

**Technical Data Sheet for AvK-Alternators**

FM 7.3-5

Date:	09/01/14	Customer:	GENERIC DATASHEET only
Project No.:		AvK Reference:	dig110i_4_50_6300_A048M998

Object data:

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

Generator data:

Generator:	DIG 110 i/4	Poles:	4	Standards:	IEC 60034
Rated power:	1080 kVA	864 kWe	910 kWm		
Power factor:	0.80				
Power at pf 1,0	875 kVA	875 kWe	910 kWm		
Rated voltage:	6.3 kV				
Speed:	1500 1/min				
Frequency:	50 Hz			Voltage range / frequency range:	
Rated current:	99.0 A			Zone A according IEC 60034-1 (dU = +/-5%, df = +/-2%)	

Winding pitch:	ca. 5/6				
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Insulation class:	Stator: Class F	Rotor: Class F	Temperature rise:	F
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Ambient temperature:	40 ° C	Environment:	Standard environment
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Site altitude:	1000 m		
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Enclosure:	IP23	Filter:	
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Cooling:	IC 01 - Open-circuit ventilation		
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Coolant:	Ambient Air	Temperature	40 ° C	Temperature Air inlet	40 ° C
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		Coolant:		generator:	
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		Cooling air vol.:	1.3 m³/s	Cooling water quantity:	n/a
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Moment of inertia (I):	26 kgm²	Weight:	3600 Kg	Losses (environment):	46 KW
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		Losses (cooling):	n/a		
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Wires:	4 terminals, starpoint connected in terminal box
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Operation mode:	Single mode
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Regulators:	
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Voltage regulator:	DECS 100
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Electrical data: (acc. IEC)

Efficiencies:	110%	100%	75%	50%	25%
Power factor 0.8	94,65	94,9	94,8	94,2	91
Power factor 0.9	95,33	95,55	95,35	94,55	91,15
Power factor 1.0	96,01	96,2	95,9	94,9	91,3

Reactances and time constants

	unsaturated	saturated		unsaturated	saturated				
X_d	2.40	2.16 p.u.	X_q	1.20	1.18 p.u.	$T_{d0'}$	2.2 s	$T_{d0''}$	0.02137 s
X_d'	0.290	0.290 p.u.	X_q'	1.20	1.18 p.u.	$T_{d'}$	0.27 s	$T_{q0'}$	0.28 s
X_d''	0.209	0.190 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.	0.114 p.u.						$T_{q''}$	0.028 s

Short circuit ratio saturated:	0.46	Z_n	36.750 Ohm
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Short circuit data:

Initial short circuit current (3-phase):	I_k''	521 A	
Max. peak current (3-phase):	I_s	1326 A	
Sustained short circuit current:	I_k	297 A	Minimum 3 x rated current for max.10 s

