

**Technical Data Sheet for AvK-Alternators**

FM 7.3-5

Date:	02/01/14	Customer:	GENERIC DATASHEET only
Project No.:		AvK Reference:	dsg074m2_4_50_690_A048M961

Object data:

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

Generator data:

Generator:	DSG 74 M2/4	Poles:	4	Standards:	IEC 60034
Rated power:	1500 kVA	1200 kWe	1259 kWm		
Power factor:	0.80				
Power at pf 1,0	1216 kVA	1216 kWe	1259 kWm		
Rated voltage:	0.69 kV				
Speed:	1500 1/min				
Frequency:	50 Hz			Voltage range / frequency range:	
Rated current:	1255.1 A			Zone A according IEC 60034-1 (dU = +/-5%, df = +/-2%)	

Winding pitch:	2/3
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Insulation class:	Stator: Class H	Rotor: Class H	Temperature rise:	H
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Ambient temperature:	40 ° C	Environment:	Standard environment
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Site altitude:	1000 m	Filter:	
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Enclosure:	IP23		
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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
		Coolant:		generator:	

Moment of inertia (I):	40.4 kgm ²	Cooling air vol.:	2.4 m ³ /s	Cooling water quantity:	n/a
		Weight:	3475 Kg	Losses (environment):	59 KW
				Losses (cooling):	n/a

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	95,07	95,3	95,57	95,37	93,34
Power factor 0.9	95,75	95,95	96,08	95,74	93,57
Power factor 1.0	96,43	96,6	96,59	96,11	93,8

Reactances and time constants

	unsaturated	saturated		unsaturated	saturated					
X _d	2.82	2.54 p.u.	X _q	1.32	1.29 p.u.	T _{d0'}	3.39527 s	T _{d0''}	0.02114 s	
X _{d'}	0.223	0.223 p.u.	X _{q'}	1.32	1.29 p.u.	T _{d'}	0.27 s	T _{q0'}	0.2086 s	
X _{d''}	0.121	0.110 p.u.	X _{q''}	0.135	0.135 p.u.	T _{d''}	0.01043 s	T _{q0''}	0.20396 s	
X ₂	0.136	0.124 p.u.	X ₀	0.047	0.043 p.u.	T _a	0.02438 s	T _{q'}	0.2086 s	
X _{1s}	n.a.	0.066 p.u.						T _{q''}	0.02086 s	

Short circuit ratio saturated:	0.39	Z _n	0.317 Ohm
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Short circuit data:

Initial short circuit current (3-phase):	I _{k''}	11410 A	
Max. peak current (3-phase):	I _s	29045 A	
Sustained short circuit current:	I _k	3765 A	Minimum 3 x rated current for max.10 s
Initial short circuit torque:	M _{k2}	112.9 kNm	
	M _{k3}	67.7 kNm	
Max. faulty synchron moment:	M _f	242.7 kNm	
Rated kVA torque:	M _{SN}	9.55 kNm	
Rated torque	M _N	7.64 kNm	
Shaft torque	M _{Sh}	8.02 kNm	

