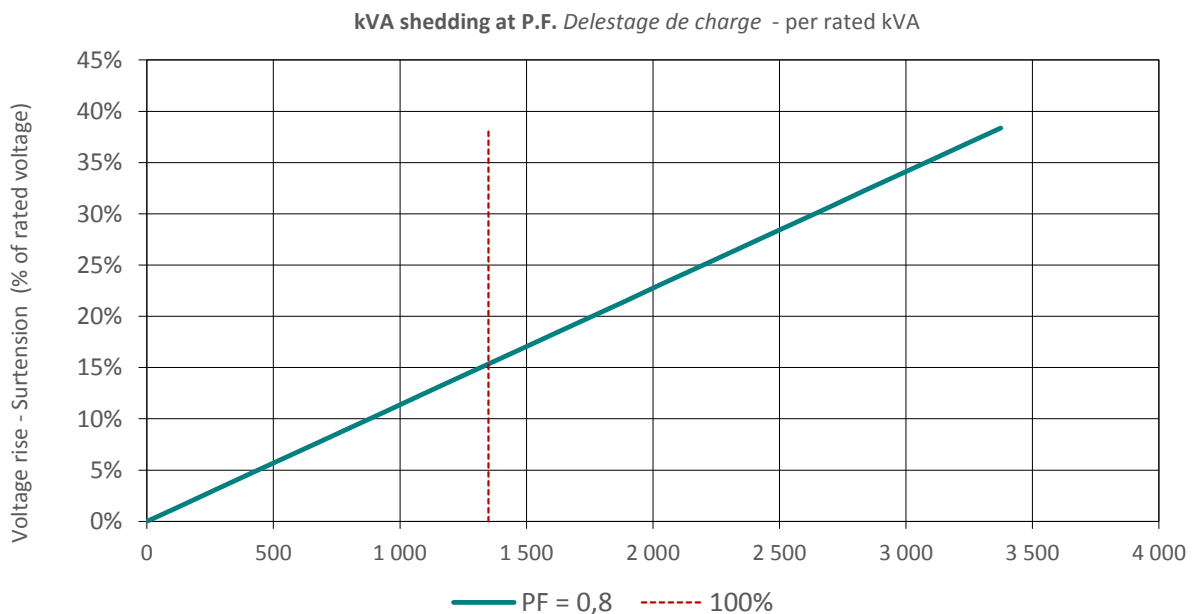


### Transient Voltage Variation

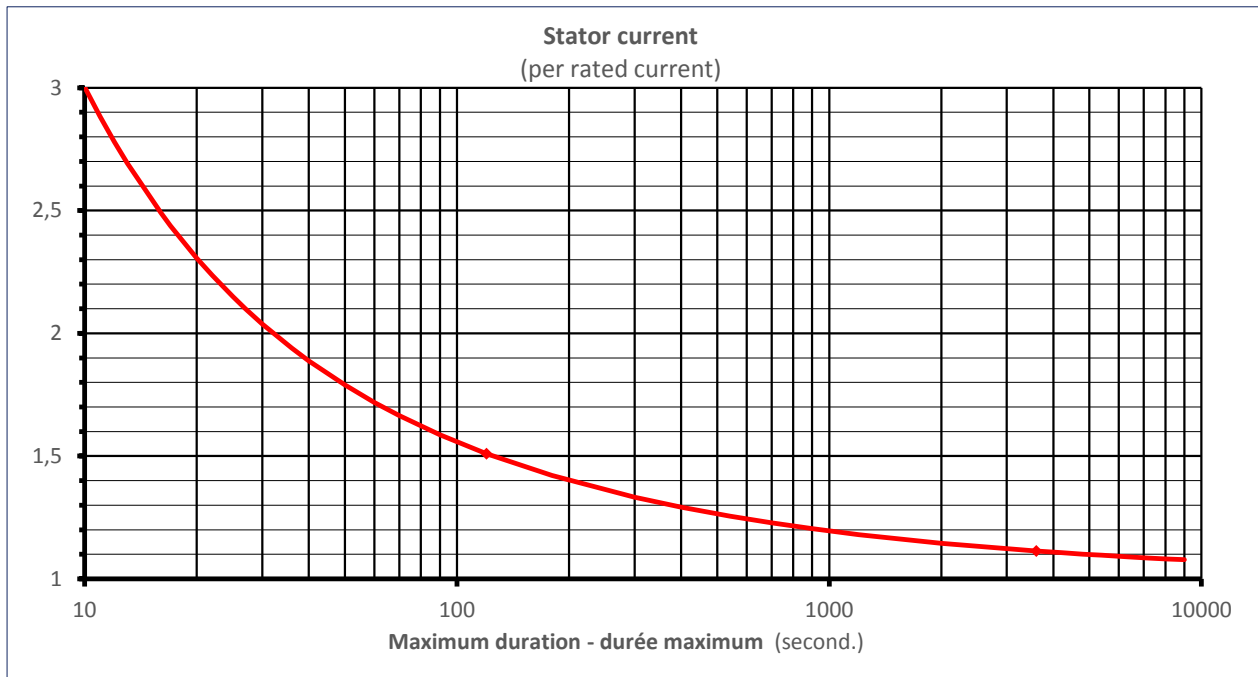
#### Transient voltage dip curve versus load impact



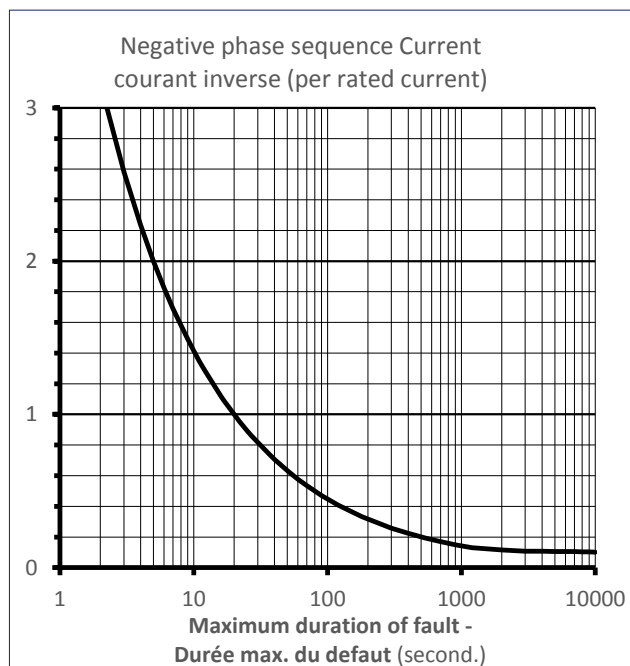
#### Transient voltage rise curve versus load rejection



