

**Technical Data Sheet for AvK-Alternators**

FM 7.3-5

Date:	03/10/13	Customer:	GENERIC DATASHEET only
Project No.:		AvK Reference:	DIG110I_4_60_6600

Object data:	
Site:	Prime Mover:
Application: Stationary Power Plant	Manufacturer:

Generator data:					
Generator:	DIG 110 i/4	Poles:	4	Standards: IEC 60034	
Rated power:	1250 kVA	1000 kWe	1054 kWm		
Power factor:	0.80				
Power at pf 1,0	1012 kVA	1012 kWe	1054 kWm		
Rated voltage:	6.6 kV				
Speed:	1800 1/min				
Frequency:	60 Hz				
Rated current:	109.3 A				
Voltage range / frequency range: Zone A according IEC 60034-1 (dU = +/-5%, df = +/-2%)					
Winding pitch:	ca. 5/6				
Insulation class:	Stator: Class F	Rotor: Class F	Temperature rise: F		
Ambient temperature:	40 °C		Environment:	Standard environment	
Site altitude:	1000 m				
Enclosure:	IP23		Filter:		
Cooling:	IC 01 - Open-circuit ventilation				
Coolant:	Ambient Air	Temperature	40 °C	Temperature Air inlet	40 °C
		Coolant:		generator:	
		Cooling air vol.:	1.6 m³/s	Cooling water quantity:	n/a
Moment of inertia (I):	26 kgm²	Weight:	3600 Kg	Losses (environment):	54 KW
				Losses (cooling):	n/a

Wires:	4 terminals, starpoint connected in terminal box
Operation mode:	Single mode
Regulators:	
Voltage regulator:	DECS 100

Electrical data: (acc. IEC)					
Efficiencies:	110%	100%	75%	50%	25%
Power factor 0.8	94,65	94,9	94,6	93,9	90,5
Power factor 0.9	95,23	95,45	95,15	94,25	90,65
Power factor 1.0	95,8	96	95,7	94,6	90,8

Reactances and time constants											
	unsaturated		saturated			unsaturated		saturated			
X _d	2.41	2.17	p.u.	X _q	1.20	1.18	p.u.	T _{d0'}	2.3 s	T _{d0''}	0.02096 s
X _{d'}	0.292	0.292	p.u.	X _{q'}	1.20	1.18	p.u.	T _{d'}	0.28 s	T _{q0'}	0.28 s
X _{d''}	0.215	0.195	p.u.	X _{q''}	0.209	0.209	p.u.	T _{d''}	0.014 s	T _{q0''}	0.16077 s
X ₂	0.220	0.200	p.u.	X ₀	0.063	0.057	p.u.	T _a	0.036 s	T _{q'}	0.28 s
X _{1s}	n.a.	0.117	p.u.							T _{q''}	0.028 s
Short circuit ratio saturated: 0.46					Z _n 34.848 Ohm						

Short circuit data:		
Initial short circuit current (3-phase):	I _{k'}	561 A
Max. peak current (3-phase):	I _s	1428 A
Sustained short circuit current:	I _k	328 A
Minimum 3 x rated current for max.10 s		
Initial short circuit torque:	M _{k2}	44.2 kNm
	M _{k3}	26.5 kNm
Max. faulty synchron moment:	M _f	95.0 kNm
Rated kVA torque:	M _{SN}	6.63 kNm
Rated torque	M _N	5.30 kNm
Shaft torque	M _{Sh}	5.58 kNm

Load application:	
max. load application: 642 kVA (corresponds to 51,37 % from 1250 kVA) for Power factor 0.4 15% transient voltage drop	Power: 1250 kVA Power factor: 0.8 transient voltage drop: -22.6 %

Remarks:

Alternator : DIG 110 i/4

Rated output [kVA]

1250

Rated power factor:

0.8

Rated voltage [kV]: 6.6

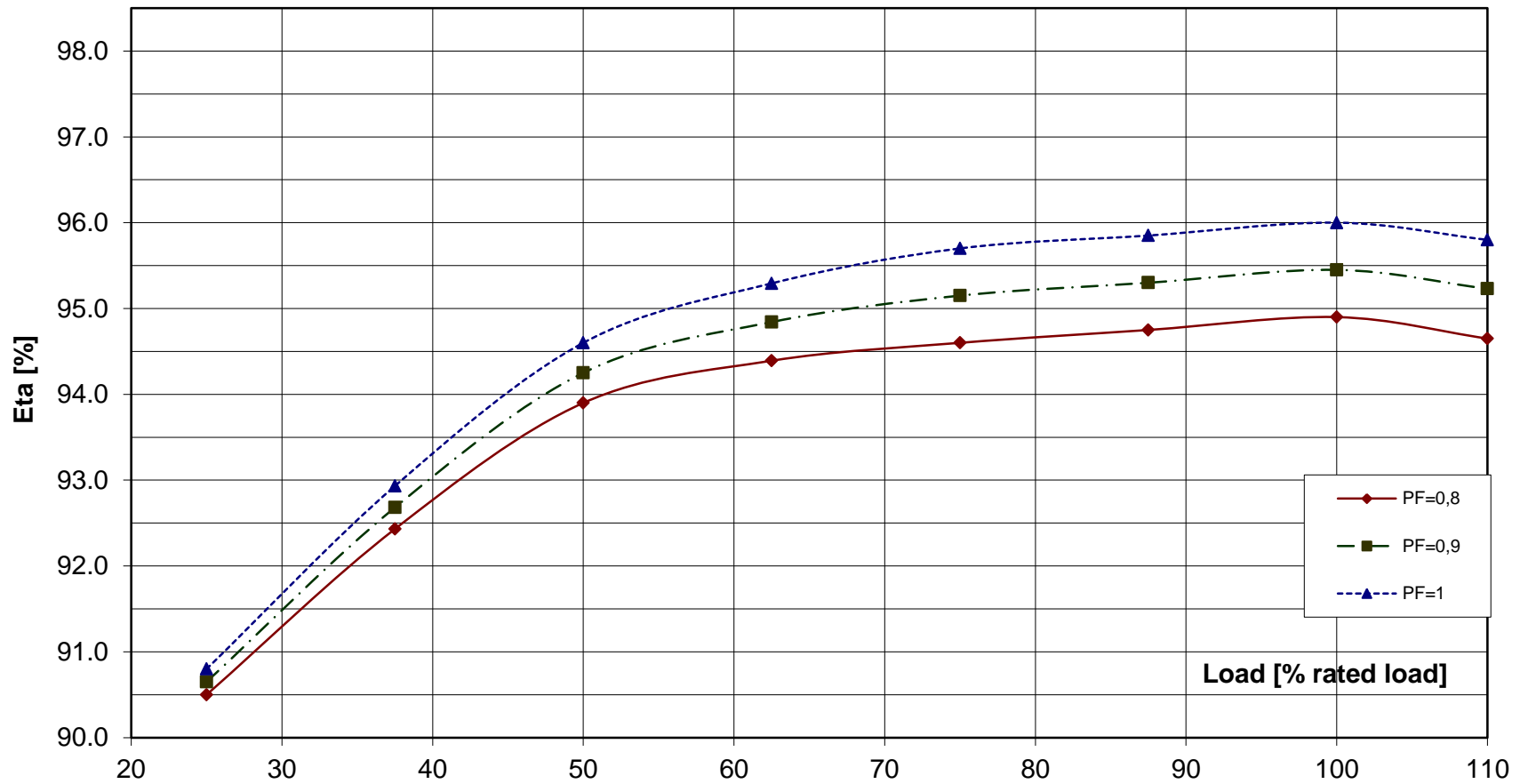
Rated frequency [Hz]

60

Rated speed [rpm]