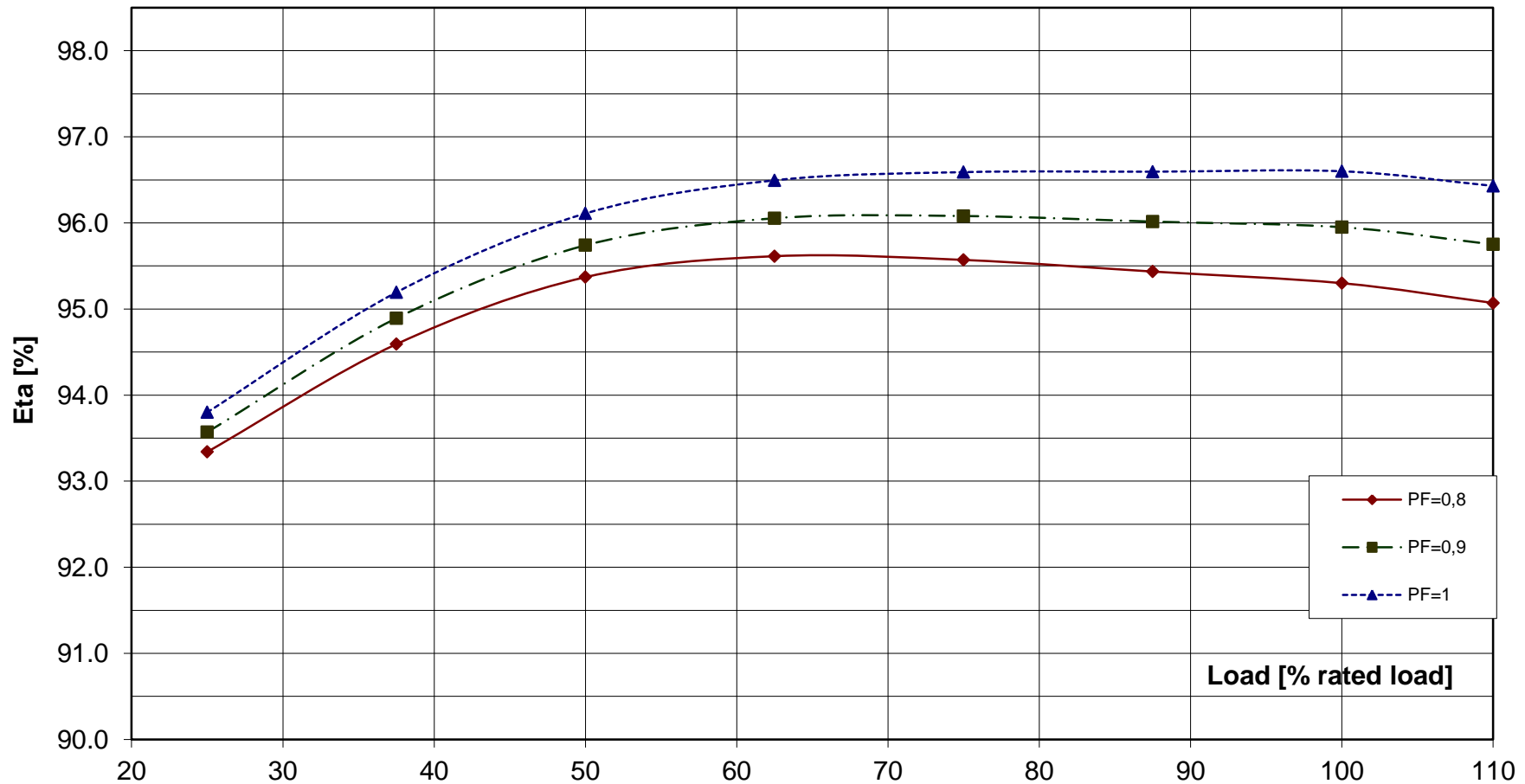
Load application:

max. load application: 1009 kVA (corresponds to 67,27 % from 1500 kVA) for Power factor 0.4 15% transient voltage drop	Power: 1500 kVA Power factor: 0.8 transient voltage drop: -18.2 %
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Remarks:

Alternator :	DSG 74 M2/4			
Rated output [kVA]	1500	Rated power factor:	0.8	Rated voltage [kV]: 0.69
Rated frequency [Hz]	50	Rated speed [rpm]	1500	