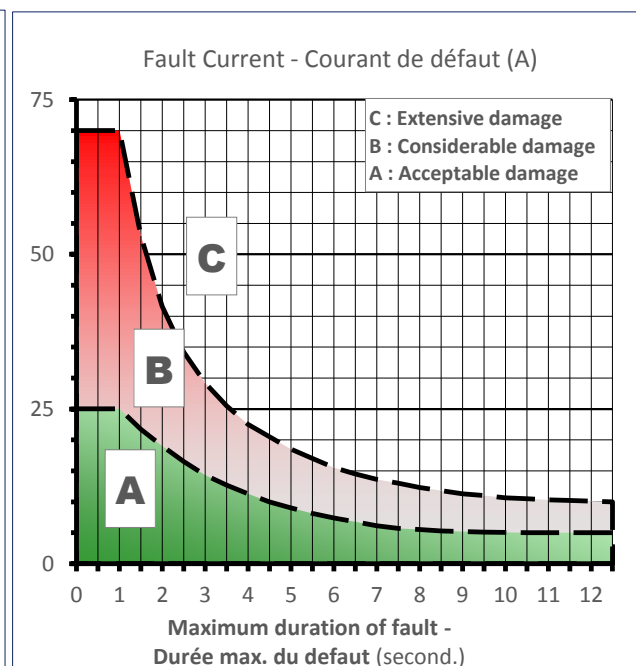
### Thermal Damage Curve



### Unbalance Load Curve

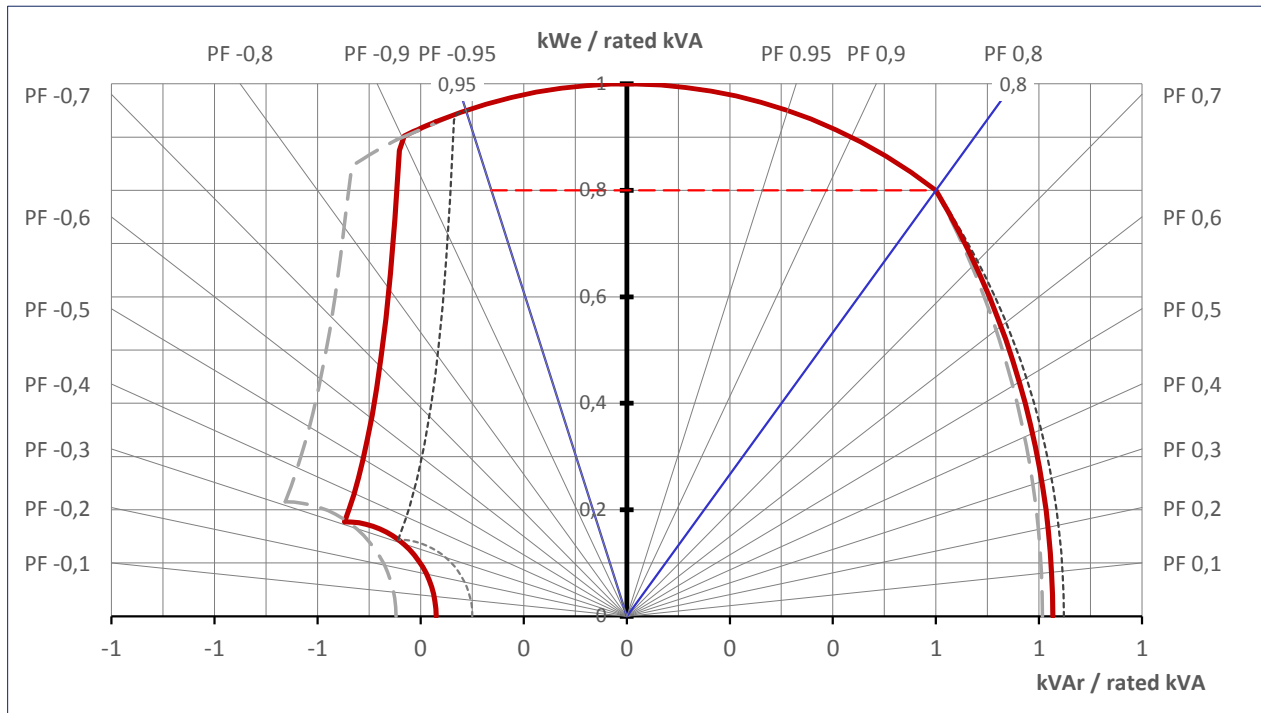


### Stator Earth Fault Current



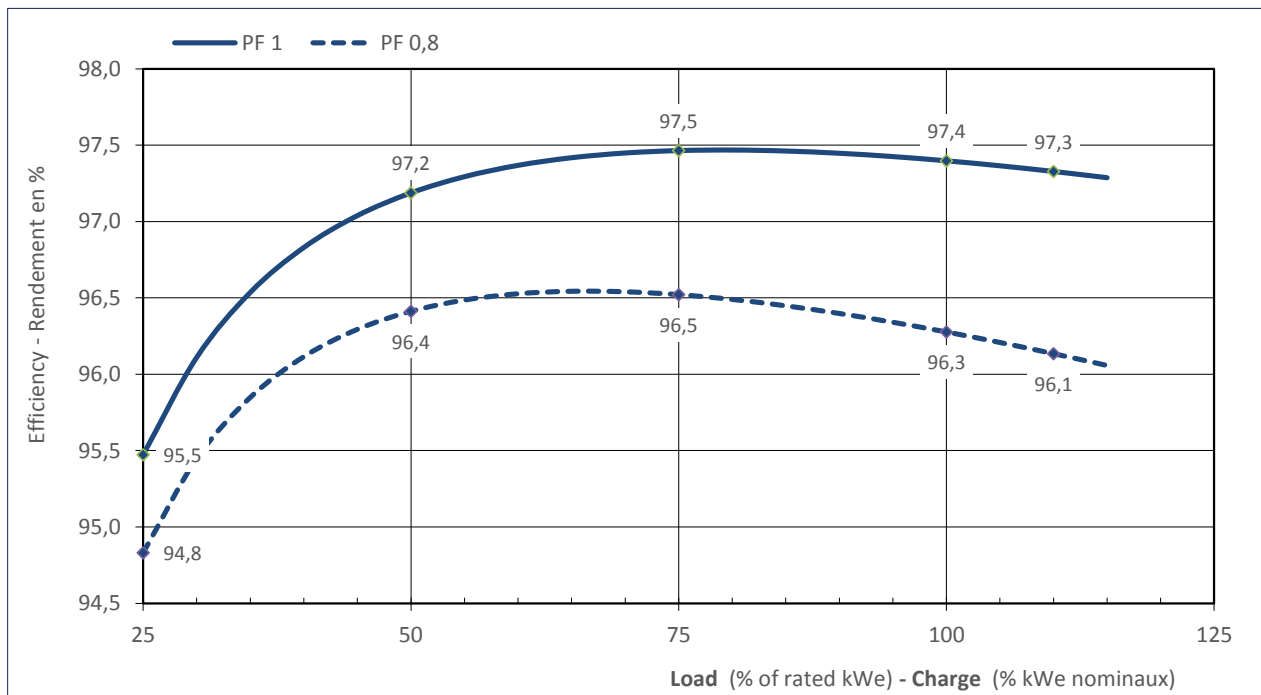
**Capability Curve**

---	Umax + 10%	457	V
—	Un	<b>415</b>	V
---	Umin - 10%	374	V



**Efficiency Curves**

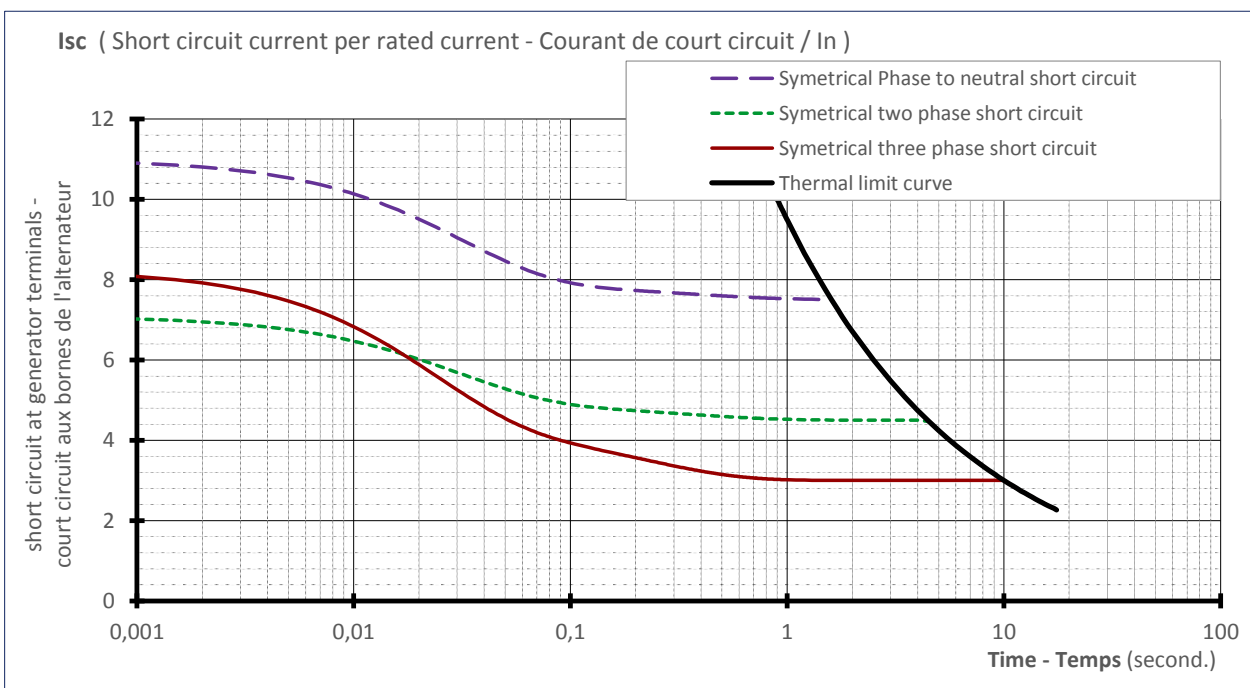