Initial short circuit torque:	M_{k2}	47.0 kNm
	M_{k3}	28.2 kNm

Max. faulty synchron moment:	M_f	101.1 kNm
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Rated kVA torque:	M_{SN}	6.88 kNm
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Rated torque	M_N	5.50 kNm
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Shaft torque	M_{Sh}	5.80 kNm
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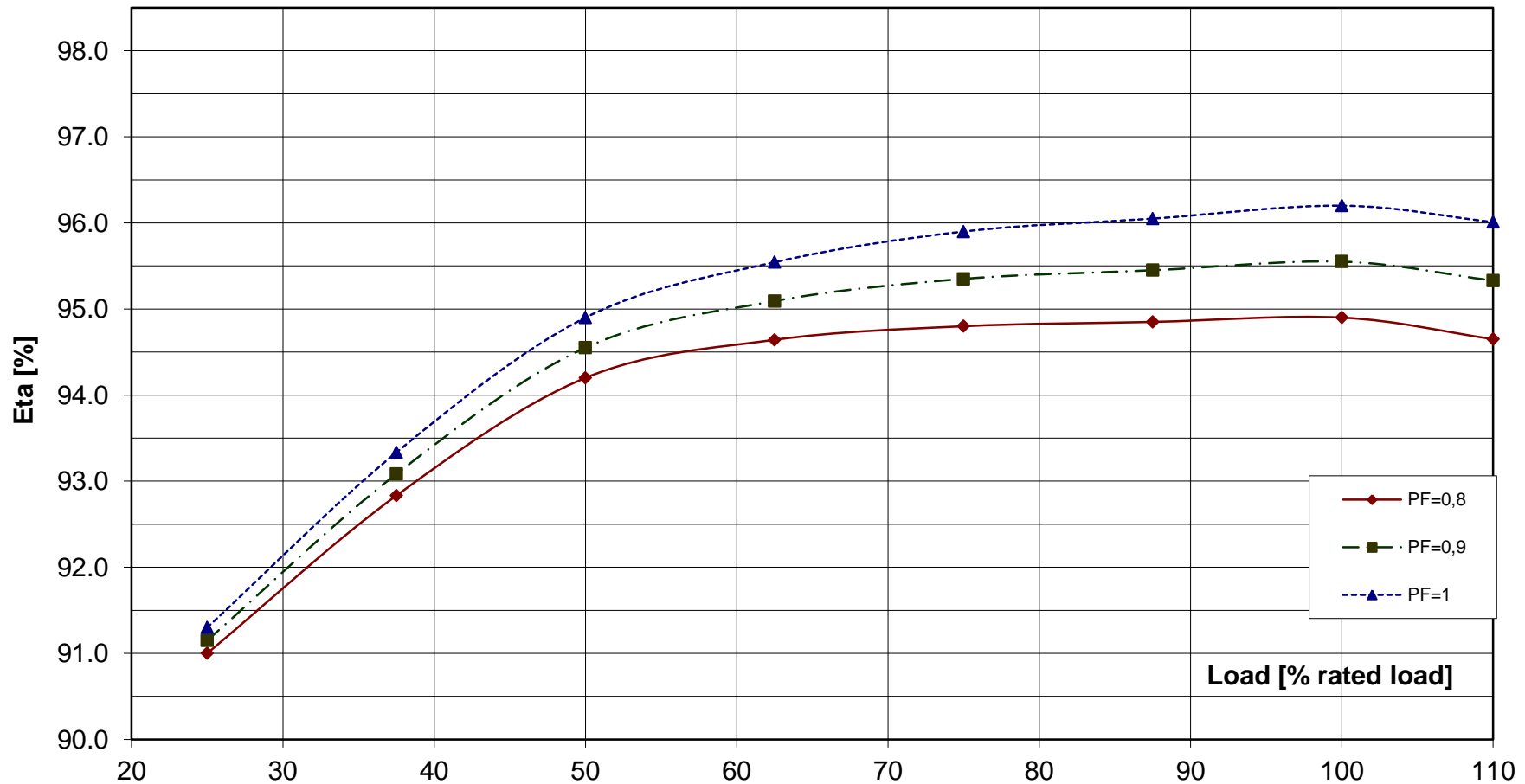
Load application:

max. load application: 559 kVA (corresponds to 51,72 % from 1080 kVA) for Power factor 0.4 15% transient voltage drop	Power: 1080 kVA Power factor: 0.8 transient voltage drop: -22.5 %
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Remarks:

Alternator :	DIG 110 i/4		
Rated output [kVA]	1080	Rated power factor:	0.8
Rated frequency [Hz]	50	Rated speed [rpm]	1500
			Rated voltage [kV]: 6.3