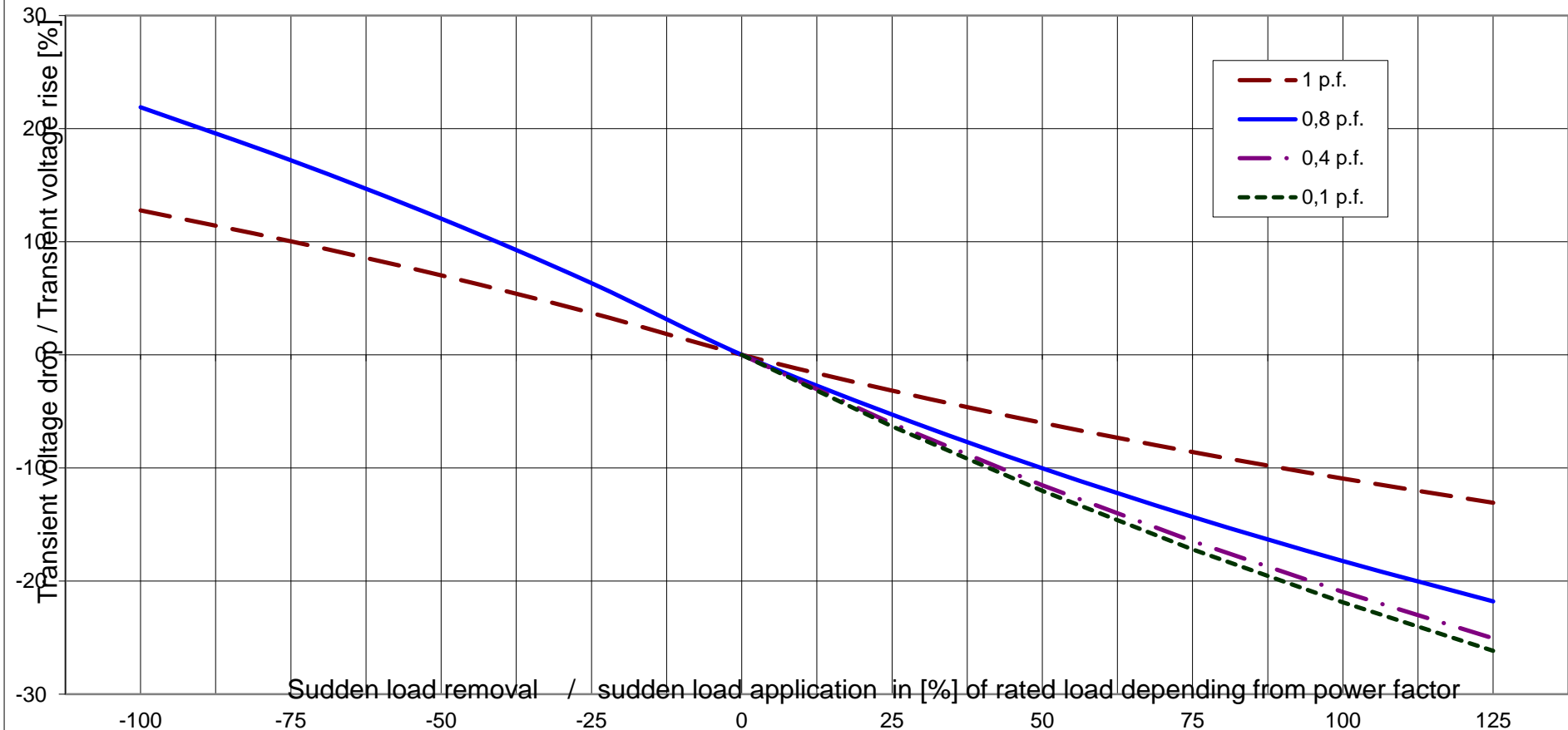
Wirkungsgrad-Kennlinie - Efficiency Curve



Alternator : DSG 74 M2/4

Rated output [kVA]	1500	Rated power factor:	0.8	Rated voltage [kV]:	0.69
Rated frequency [Hz]	50	Rated speed [rpm]	1500		