According to: IEC



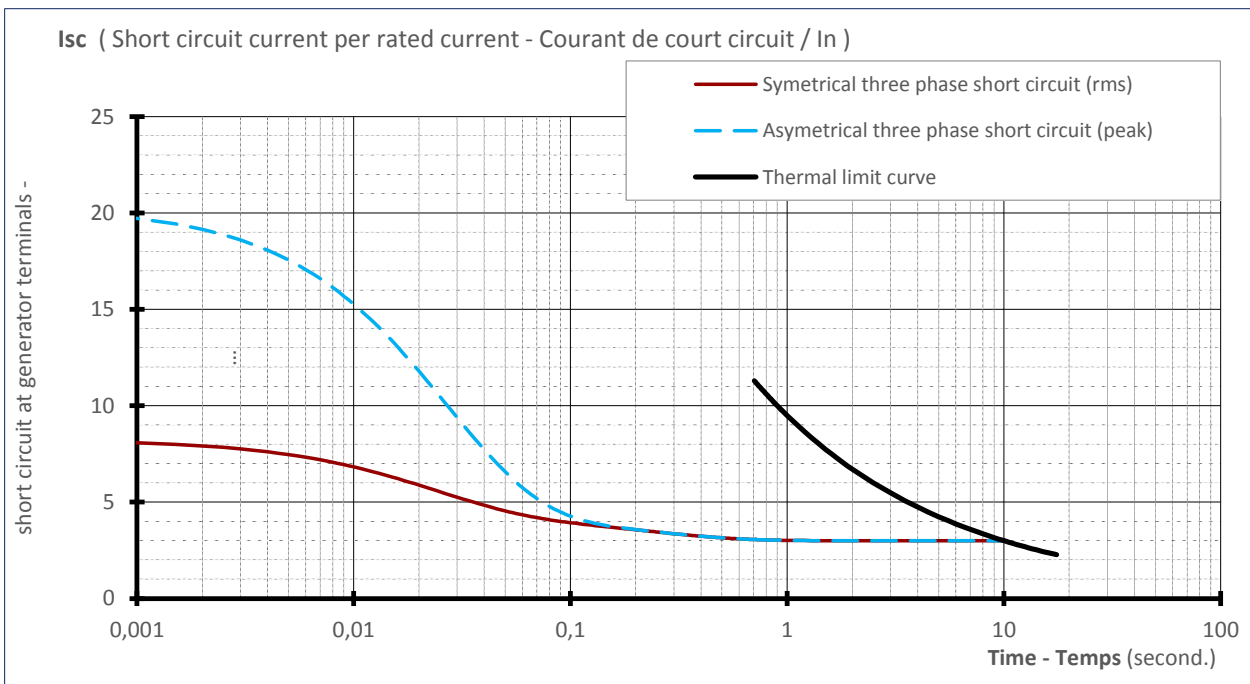


### Stator Current decrement curves

Symmetrical phase to neutral short-circuit	—	initial	24 113	A	10,9 x $I_n$	
Symmetrical two phase short-circuit	- - -	max	15 529	A	7 x $I_n$	$I_n = 2212$ A
Symmetrical three phase short-circuit	—	value	17 878	A	8,1 x $I_n$	
Thermal Limit	—					