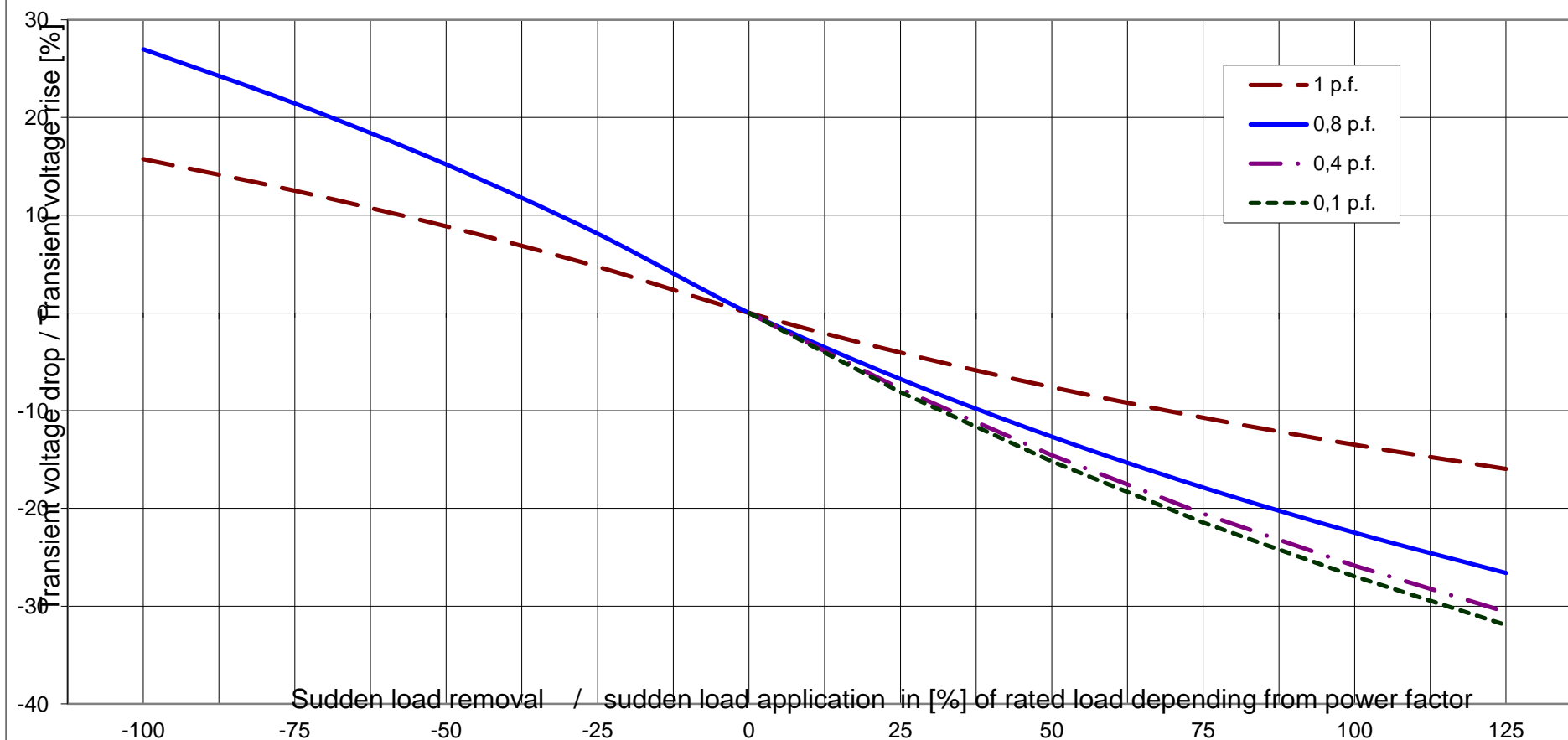
Wirkungsgrad-Kennlinie - Efficiency Curve



Alternator : DIG 110 i/4

Rated output [kVA]	1080	Rated power factor:	0.8	Rated voltage [kV]:	6.3
Rated frequency [Hz]	50	Rated speed [rpm]	1500		