Transient Voltage rise or drop for sudden load removal or application



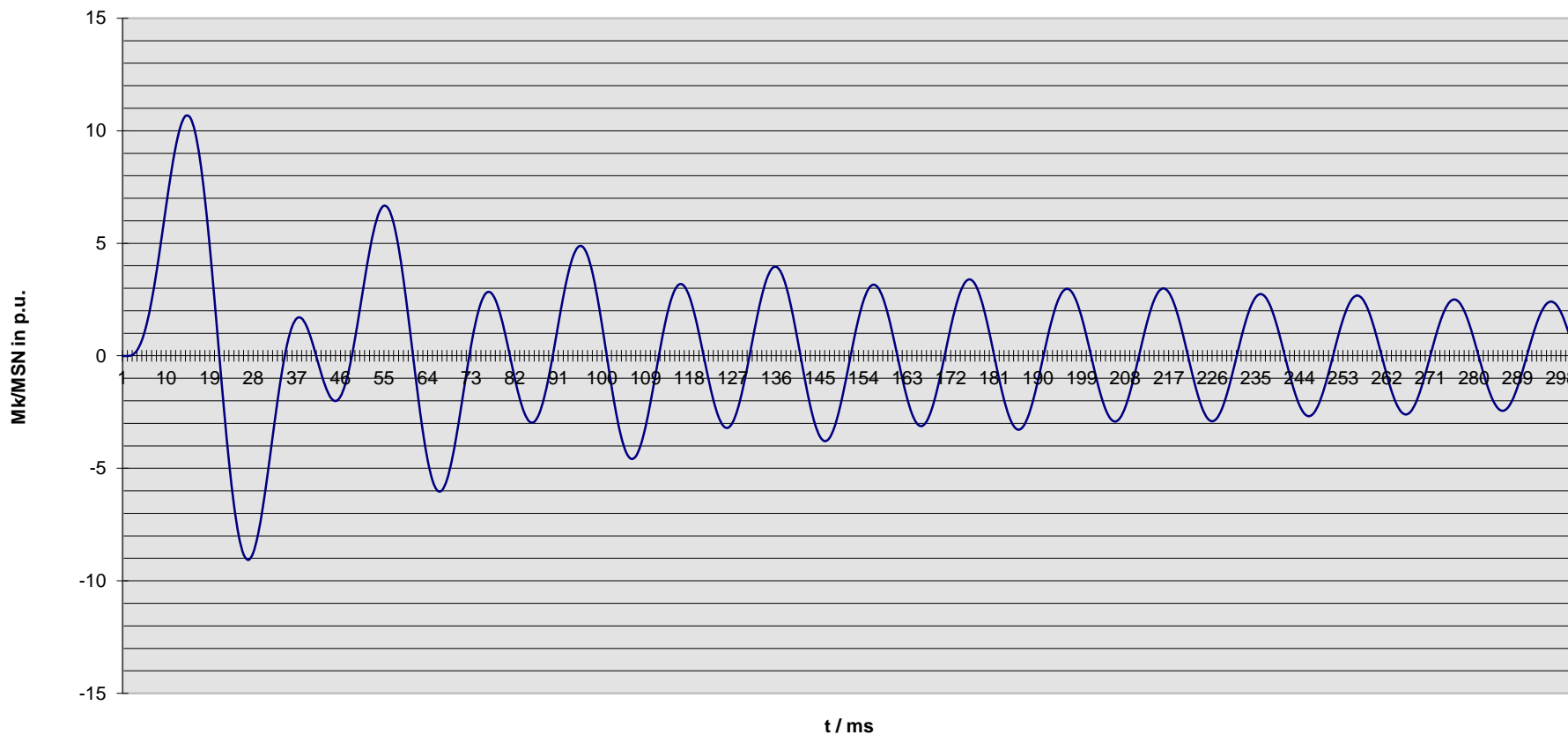


Technisches Datenblatt - Diagramme
Technical data sheet - Diagrams

ING-FCD-0112

Alternator :	DSG 74 M2/4			
Rated output [kVA]	1500	Rated power factor:	0.8	Rated voltage [kV]: 0.69
Rated frequency [Hz]	50	Rated speed [rpm]	1500	MSN related to kVA: 9.55 KNm

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



Nenndaten / nominal data

DSG 74 M2/4

Leistung S_N : **1500 kVA**

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

Rating

p.f.