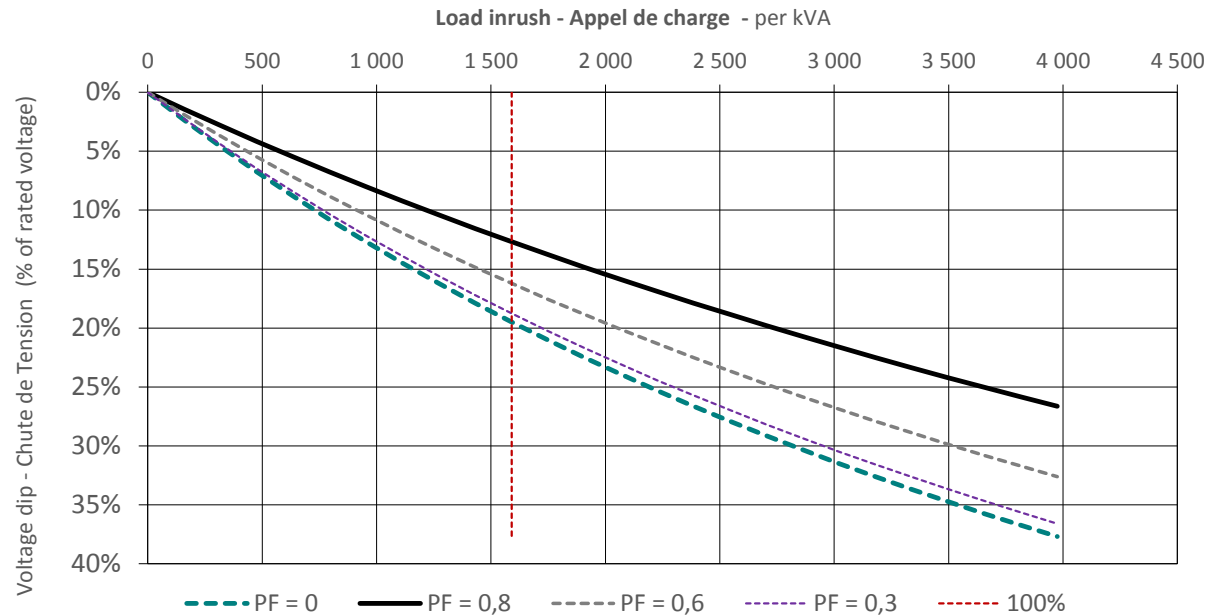


Asymmetrical three phase short-circuit — IP 43 212 A 19,5 x  $I_n$

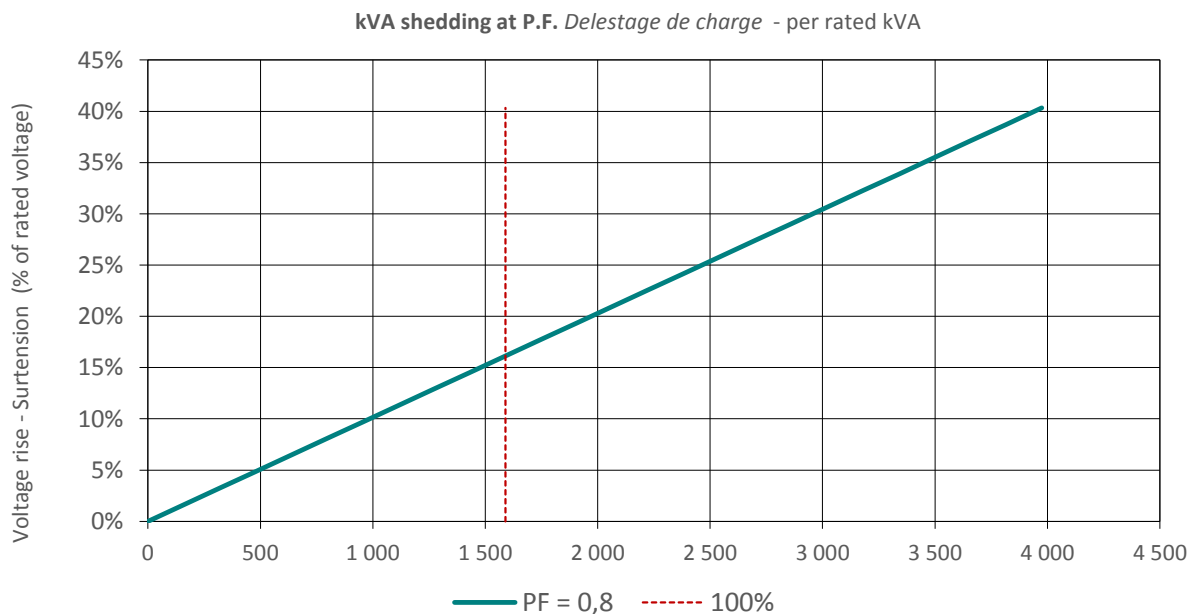


### Transient Voltage Variation

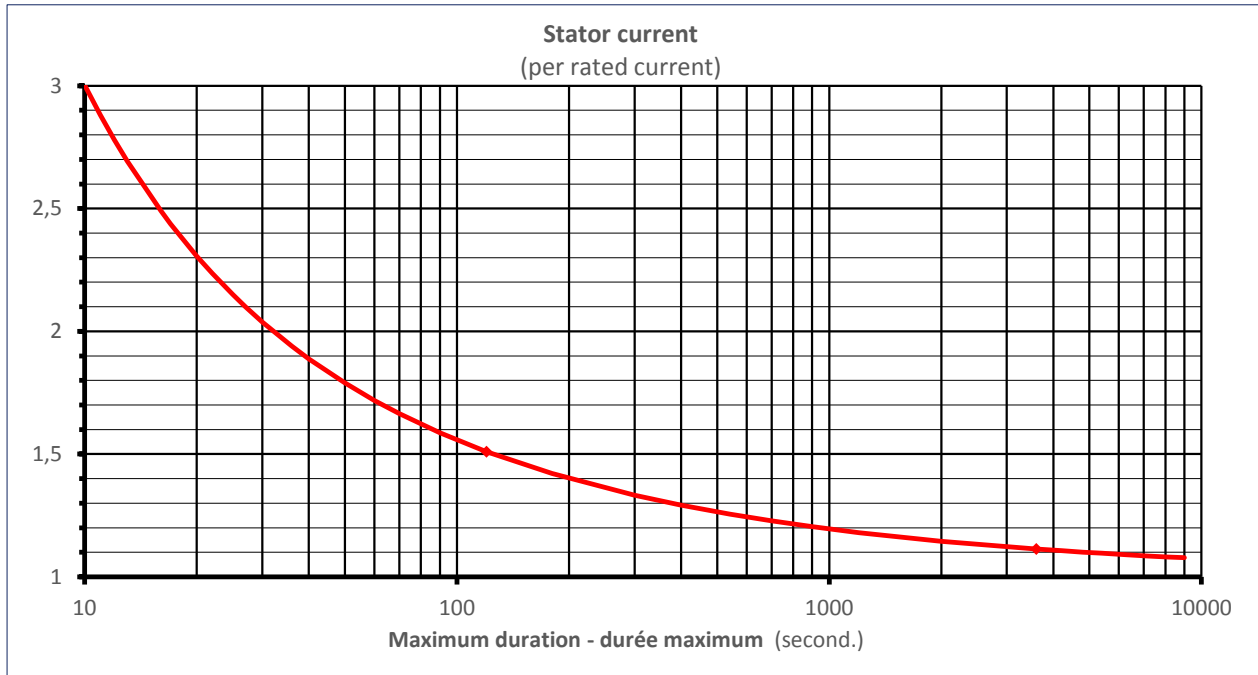
#### Transient voltage dip curve versus load impact