1800

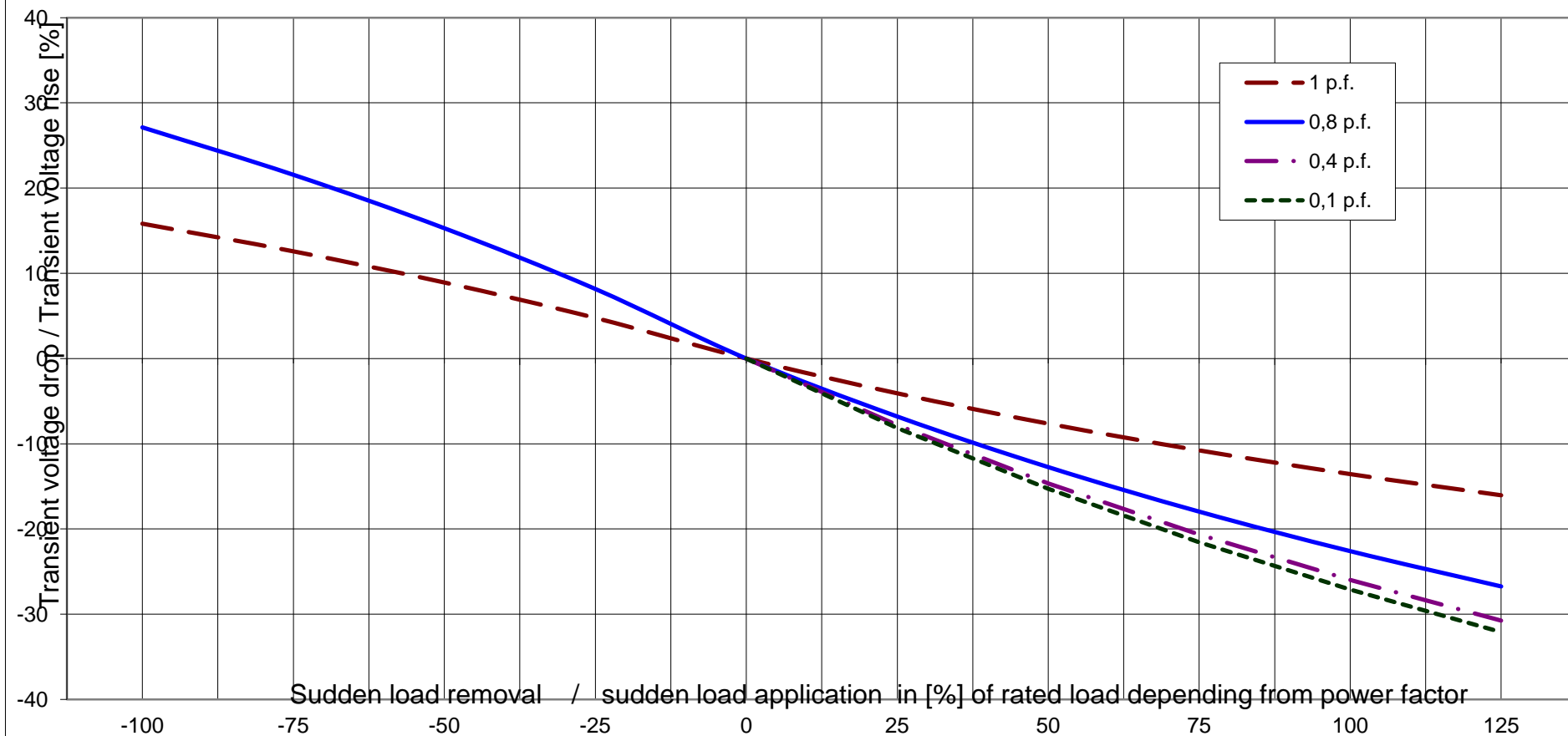
Wirkungsgrad-Kennlinie - Efficiency Curve



Alternator : DIG 110 i/4

Rated output [kVA]	1250	Rated power factor:	0.8	Rated voltage [kV]:	6.6
Rated frequency [Hz]	60	Rated speed [rpm]	1800		

Transient Voltage rise or drop for sudden load removal or application





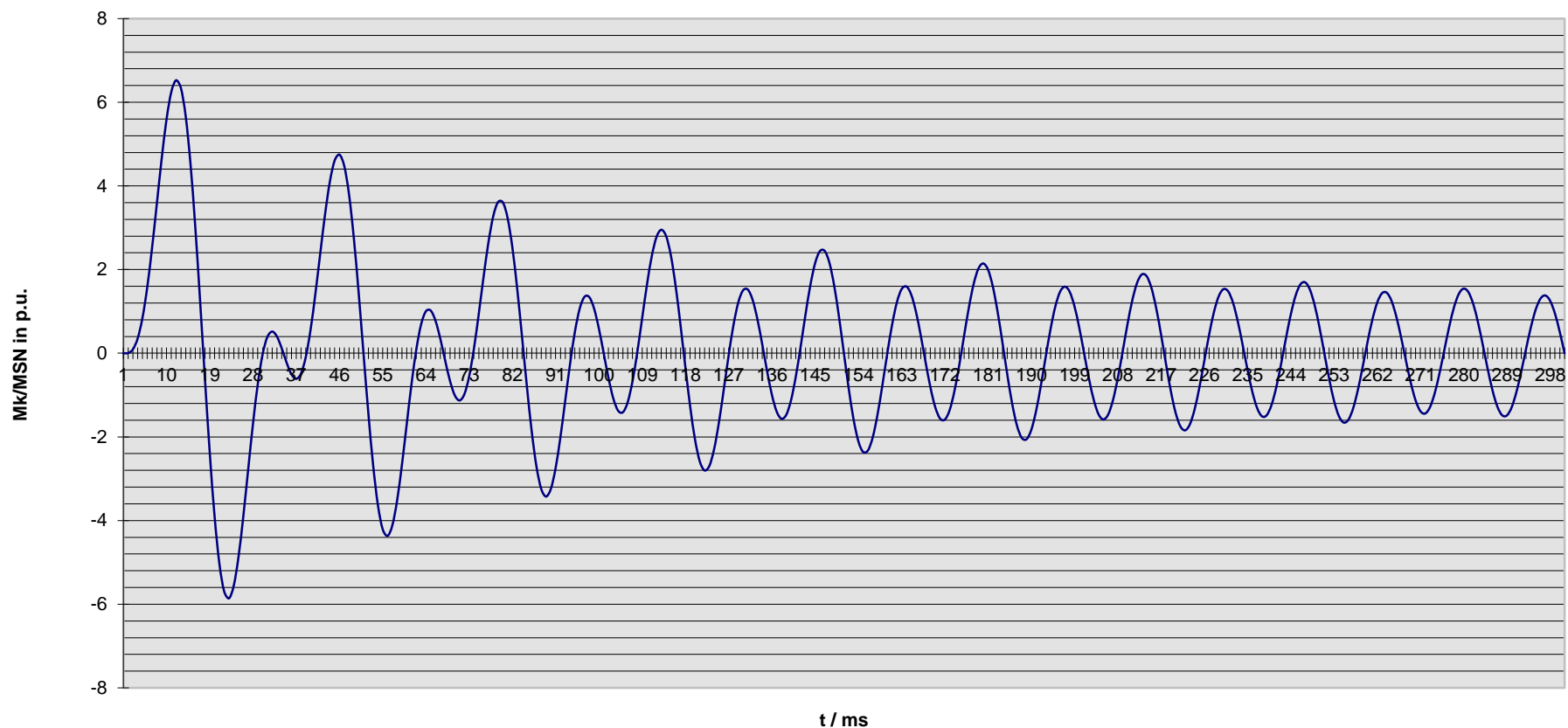
Technisches Datenblatt - Diagramme
Technical data sheet - Diagrams