Spannung U_N : **0.69 kV**

Strom I_N : **1255 A**

Voltage

Current

Frequenz f : **50 Hz**

Drehzahl n : **1,500 min⁻¹**

Frequency

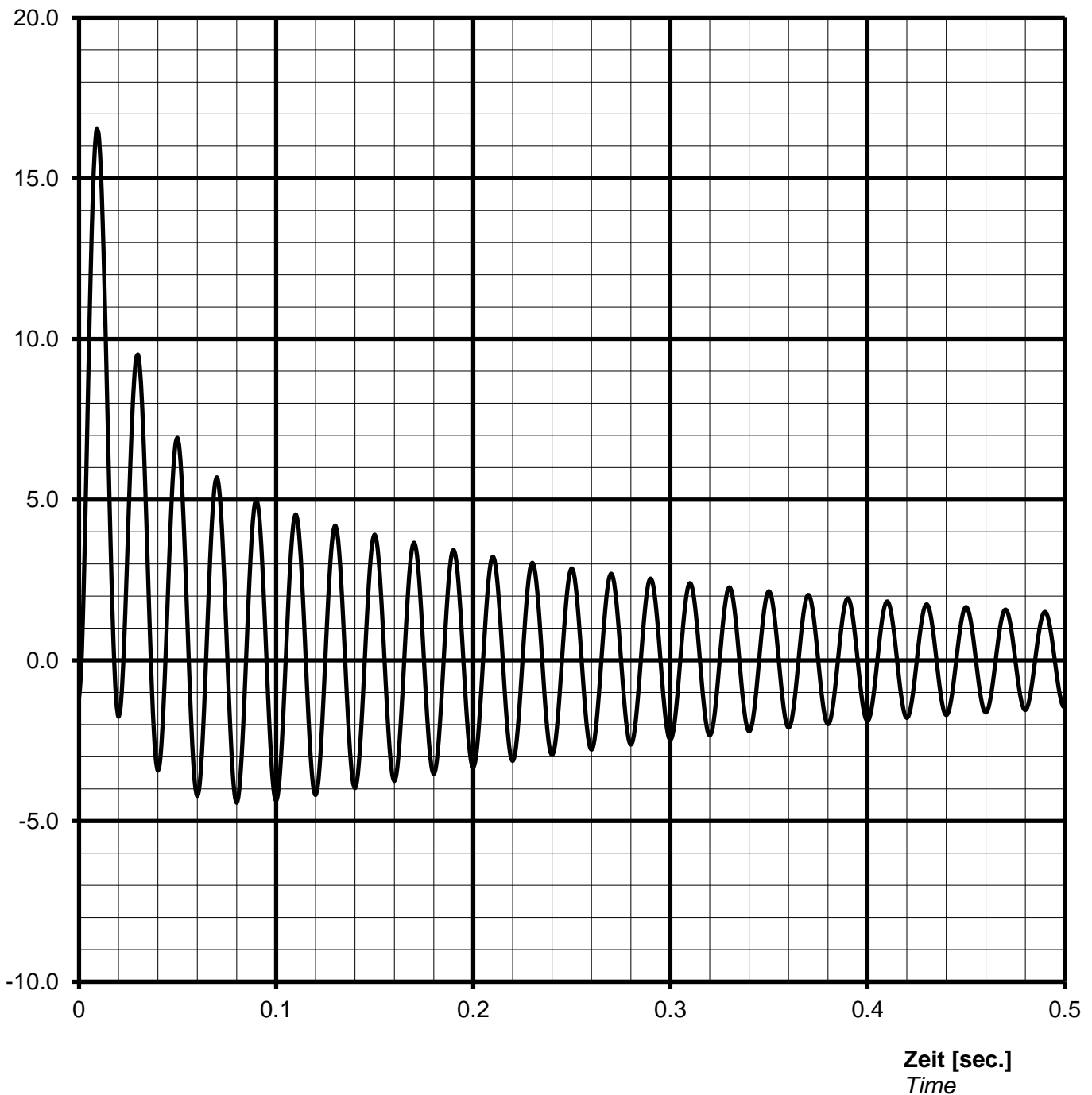
Speed

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 $I_{\text{speak}} = 20749 \text{ A}$ or 16.53 p.u.

Nenn Daten / nominal data

DSG 74 M2/4

Leistung S_N : **1500** kVA

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

Rating

p.f.