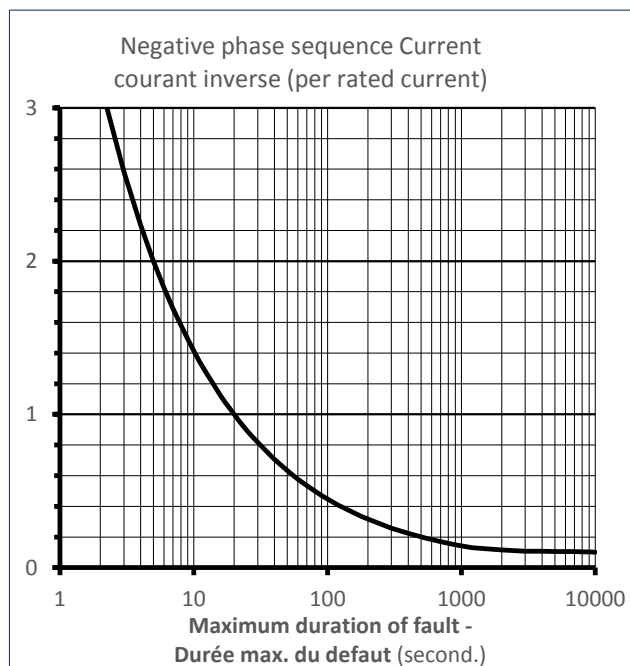
#### Transient voltage rise curve versus load rejection