ING-FCD-0112

Alternator : DIG 110 i/4

Rated output [kVA]	1250	Rated power factor:	0.8	Rated voltage [kV]:	6.6
Rated frequency [Hz]	60	Rated speed [rpm]	1800	MSN related to kVA:	6.63 KNm

Kurzschlußmomenten-Verlauf 2-poliger KS
Short circuit torque at 2-phase SC



Nenndaten / nominal data

DIG 110 i/4

Leistung S_N : **1250** kVA

$\cos \varphi$: **0.80**

Rating

p.f.

Spannung U_N : **6.60** kV

Strom I_N : **109** A

Voltage

Current

Frequenz f : **60** Hz

Drehzahl n : **1,800** min⁻¹

Frequency

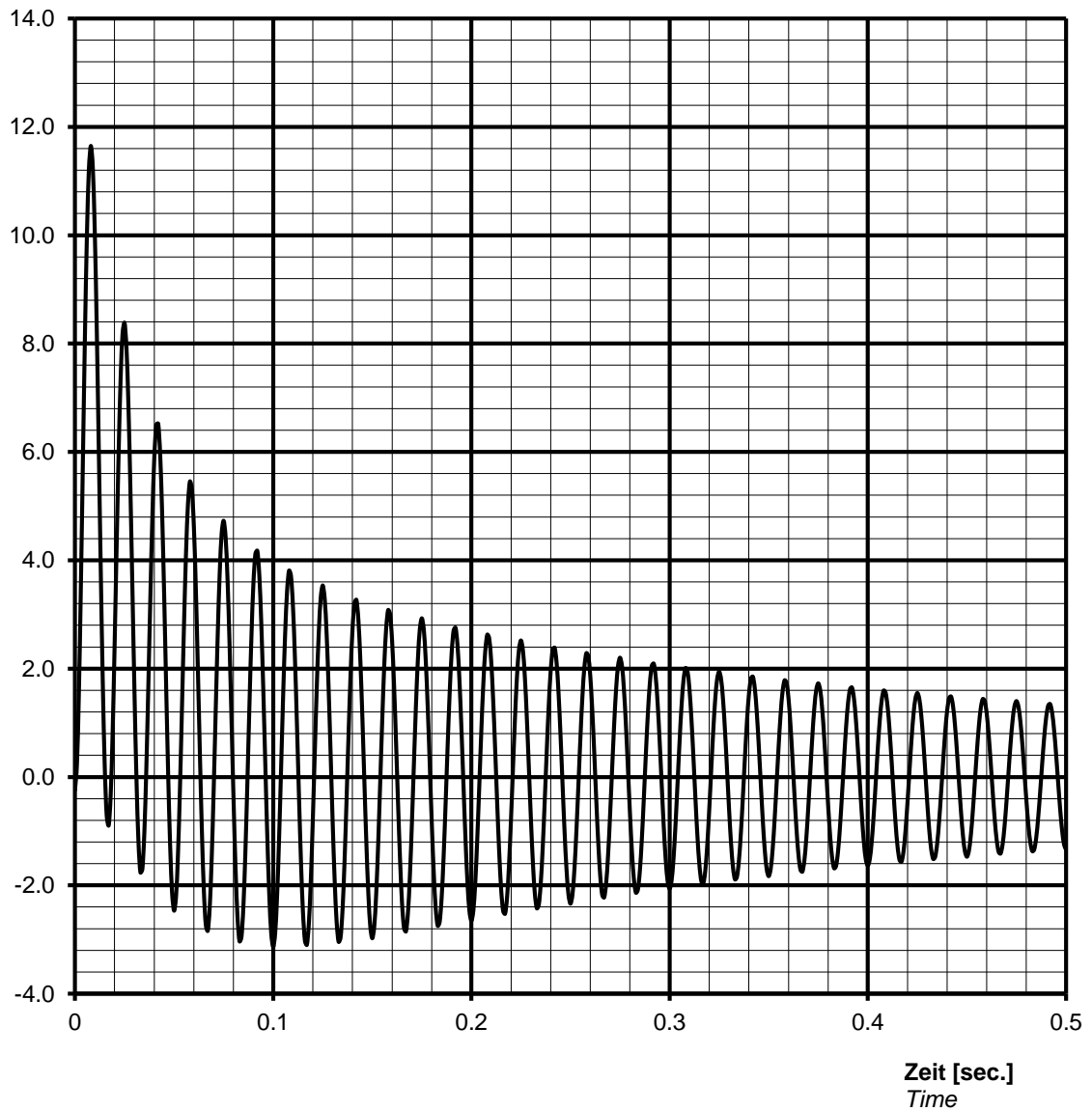
Speed

Schutzart **IP23**

Protection

Kurzschlussstrom $I_{k3\text{phasig}} / I_N$ [p.u.]
 Short-circuit current $I_{k3\text{phase}} / I_N$ [p.u.]

Stosskurzschluss-Strom, 3-phasig, asymmetrisch /
Sudden short circuit current, 3-phase, asymmetrical



Notizen / remarks:

Maximum asymmetric peak value

$I_{\text{speak}} =$

1274 A

or

11.65 p.u.