Spannung U_N : **0.69** kV

Strom I_N : **1255** A

Voltage

Current

Frequenz f: **50** Hz

Drehzahl n: **1500** min⁻¹

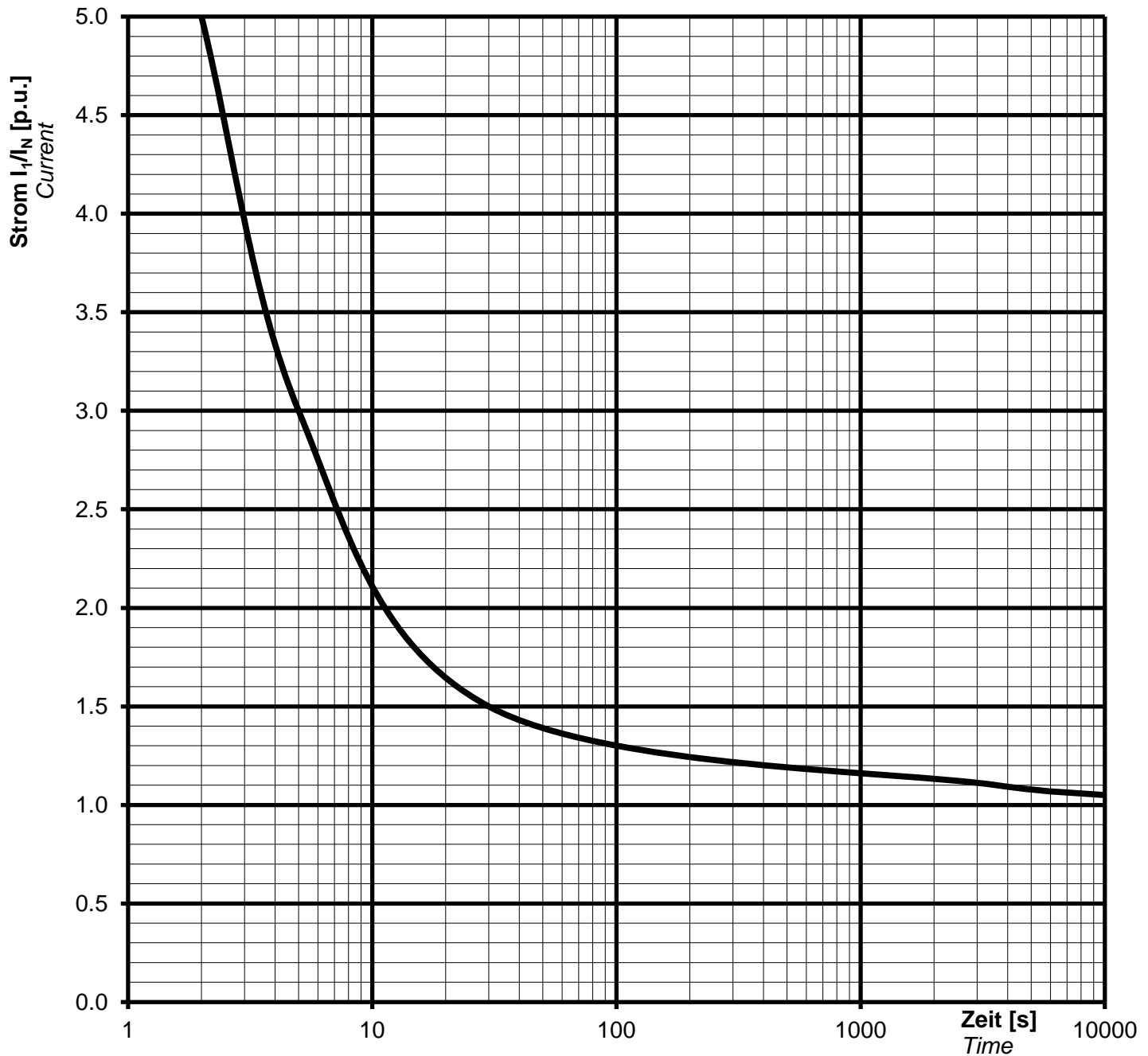
Frequency

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

DSG 74 M2/4

Rating S_N : **1500 kVA**

p.f. **0.80**

Bemessungsleistung

Leistungsfaktor $\cos \varphi$:

Nominal voltage U_N : **0.69 kV**

Nominal current I_N : **1255 A**

Bemessungsspannung

Bemessungsstrom

Frequency f_N : **50 Hz**

Speed n : **1500 min⁻¹**

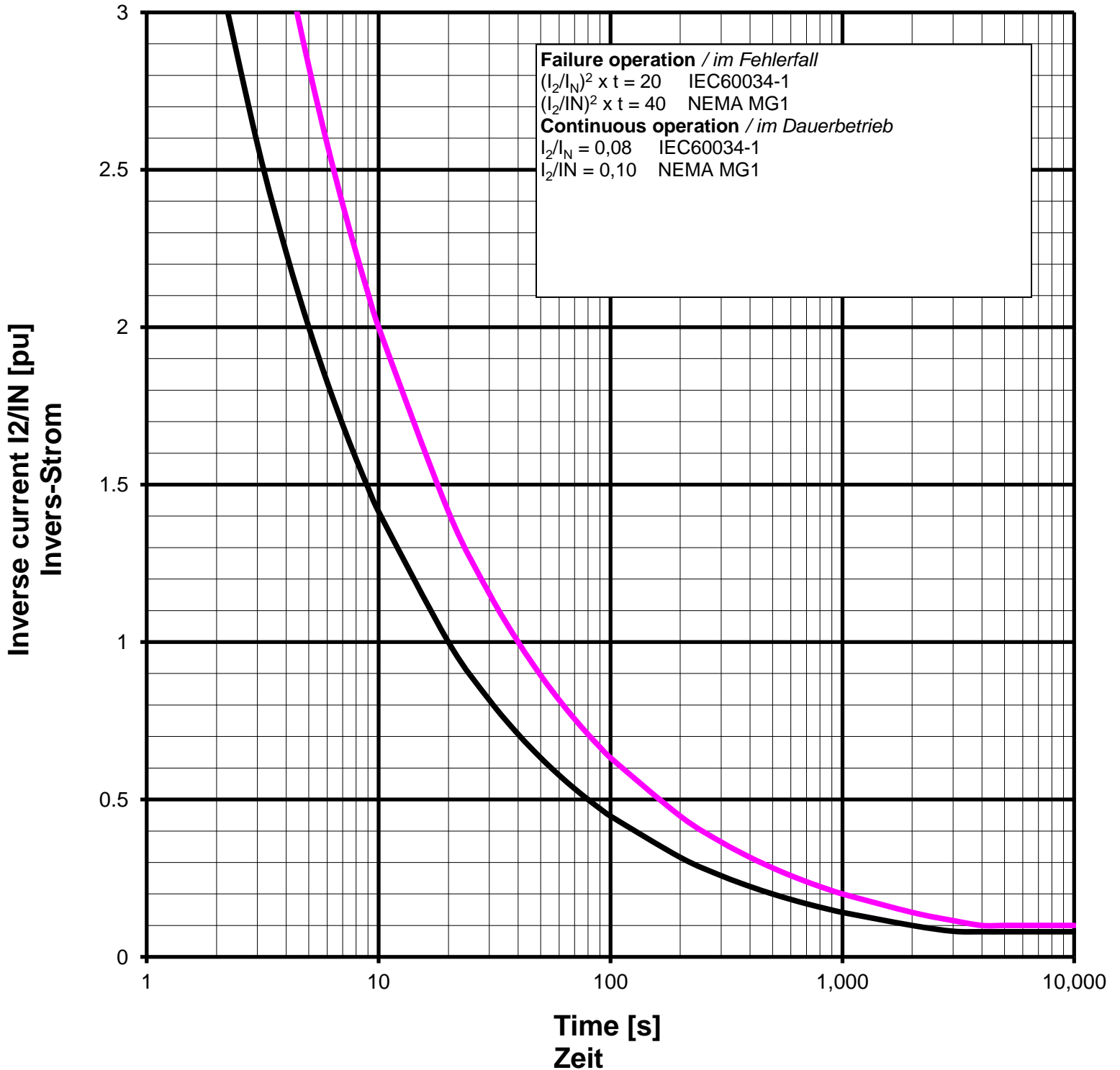
Frequenz

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

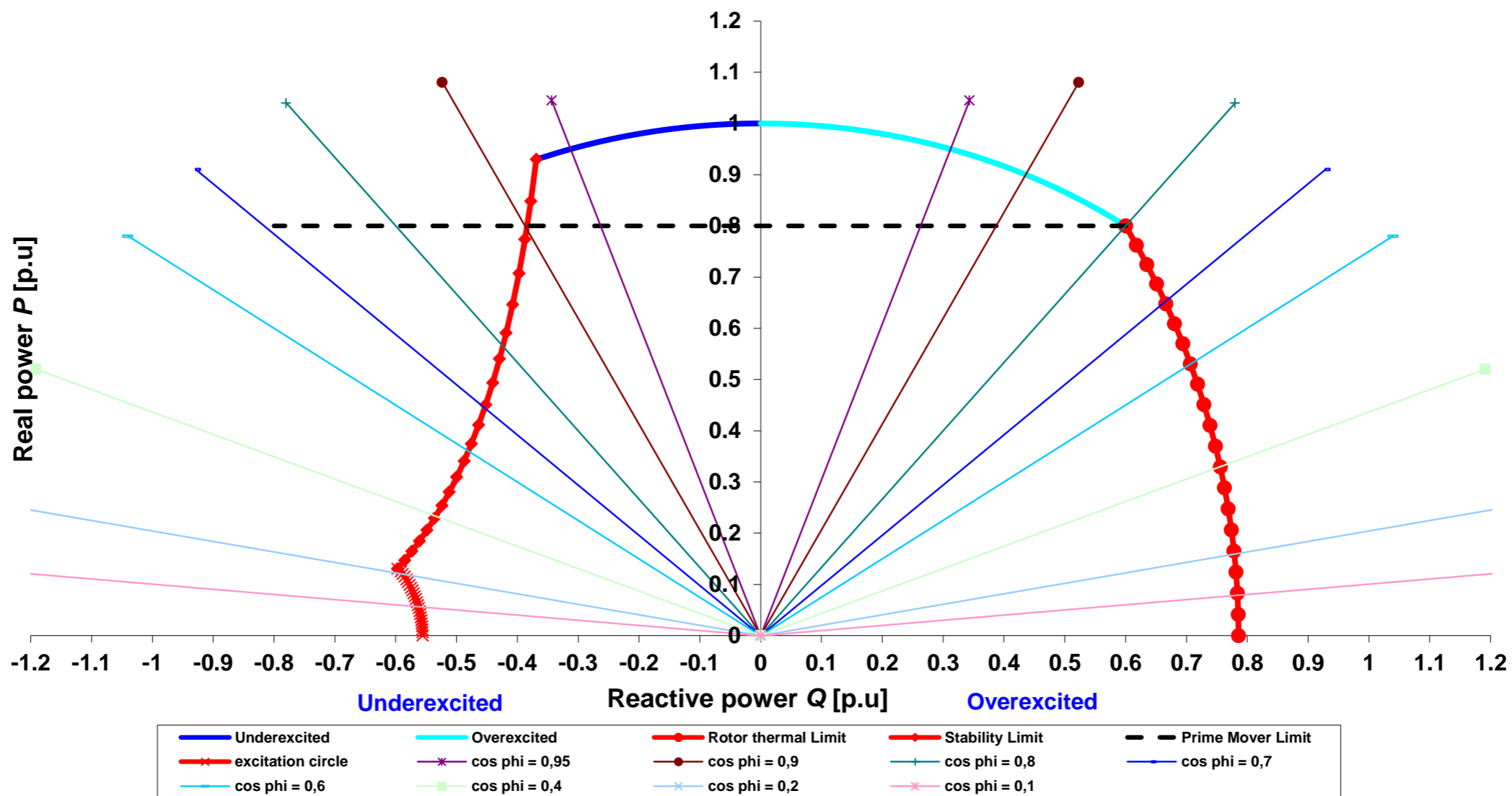
TYPE

DSG 74 M2/4

Projekt:

Order Nr.:

Capability (P-Q) Diagram

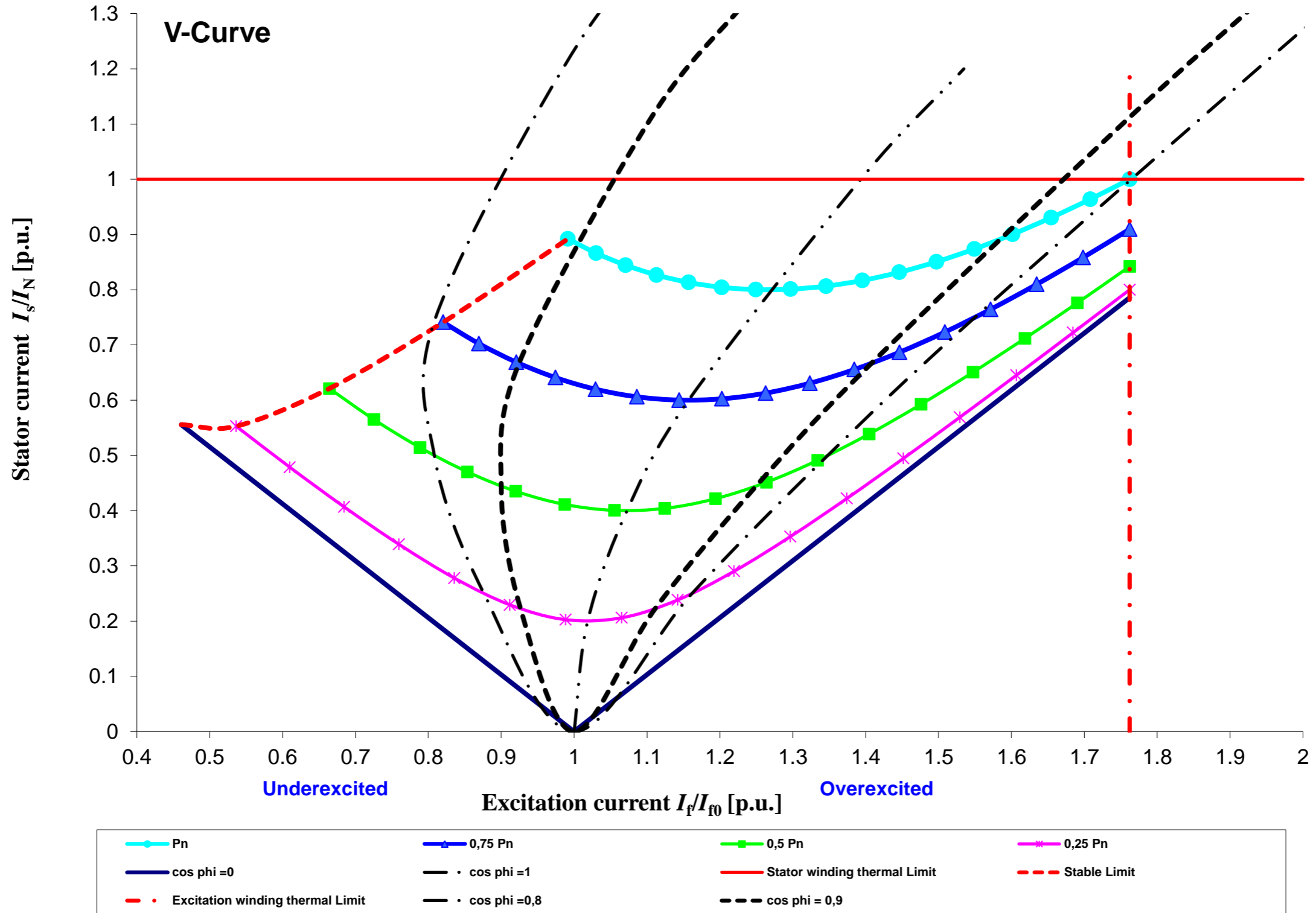


Cummins Generator Technologies

Datum / date:

03/01/2014

TYPE	DSG 74 M2/4	Projekt:		Order Nr.:	
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Cummins Generator Technologies	Datum / date:	
	03/01/2014	