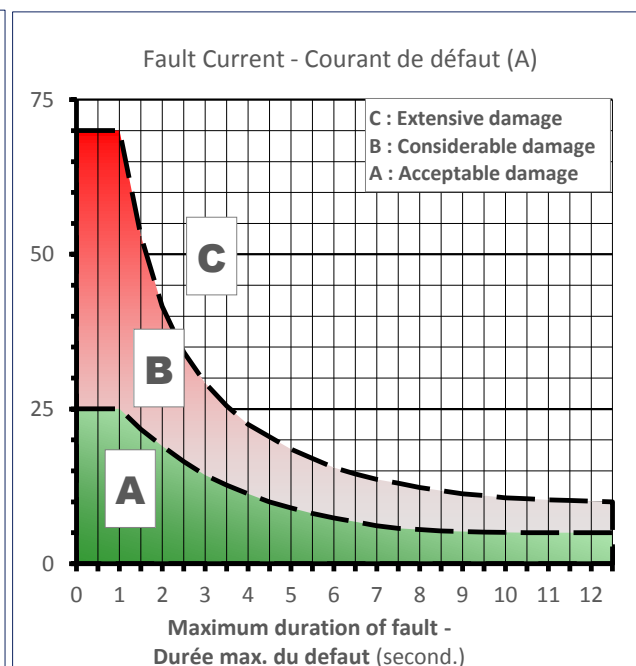
### Thermal Damage Curve



### Unbalance Load Curve



### Stator Earth Fault Current



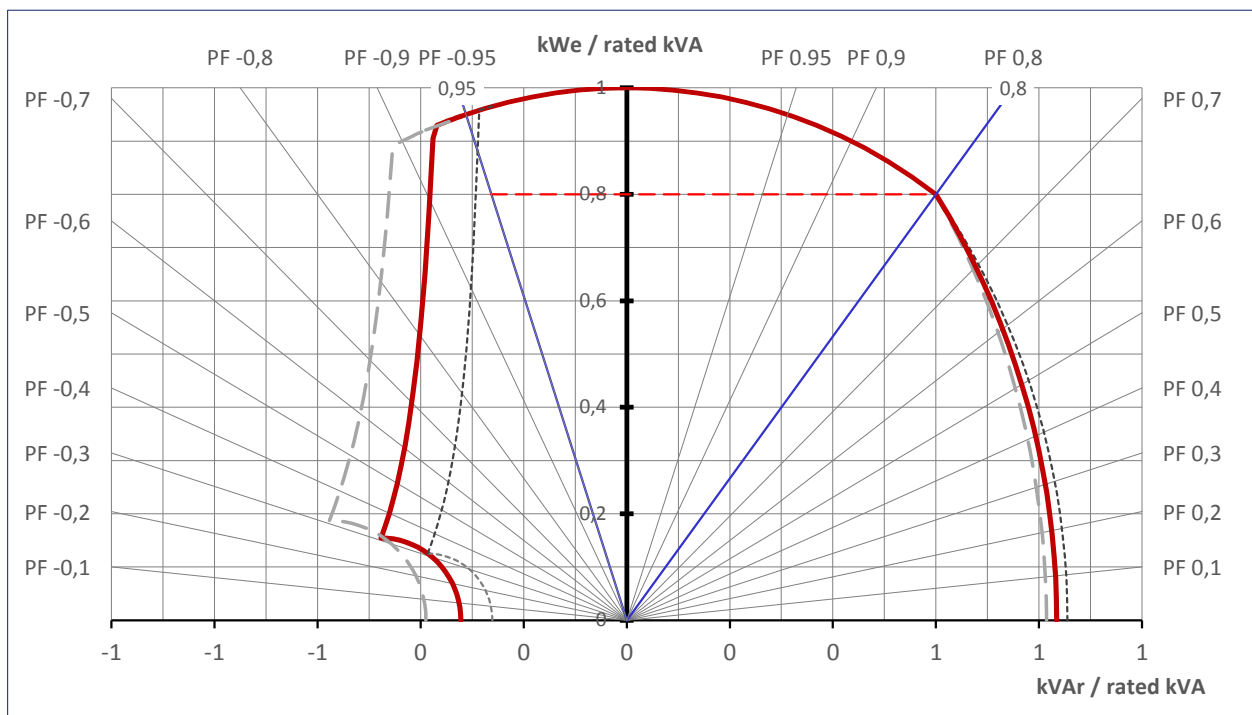
Date: 04.11.2016

**1590kVA - 400V - 50 Hz**

V4.05G - 10/2016

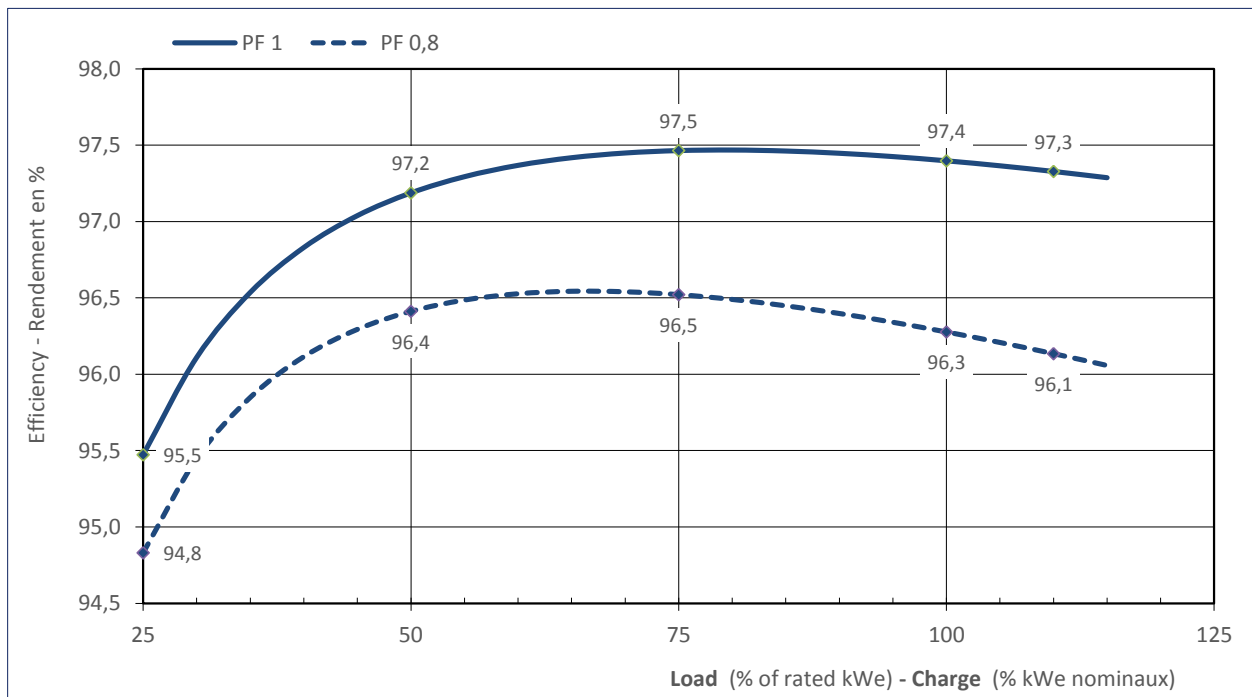
**Capability Curve**

---	Umax	+ 10%	440	V
—	Un		<b>400</b>	V
- - -	Umin	- 10%	360	V



**Efficiency Curves**

According to: IEC



### Stator Current decrement curves

Symmetrical phase to neutral short-circuit

Symmetrical two phase short-circuit

Symmetrical three phase short-circuit

Thermal Limit

initial  
max  
value

23 246 A

14 971 A

17 234 A

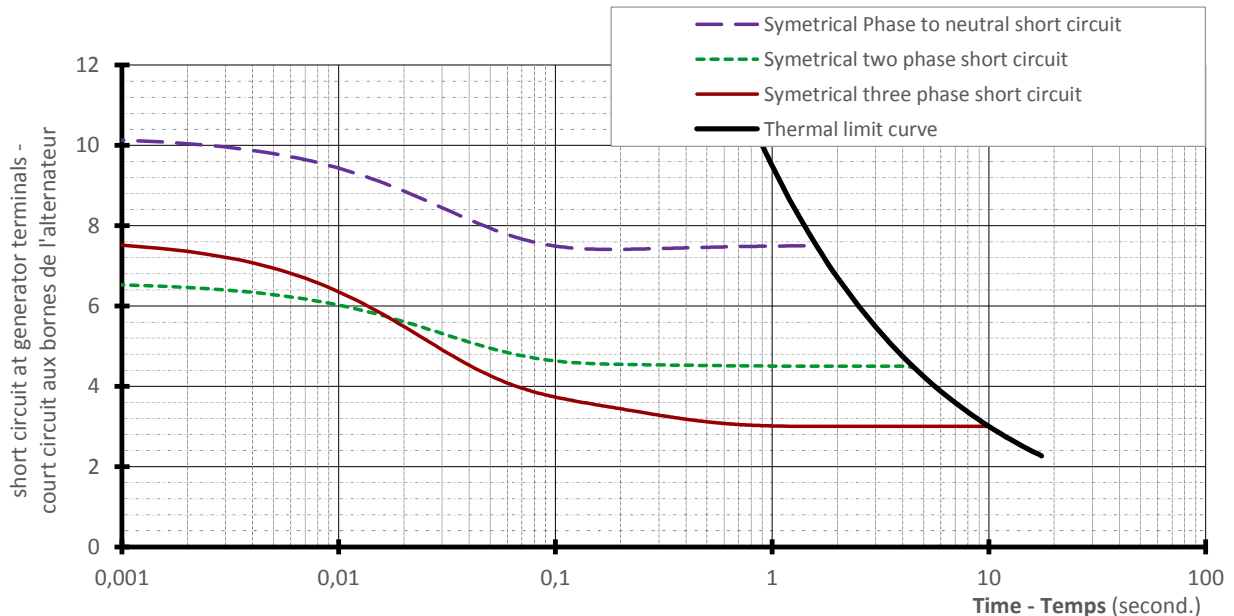
10,1 x  $I_n$

6,5 x  $I_n$

7,5 x  $I_n$

$I_n = 2295 \text{ A}$

$I_{sc}$  ( Short circuit current per rated current - Courant de court circuit /  $I_n$  )