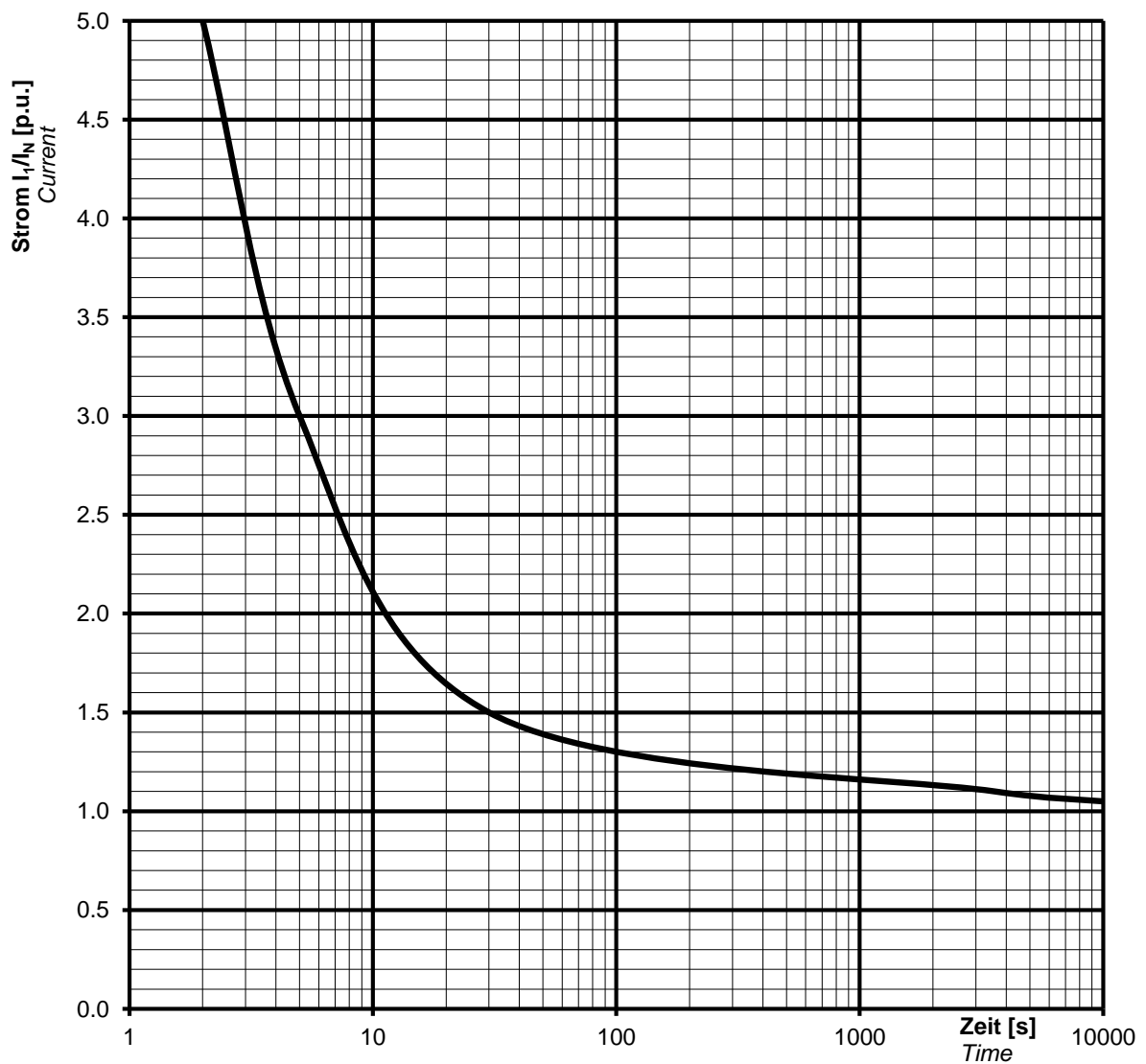
Nenndaten / nominal data

DIG 110 i/4

Leistung S_N : **1250** kVA
Rating
 Spannung U_N : **6.60** kV
Voltage
 Frequenz f : **60** Hz
Frequency
 Schutzart **IP23**
Protection

$\cos \varphi$: **0.80**
p.f.
 Strom I_N : **109** A
Current
 Drehzahl n : **1800** min⁻¹
Speed

Überlast Kennlinie
Overload capability



Notizen / remarks:

Strom / Zeit Kriterien: $(I / I_N)^2 \cdot t = 45s$
Current/time characteristics: 1,5 * I_N for 30 s
 1,1 * I_N for 1 h in 6h

Nennndaten / nominal data

DIG 110 i/4

Rating S_N : **1250 kVA**

Bemessungsleistung

Nominal voltage U_N : **6.60 kV**

Bemessungsspannung

Frequency f_N : **60 Hz**

Frequenz

Protection: **IP23**

Schutzart

p.f. **0.80**

Leistungsfaktor $\cos \varphi$:

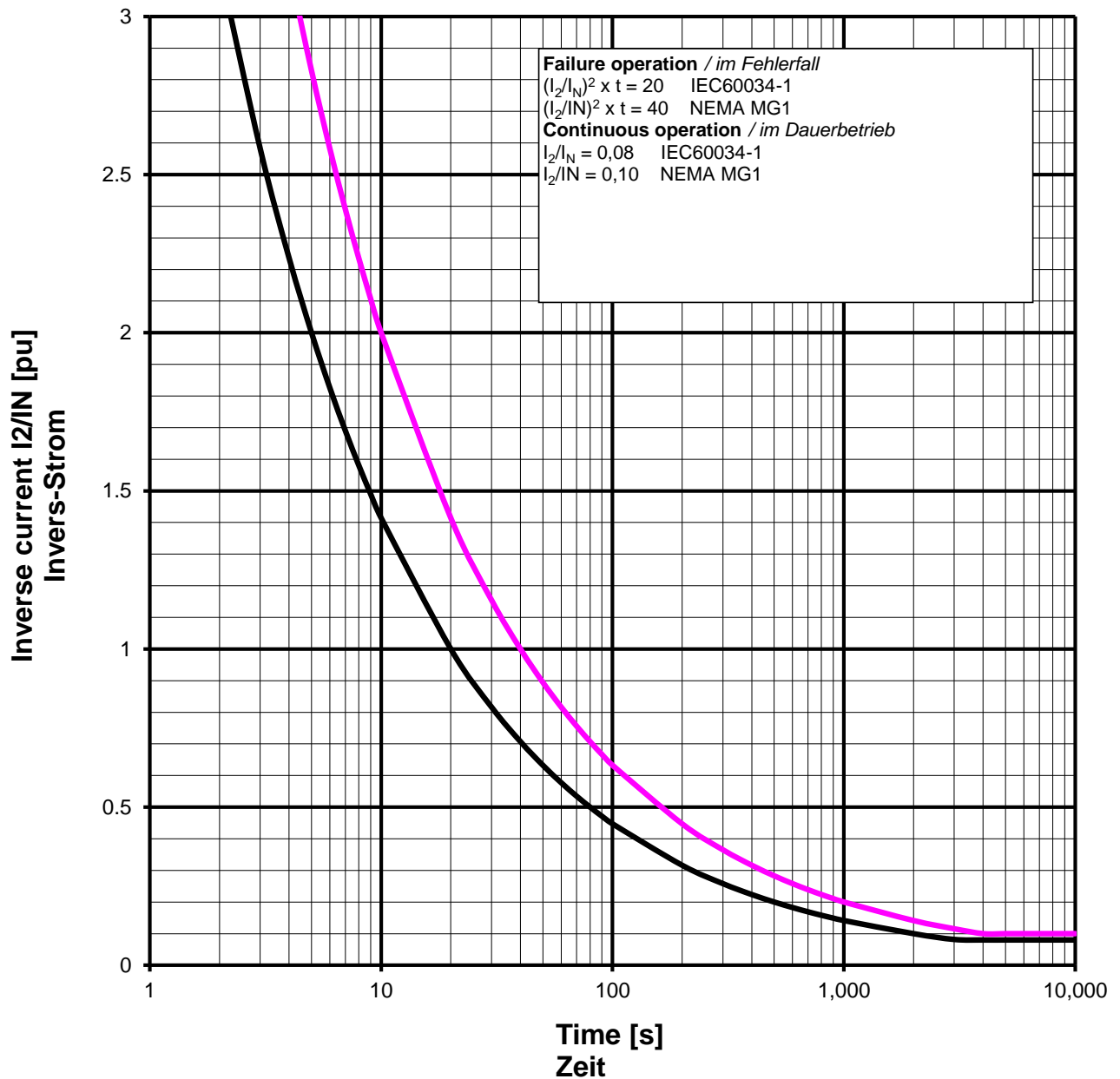
Nominal current I_N : **109 A**

Bemessungsstrom

Speed n : **1800 min⁻¹**

Drehzahl

Inverse current or unbalanced negative sequence current



Remarks / Notizen:

All data according IEC 60034-1, NEMA MG1



Technische Daten selbstregelnden Drehstrom-Synchrongenerator
technical data for self regulating three phase alternator

ING-FCD-0112

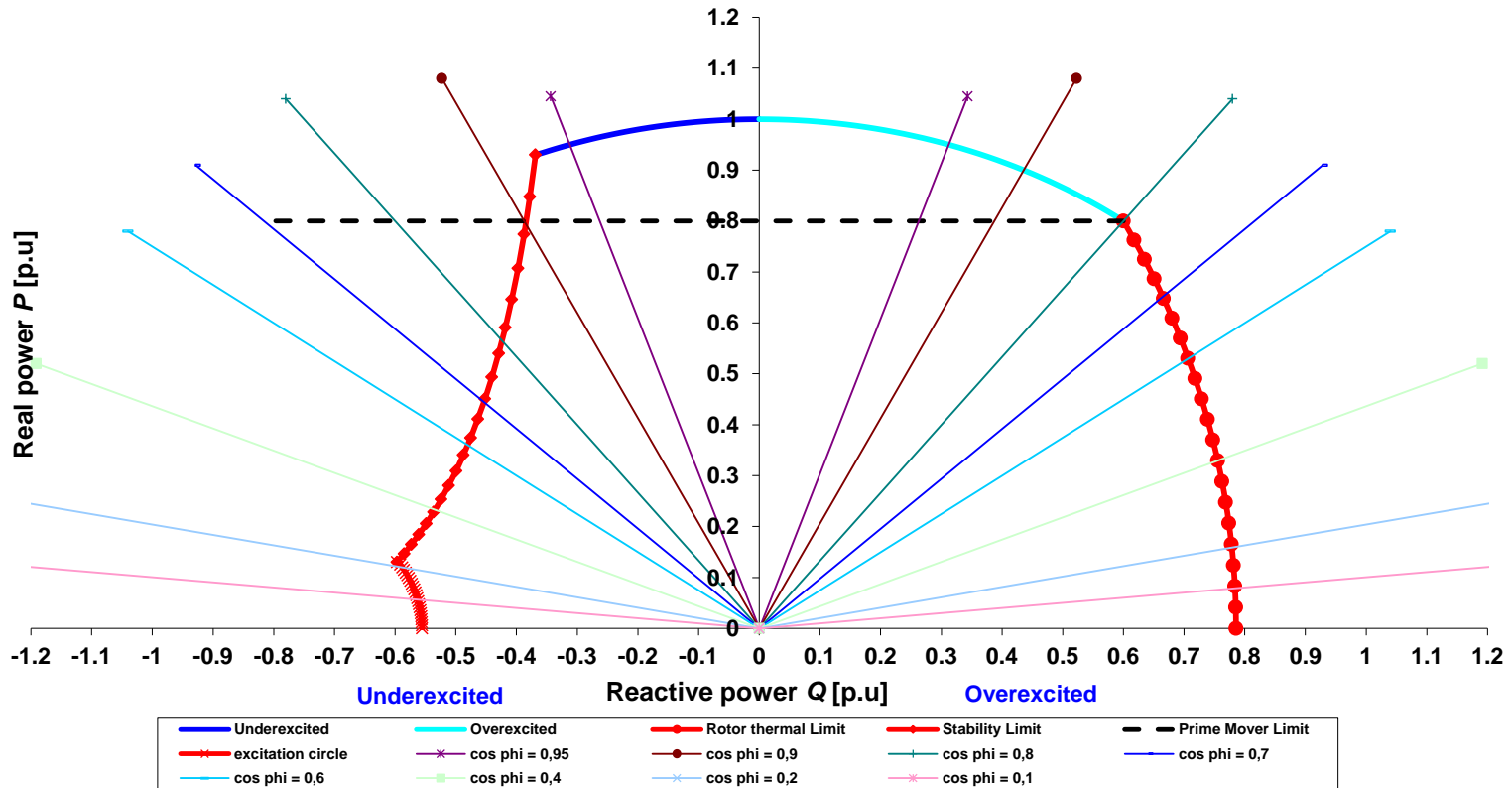
TYPE

DIG 110 i/4

Projekt:

Order Nr.:

Capability (P-Q) Diagram



Cummins Generator Technologies

Datum / date:

03/10/2013



Technische Daten selbstregelnden Drehstrom-Synchrongenerator
 technical data for self regulating three phase alternator

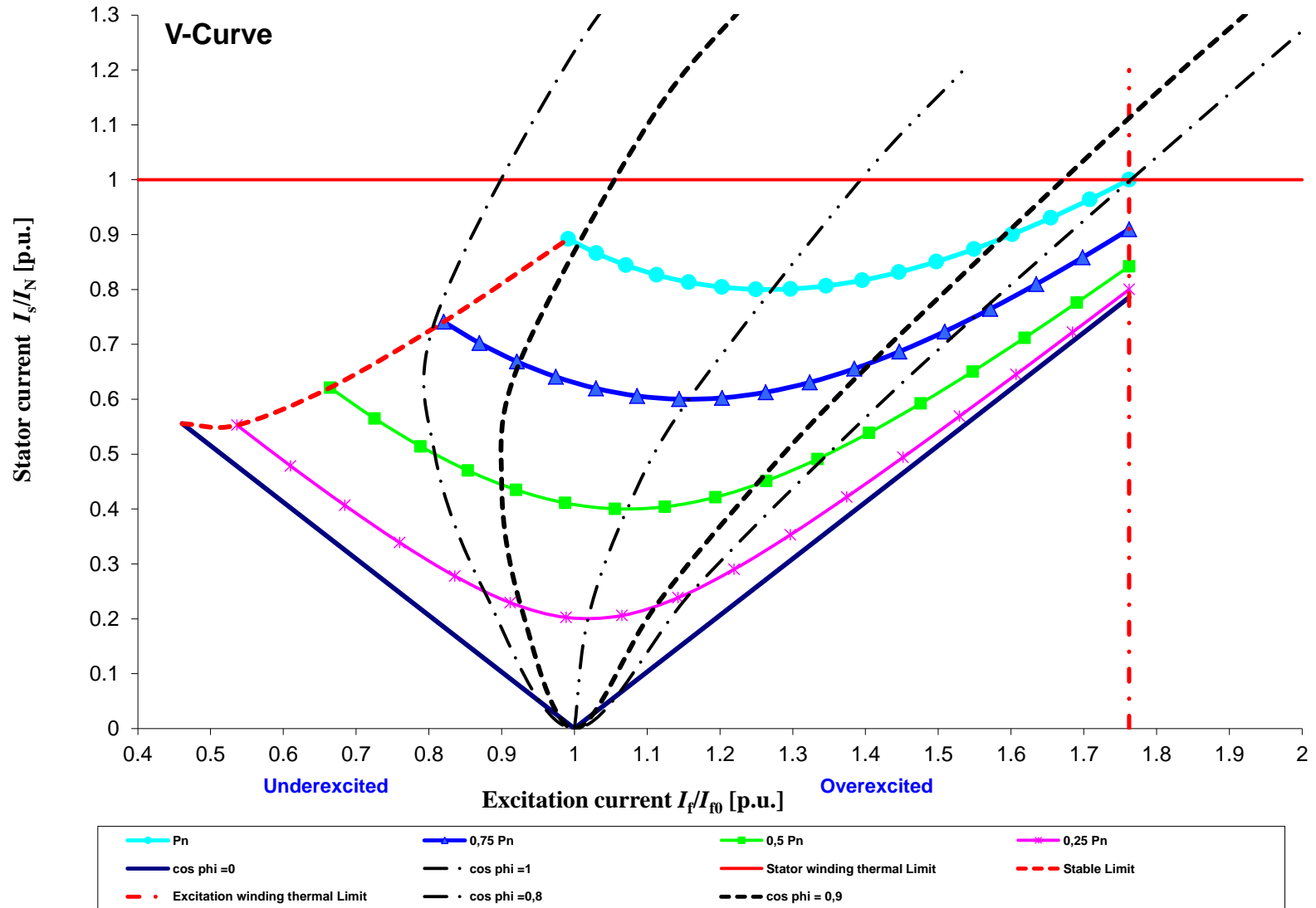
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