Transient Voltage rise or drop for sudden load removal or application

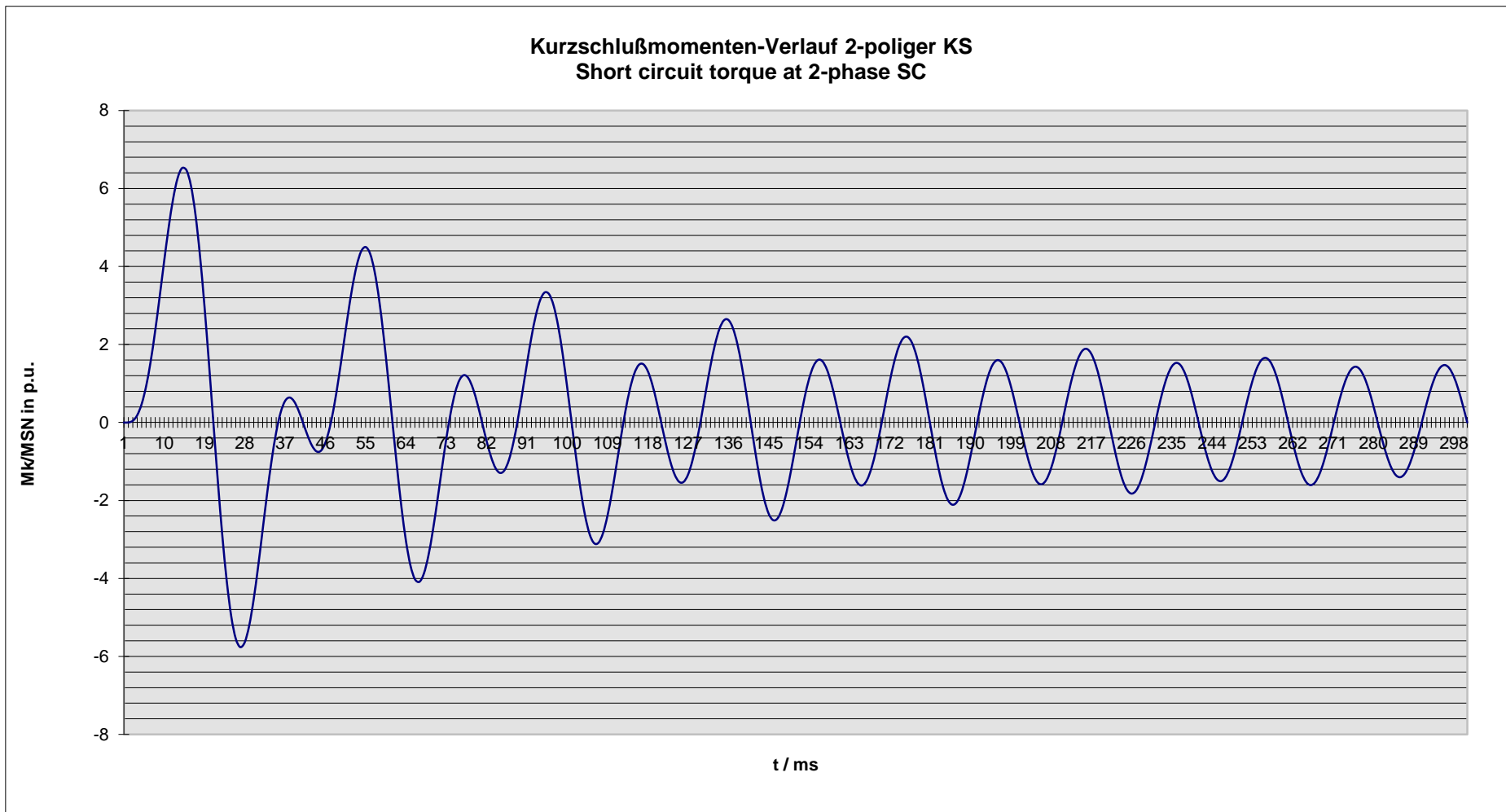




Technisches Datenblatt - Diagramme
Technical data sheet - Diagrams

ING-FCD-0112

Alternator :	DIG 110 i/4			
Rated output [kVA]	1080	Rated power factor:	0.8	Rated voltage [kV]: 6.3
Rated frequency [Hz]	50	Rated speed [rpm]	1500	MSN related to kVA: 6.88 KNm



Nenndaten / nominal data

DIG 110 i/4

Leistung S_N : **1080 kVA**

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

Rating

p.f.