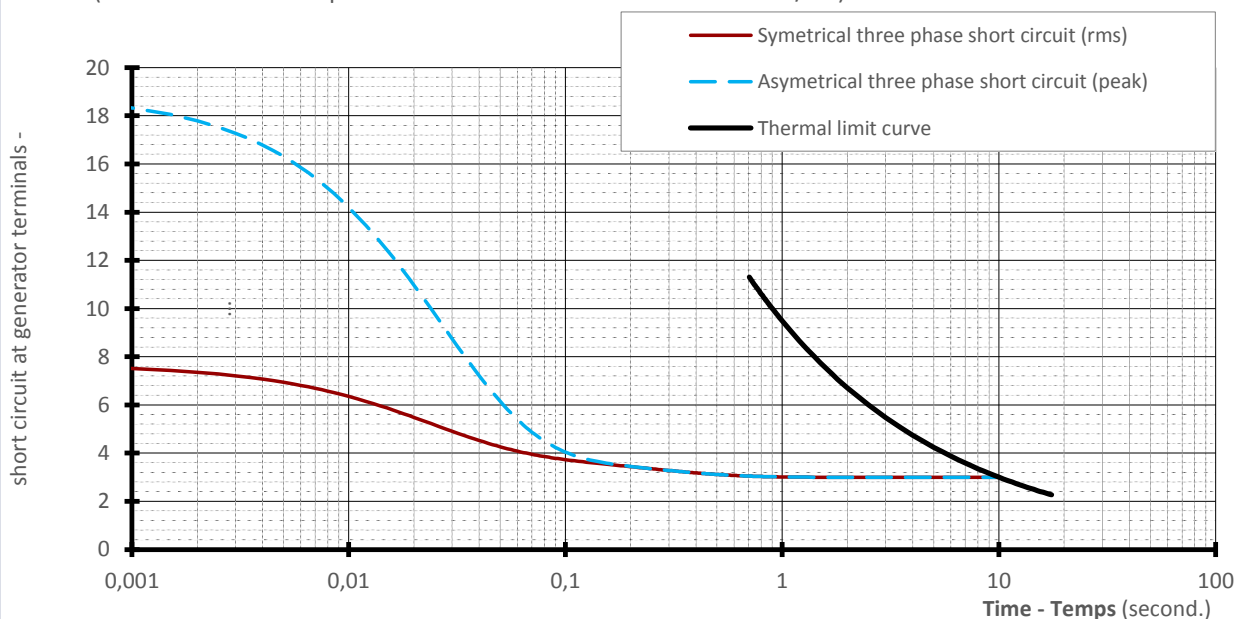
Asymmetrical three phase short-circuit

IP

41 651 A

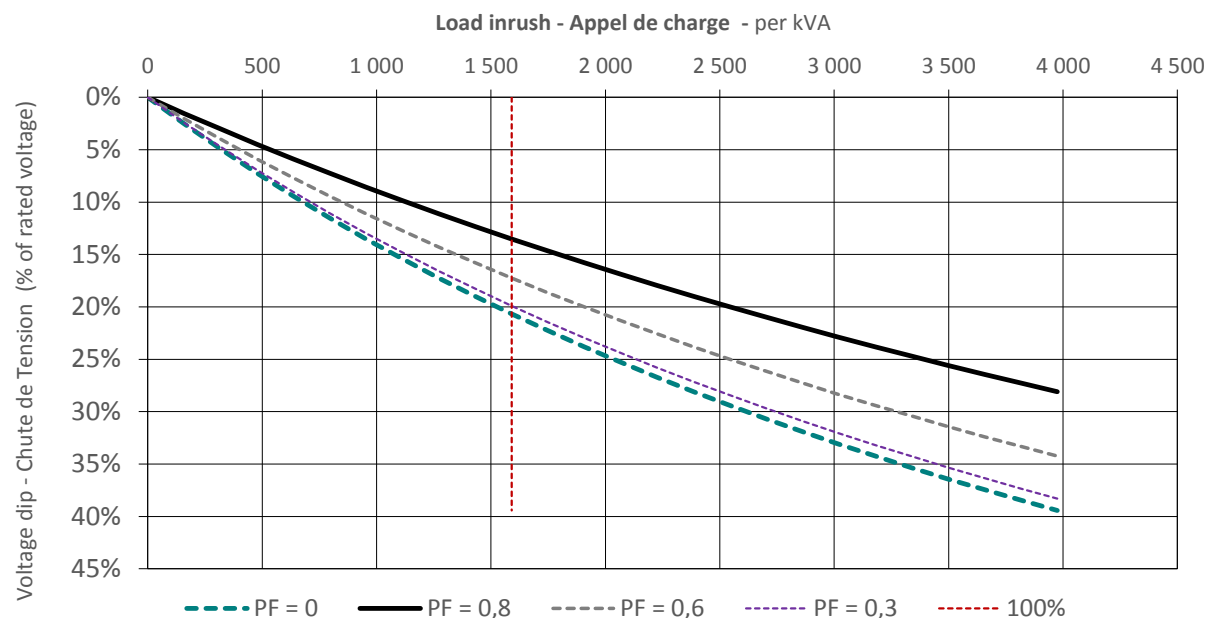
18,1 x  $I_n$

$I_{sc}$  ( Short circuit current per rated current - Courant de court circuit /  $I_n$  )

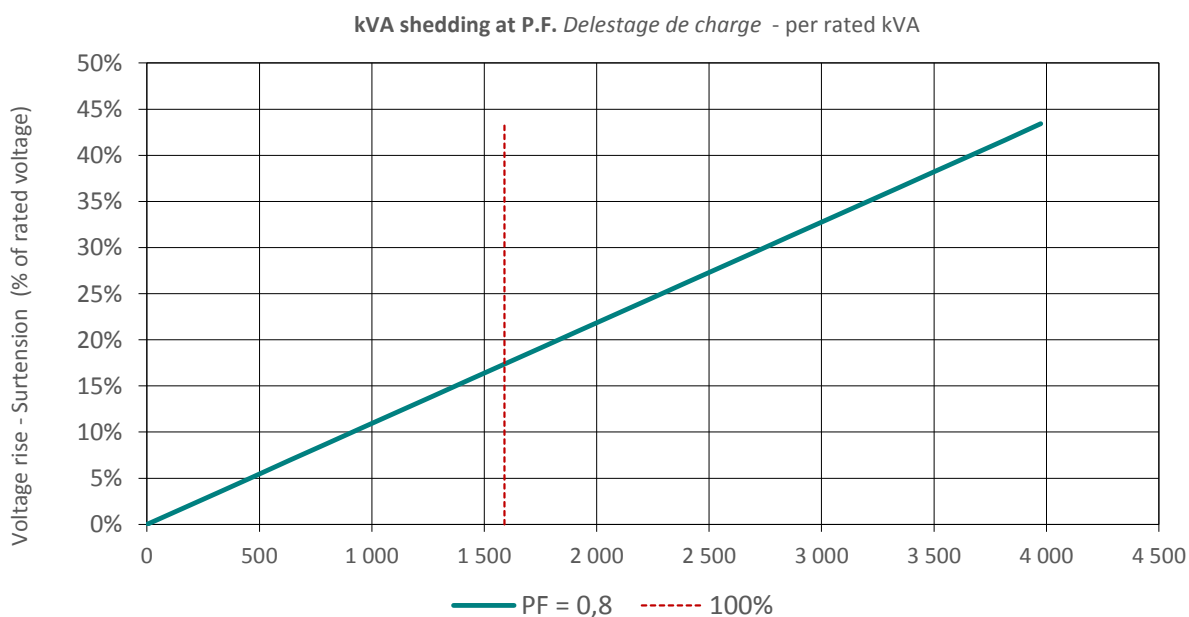


### Transient Voltage Variation

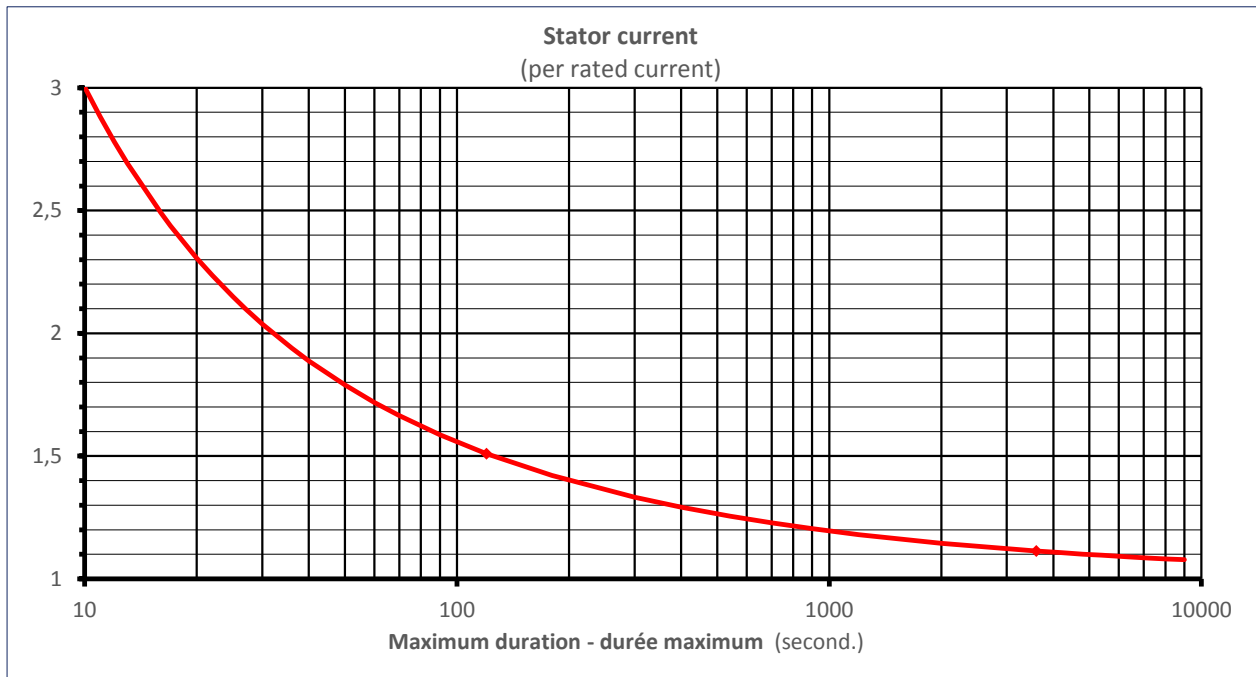
#### Transient voltage dip curve versus load impact



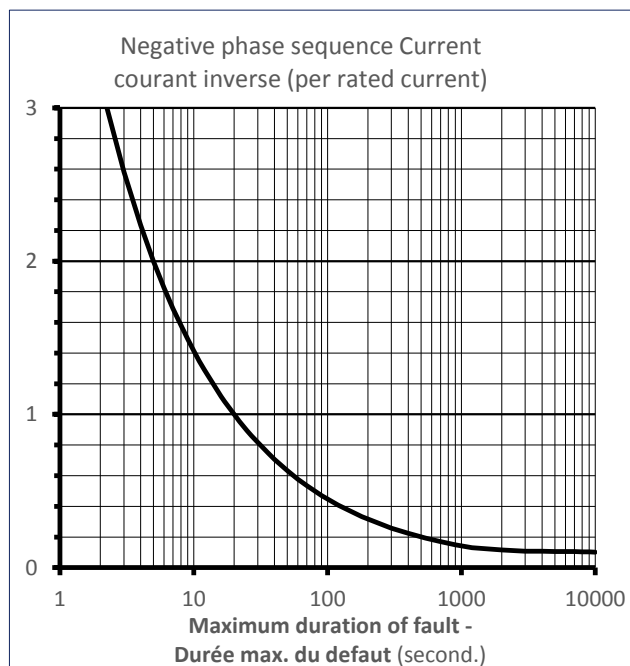
#### Transient voltage rise curve versus load rejection



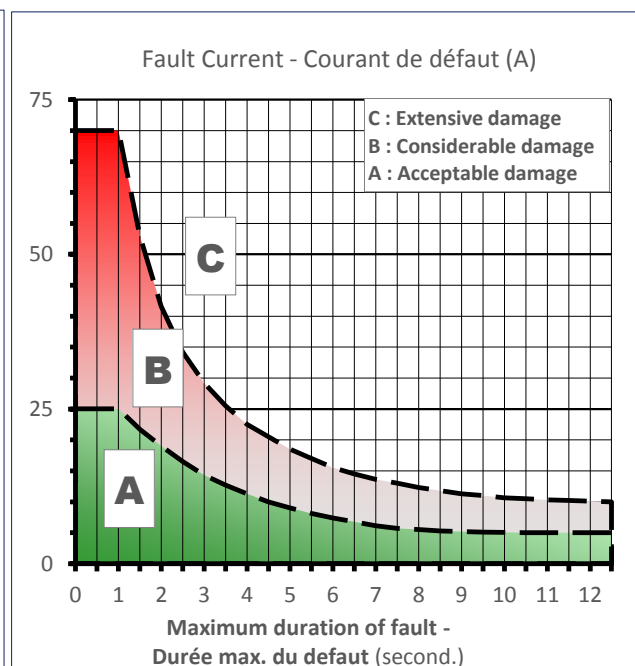
### Thermal Damage Curve



### Unbalance Load Curve



### Stator Earth Fault Current





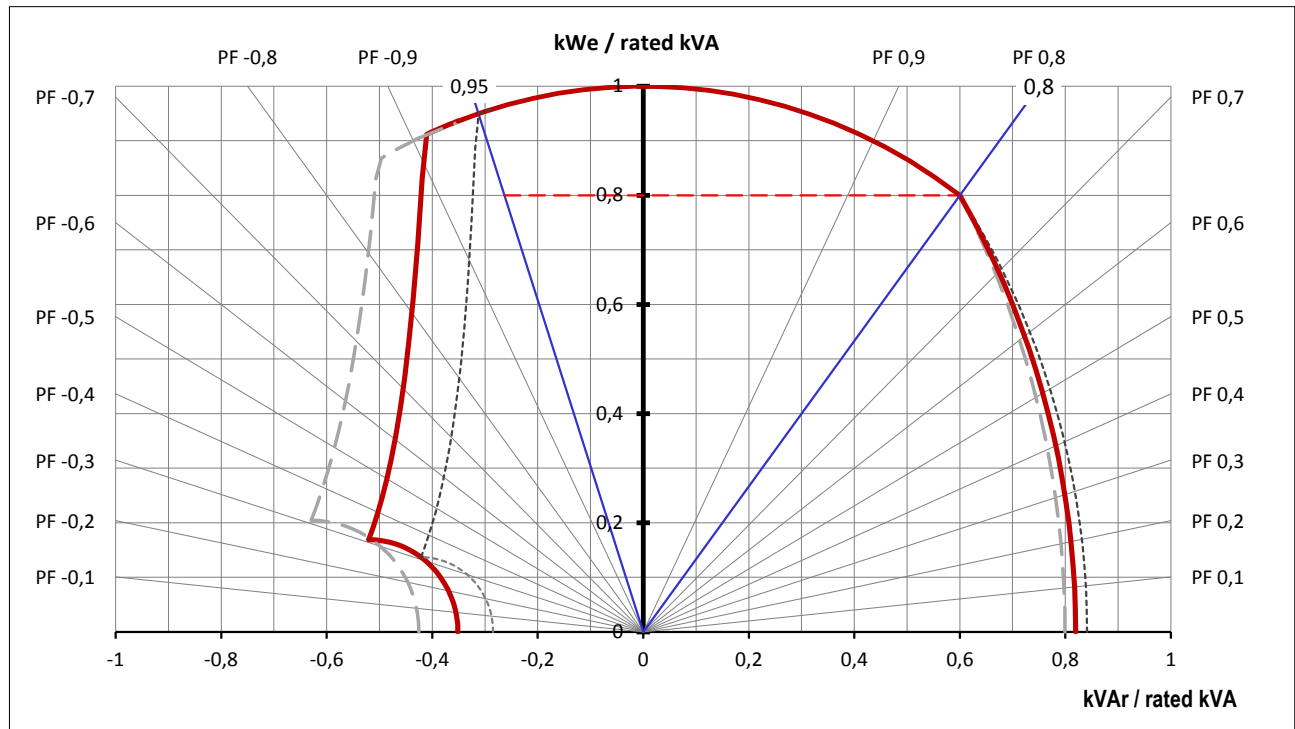
Date : 12.11.2015

697kVA - 690V - 50 Hz

V4.04a- 10/2015

### Capability Curve

---	Umax + 10%	759	V
---	Un	690	V
---	Umin - 10%	621	V



### Stator Current decrement curves

symmetrical phase to neutral short circuit  
symmetrical two phase short circuit  
symmetrical three phase short circuit

initial	6 720	A	11,5 x In	
max	3 903	A	6,7 x In	In = 583 A
value	4 565	A	7,8 x In	