Spannung U_N : **6.30 kV**

Strom I_N : **99 A**

Voltage

Current

Frequenz f : **50 Hz**

Drehzahl n : **1,500 min⁻¹**

Frequency

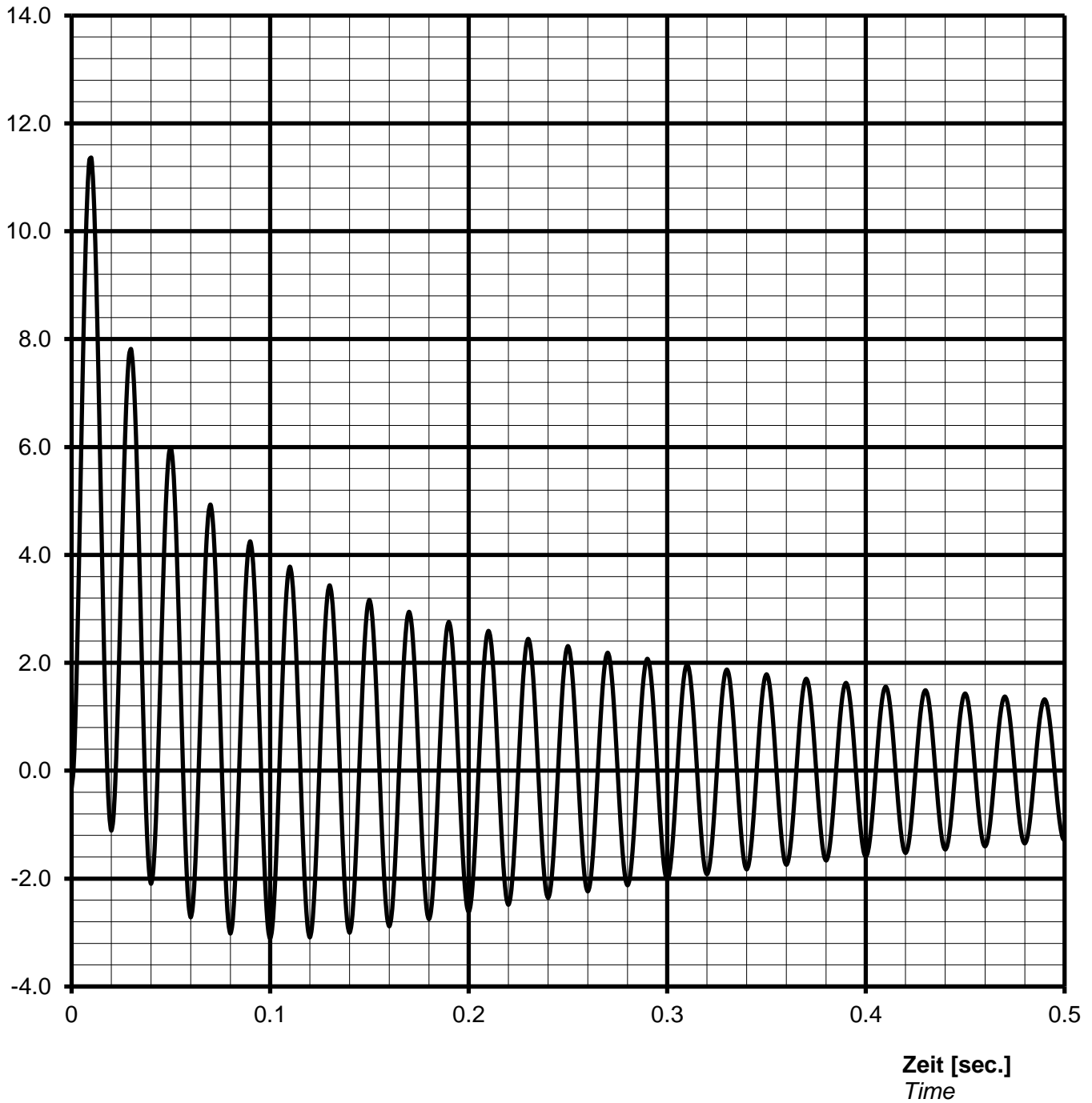
Speed

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 $I_{\text{peak}} =$ **1124 A** or **11.36 p.u.**

Nennwerten / nominal data

DIG 110 i/4

Leistung S_N : **1080 kVA**

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

Rating

p.f.

Spannung U_N : **6.30 kV**

Strom I_N : **99 A**

Voltage

Current

Frequenz f: **50 Hz**

Drehzahl n: **1500 min⁻¹**

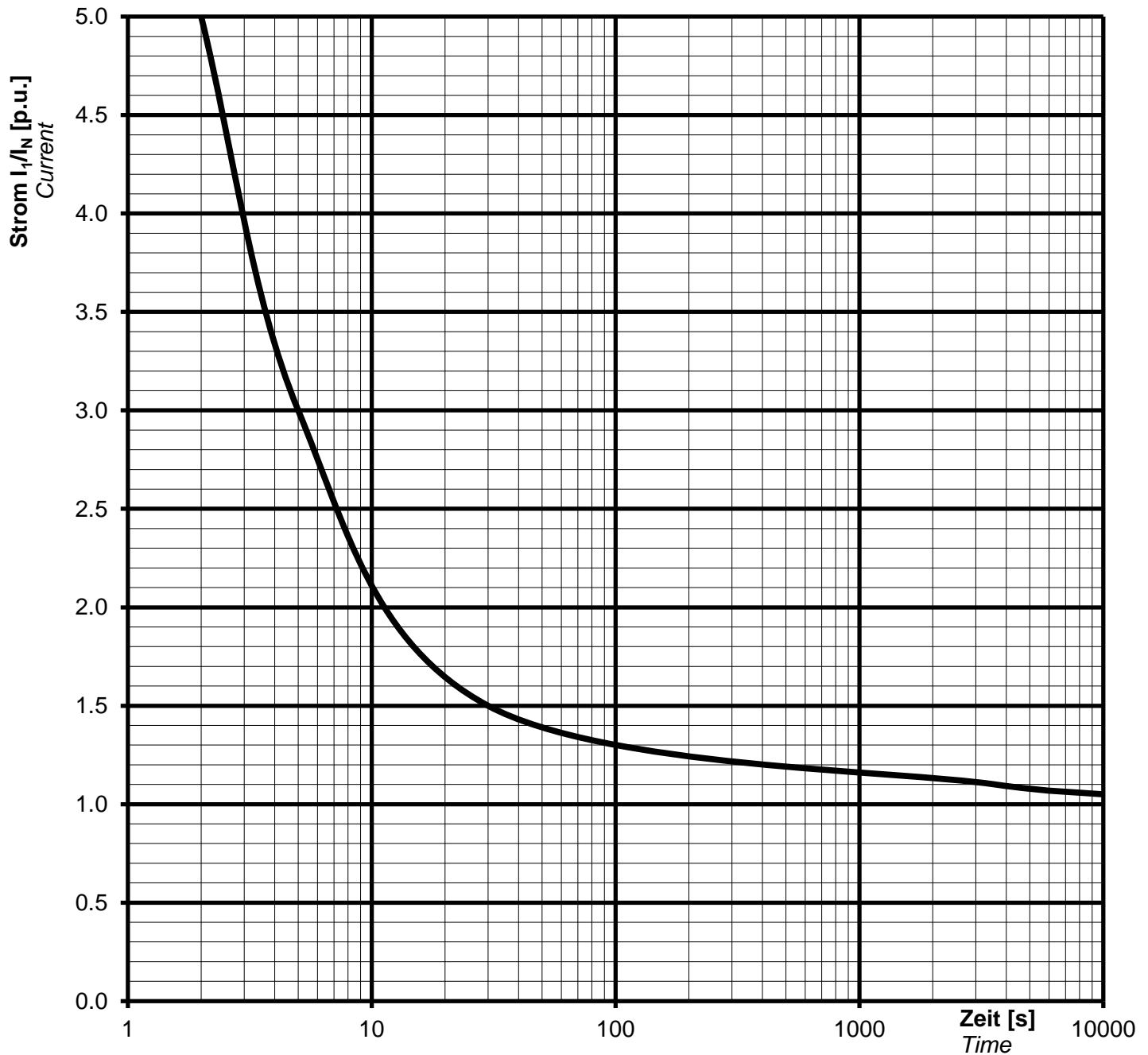
Frequency

Speed

Schutzart **IP23**

Protection

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

Nenndaten / nominal data

DIG 110 i/4

Rating S_N : **1080 kVA**

p.f. **0.80**

Bemessungsleistung

Leistungsfaktor $\cos \varphi$:

Nominal voltage U_N : **6.30 kV**

Nominal current I_N : **99 A**

Bemessungsspannung

Bemessungsstrom

Frequency f_N : **50 Hz**

Speed n : **1500 min⁻¹**

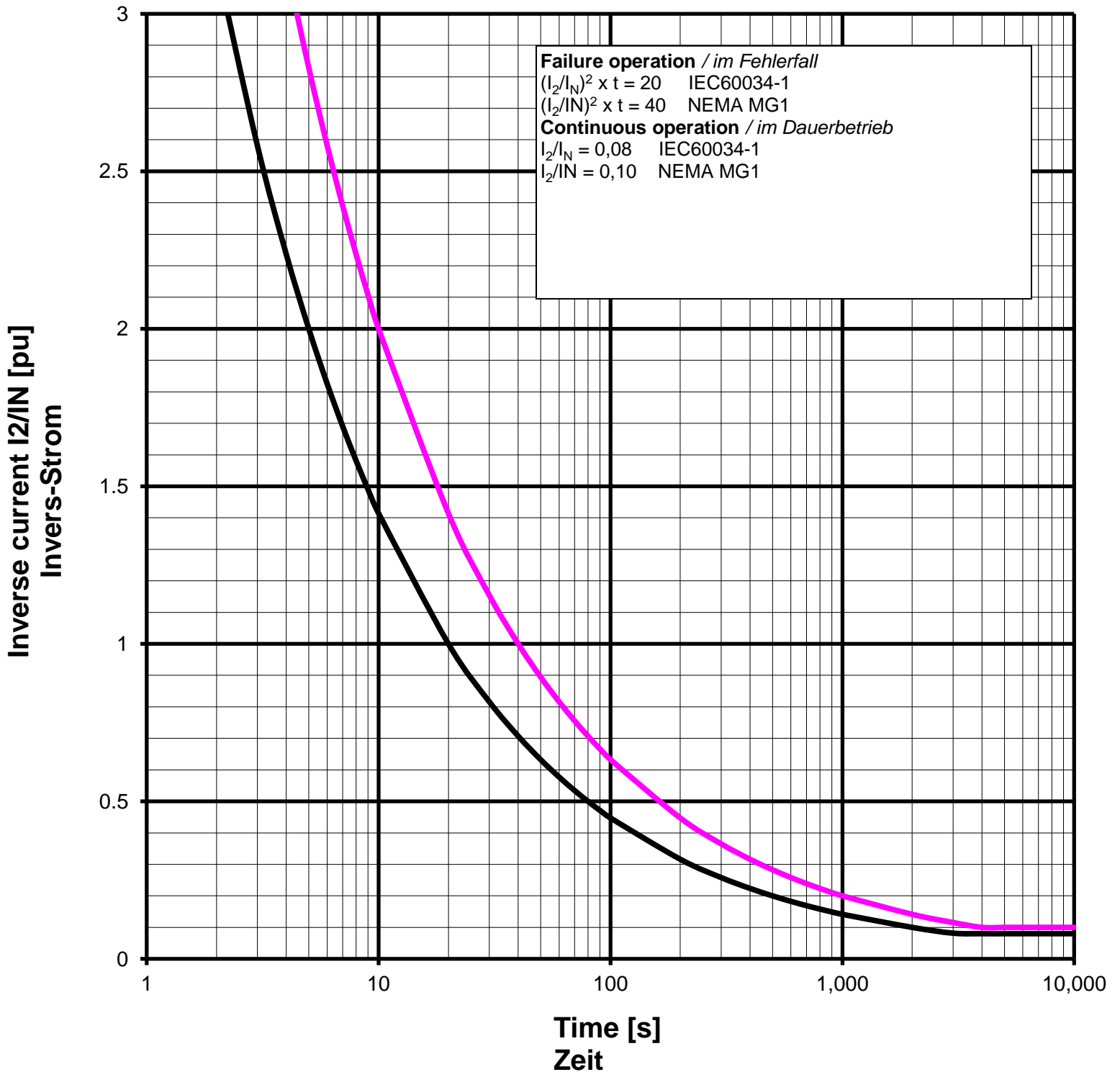
Frequenz

Drehzahl

Protection: **IP23**

Schutzart

Inverse current or unbalanced negative sequence current



Remarks / Notizen:



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

ING-FCD-0112

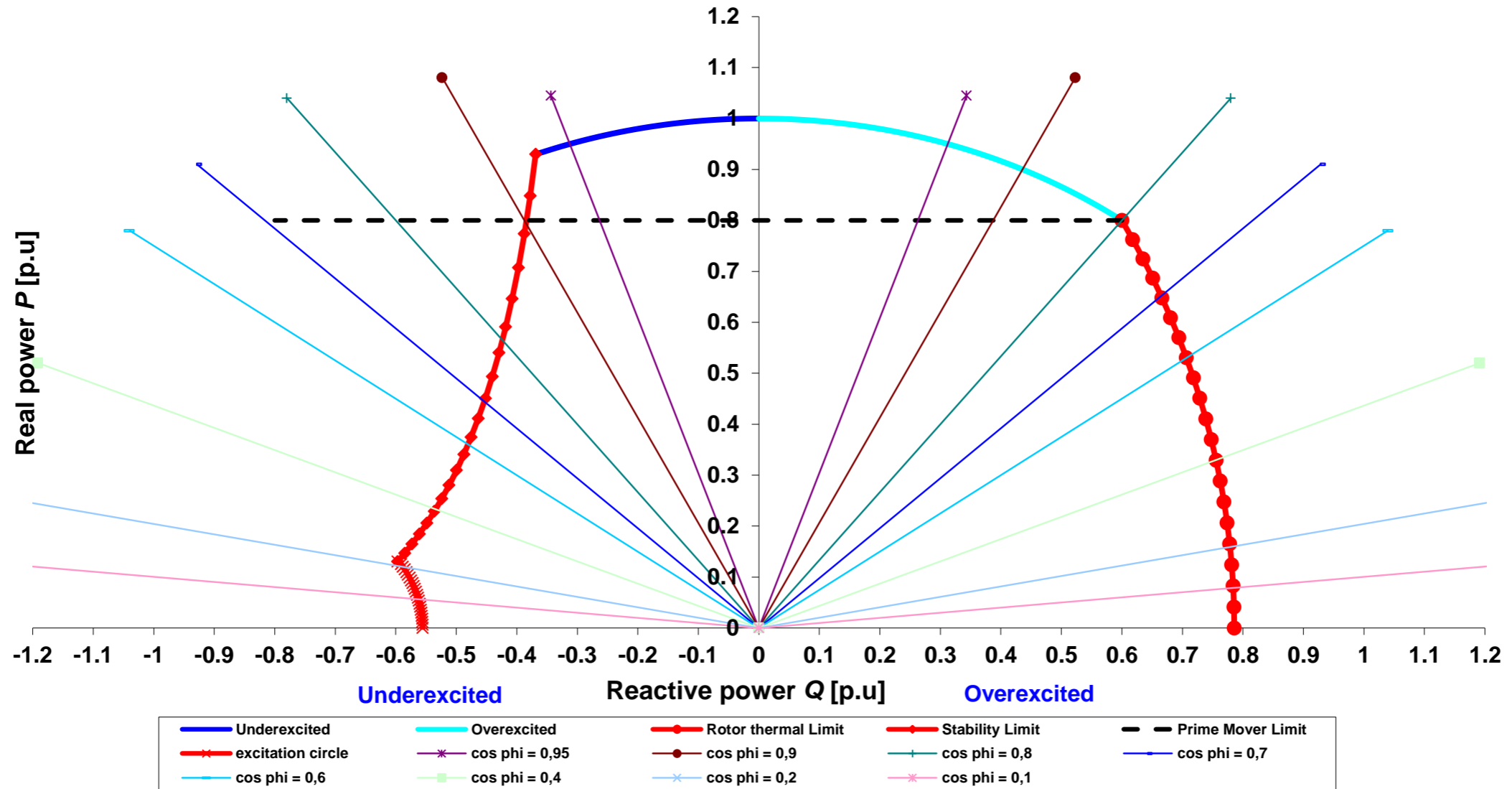
TYPE

DIG 110 i/4

Projekt:

Order Nr.:

Capability (P-Q) Diagram



Cummins Generator Technologies

Datum / date:

21/01/2014

TYPE

DIG 110 i/4

Projekt:

Order Nr.:

