

**Technical Data Sheet for AvK-Alternators**

FM 7.3-5

Date:	30/09/13	Customer:	GENERIC DATASHEET only
Project No.:		AvK Reference:	DSG074M1_4_50_400

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

Generator data:					
Generator:	DSG 74 M1/4	Poles:	4	Standards: IEC 60034	
Rated power:	1400 kVA	1120 kWe	1181 kWm		
Power factor:	0.80				
Power at pf 1,0	1137 kVA	1137 kWe	1181 kWm		
Rated voltage:	0.4 kV				
Speed:	1500 1/min				
Frequency:	50 Hz		Voltage range / frequency range:		
Rated current:	2020.7 A		Zone A according IEC 60034-1 (dU = +/-5%, df = +/-2%)		
Winding pitch:	2/3				
Insulation class:	Stator: Class H	Rotor: Class H	Temperature rise:	H	
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.:	2.4 m³/s	Cooling water quantity:	n/a
Moment of inertia (I):	36.7 kgm²	Weight:	3275 Kg	Losses (environment):	61 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	94,54	94,8	95,1	95	92,9
Power factor 0.9	95,33	95,55	95,7	95,4	93,15
Power factor 1.0	96,12	96,3	96,3	95,8	93,4

Reactances and time constants										
	unsaturated		saturated			unsaturated		saturated		
X _d	2.79	2.51	p.u.	X _q	1.30	1.27	p.u.	T _{d0'}	3.2	s
X _{d'}	0.240	0.240	p.u.	X _{q'}	1.30	1.27	p.u.	T _{d'}	0.28	s
X _{d''}	0.132	0.120	p.u.	X _{q''}	0.150	0.150	p.u.	T _{d''}	0.011	s
X ₂	0.154	0.140	p.u.	X ₀	0.055	0.050	p.u.	T _a	0.023	s
X _{1s}	n.a.	0.072	p.u.					T _{q'}	0.22	s
								T _{q''}	0.022	s
Short circuit ratio saturated:	0.4		Z _n	0.114		Ohm				

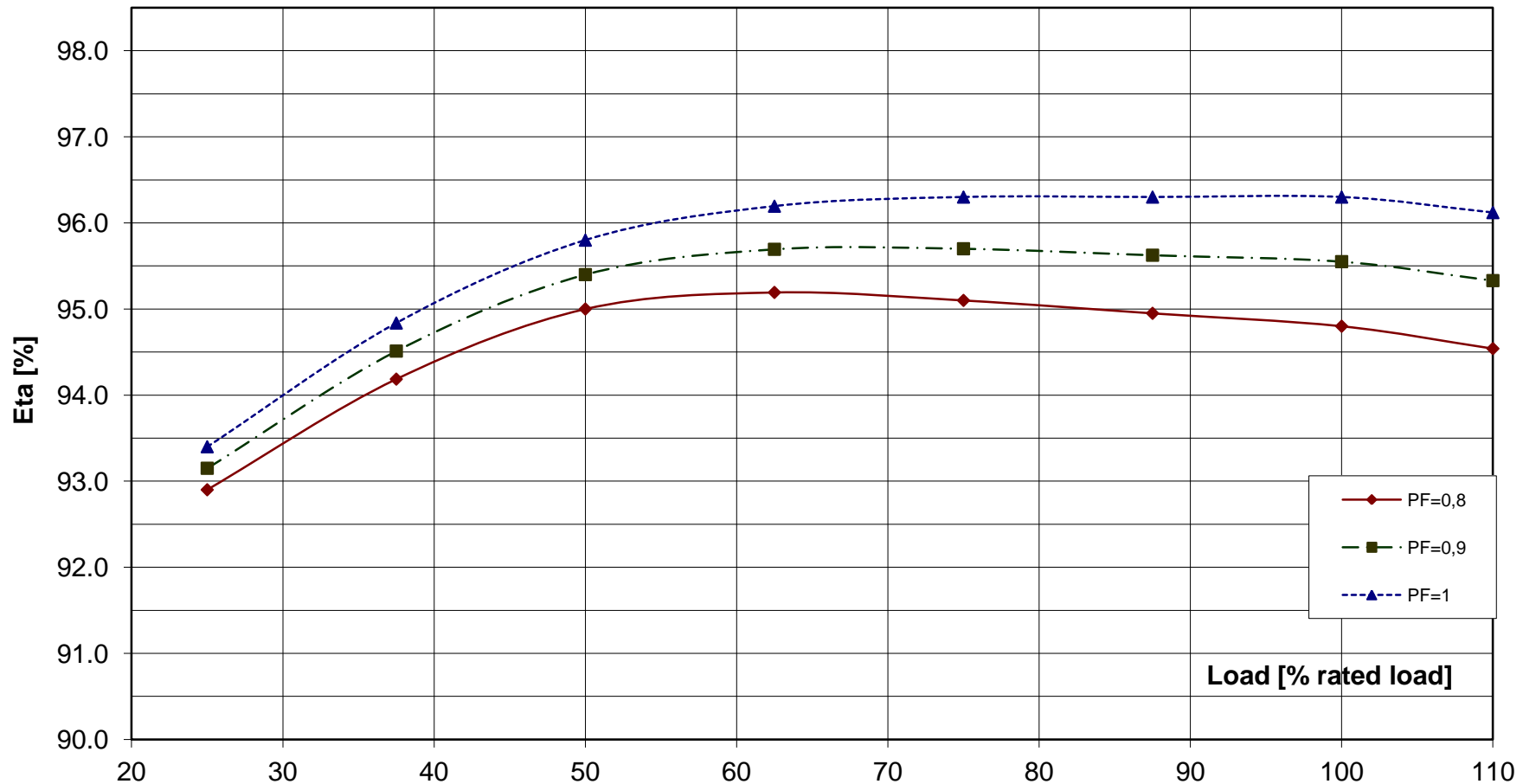
Short circuit data:		
Initial short circuit current (3-phase):	I _{k''}	16839 A
Max. peak current (3-phase):	I _s	42865 A
Sustained short circuit current:	I _k	6062 A
		Minimum 3 x rated current for max.10 s
Initial short circuit torque:	M _{k2}	96.6 kNm
	M _{k3}	58.0 kNm
Max. faulty synchron moment:	M _f	207.7 kNm
Rated kVA torque:	M _{SN}	8.91 kNm
Rated torque	M _N	7.13 kNm
Shaft torque	M _{Sh}	7.52 kNm

Load application:	
max. load application: 875 kVA (corresponds to 62,5 % from 1400 kVA) for Power factor 0.4 15% transient voltage drop	Power: 1400 kVA Power factor: 0.8 transient voltage drop: -19.4 %

Remarks:

Alternator :	DSG 74 M1/4			
Rated output [kVA]	1400	Rated power factor:	0.8	Rated voltage [kV]: 0.4
Rated frequency [Hz]	50	Rated speed [rpm]	1500	

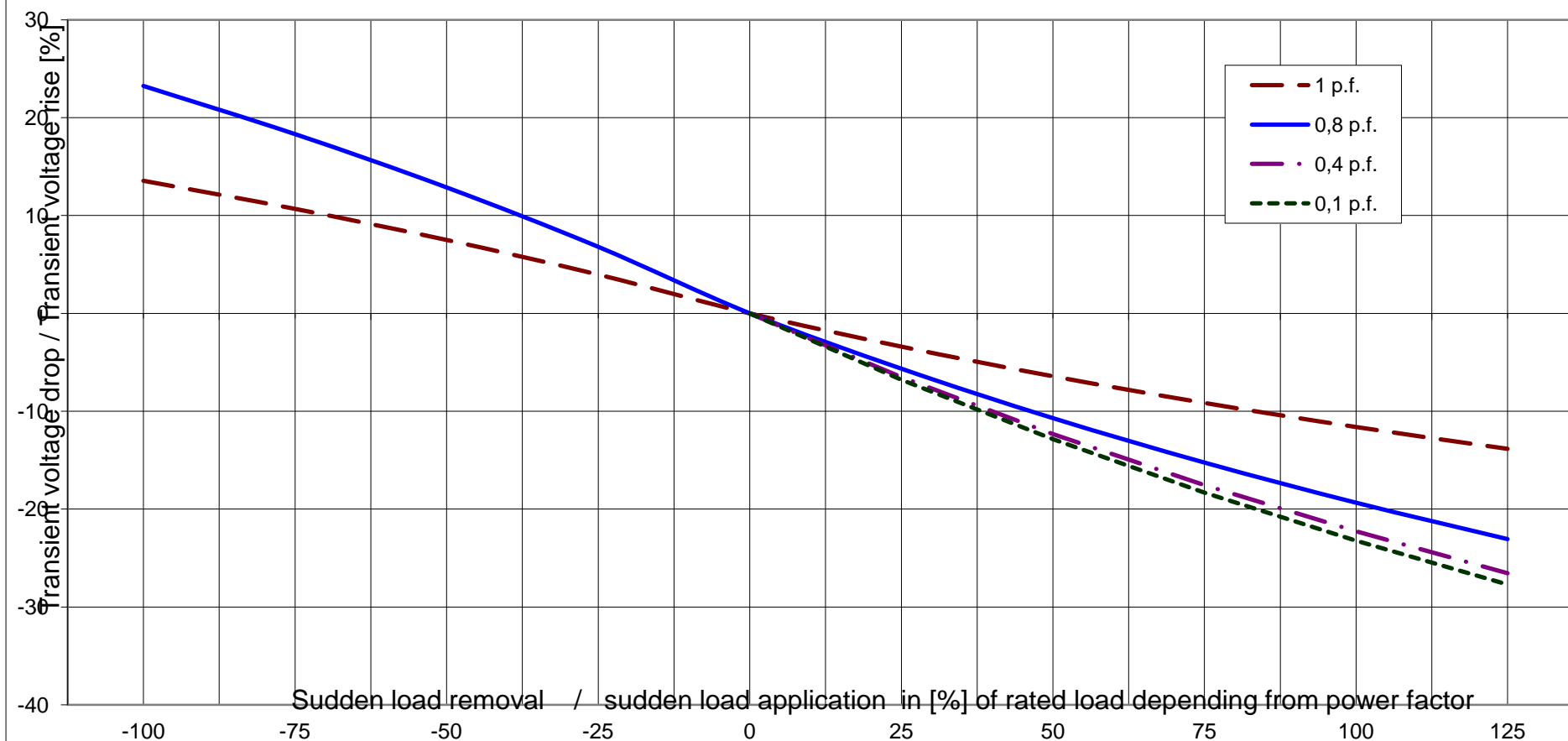
Wirkungsgrad-Kennlinie - Efficiency Curve



Alternator : DSG 74 M1/4

Rated output [kVA]	1400	Rated power factor:	0.8	Rated voltage [kV]:	0.4
Rated frequency [Hz]	50	Rated speed [rpm]	1500		

Transient Voltage rise or drop for sudden load removal or application



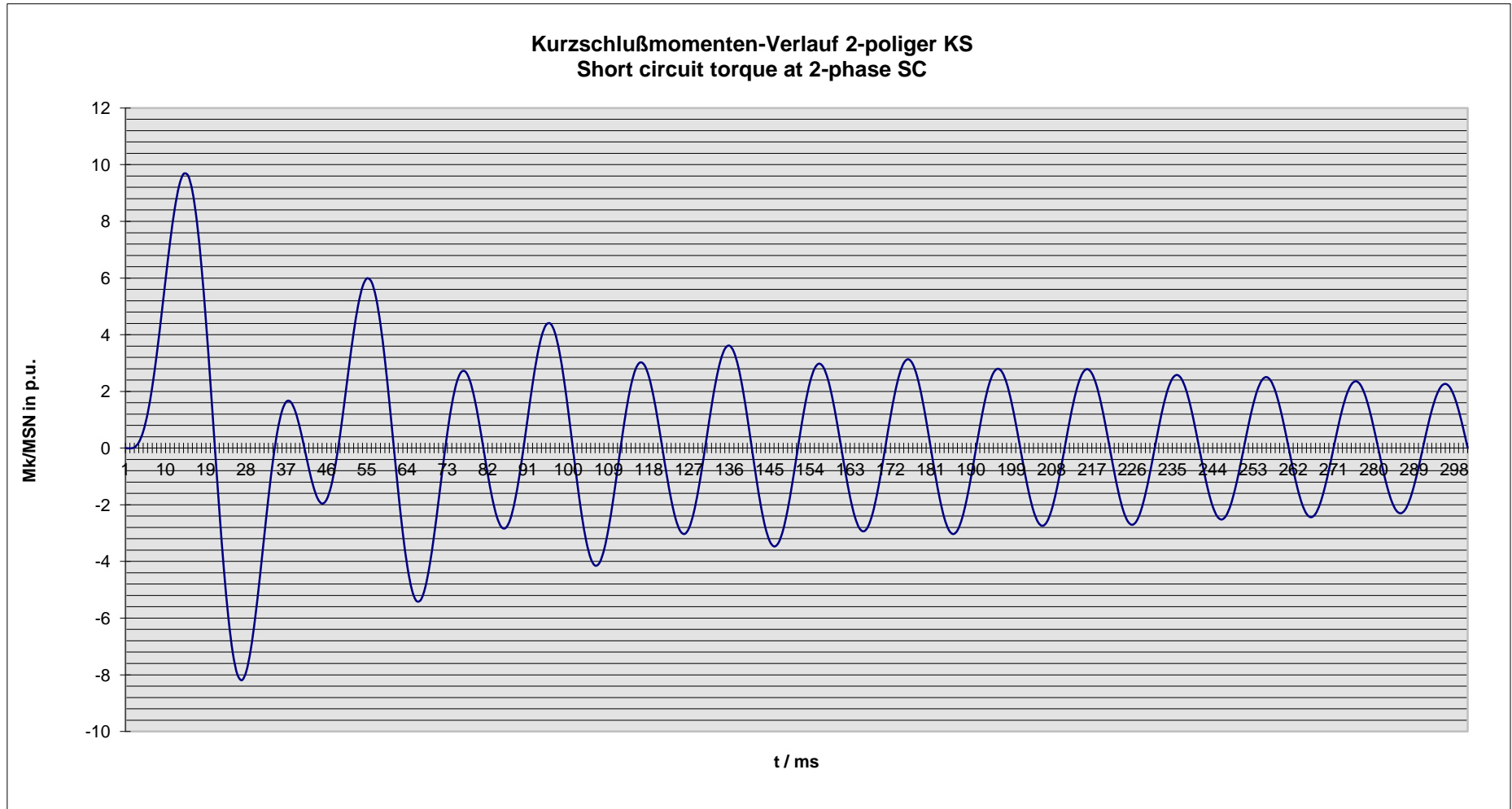


Technisches Datenblatt - Diagramme
Technical data sheet - Diagrams

ING-FCD-0112

Alternator :	DSG 74 M1/4			
Rated output [kVA]	1400	Rated power factor:	0.8	Rated voltage [kV]: 0.4
Rated frequency [Hz]	50	Rated speed [rpm]	1500	MSN related to kVA: 8.91 KNm

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



Nenndaten / nominal data

DSG 74 M1/4

Leistung S_N : **1400 kVA**

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

Rating

p.f.

Spannung U_N : **0.40 kV**

Strom I_N : **2021 A**

Voltage

Current

Frequenz f : **50 Hz**

Drehzahl n : **1,500 min⁻¹**

Frequency

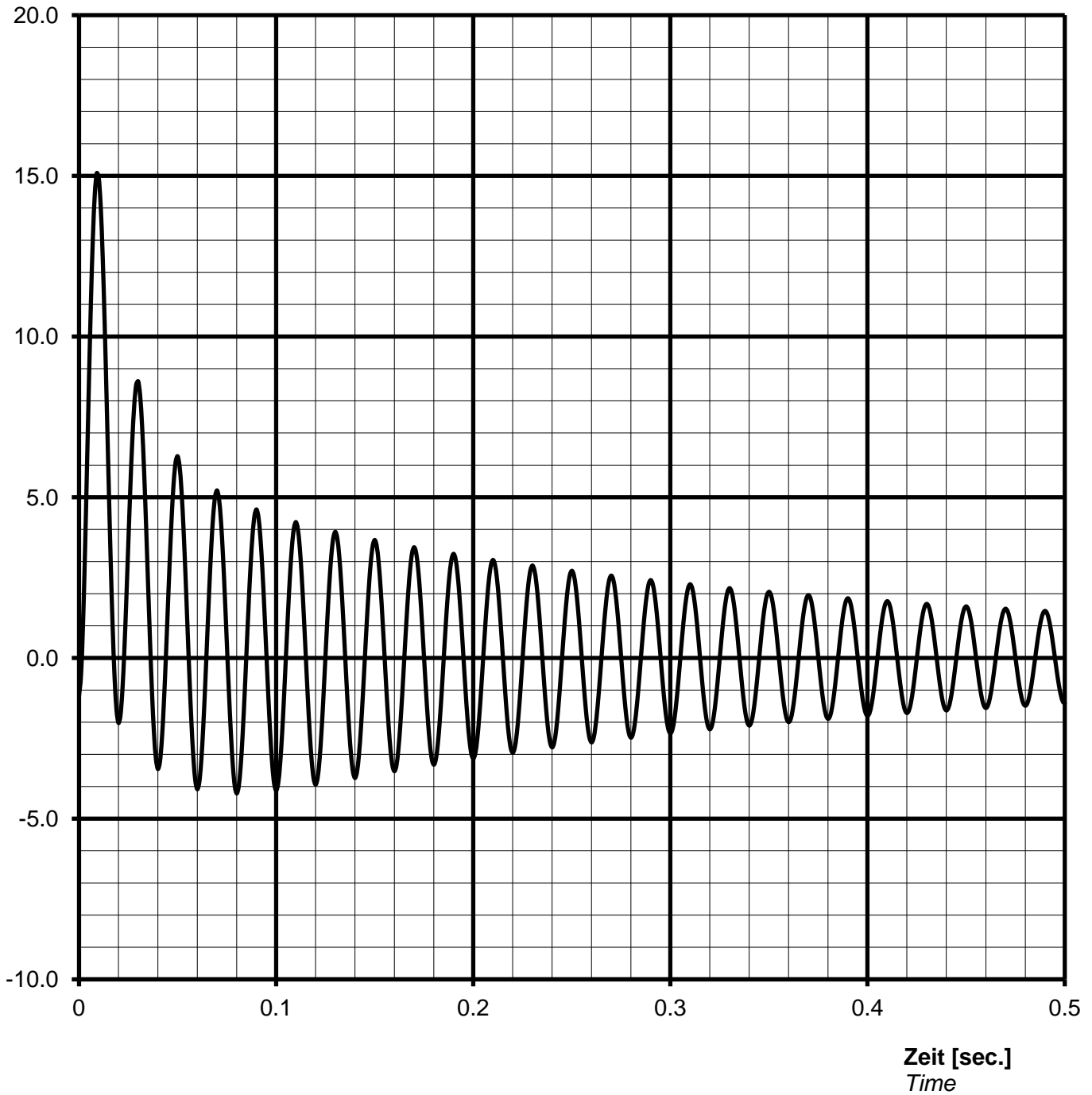
Speed

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 $I_{\text{speak}} = 30484 \text{ A}$ or 15.09 p.u.

Nennwerten / nominal data

DSG 74 M1/4

Leistung S_N : **1400 kVA**

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

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p.f.

Spannung U_N : **0.40 kV**

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Voltage

Current

Frequenz f: **50 Hz**

Drehzahl n: **1500 min⁻¹**

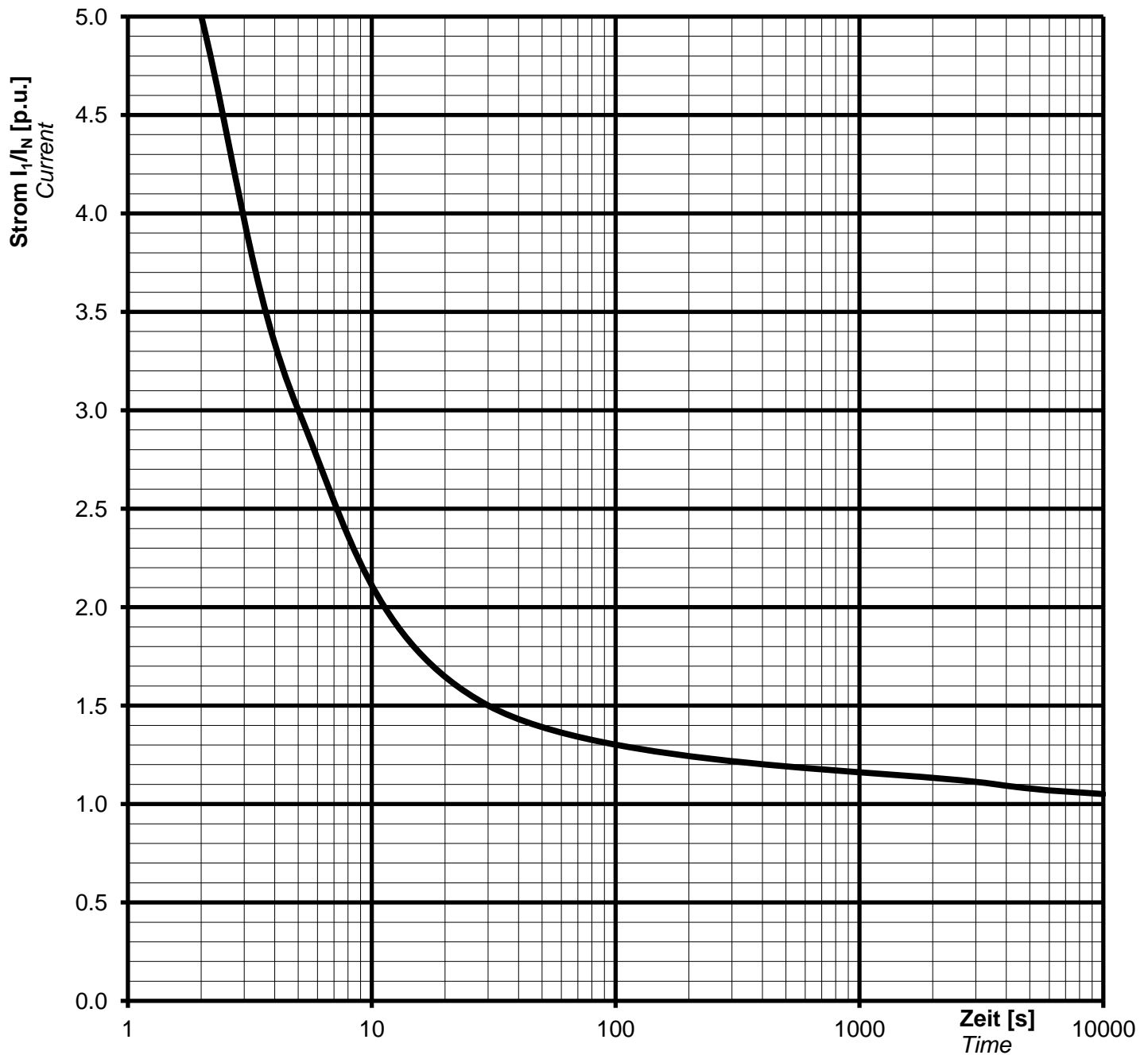
Frequency

Speed

Schutzart **IP23**

Protection

Überlast Kennlinie Overload capability



Notizen / remarks:

Strom / Zeit Kriterien:

$$(I / I_N)^2 \cdot t = 45s$$

Current/time characteristics:

$$1,5 \cdot I_N \text{ for } 30 \text{ s}$$

$$1,1 \cdot I_N \text{ for } 1 \text{ h in } 6 \text{ h}$$

Nenndaten / nominal data

DSG 74 M1/4

Rating S_N : **1400 kVA**

p.f. **0.80**

Bemessungsleistung

Leistungsfaktor $\cos \varphi$:

Nominal voltage U_N : **0.40 kV**

Nominal current I_N : **2021 A**

Bemessungsspannung

Bemessungsstrom

Frequency f_N : **50 Hz**

Speed n : **1500 min⁻¹**

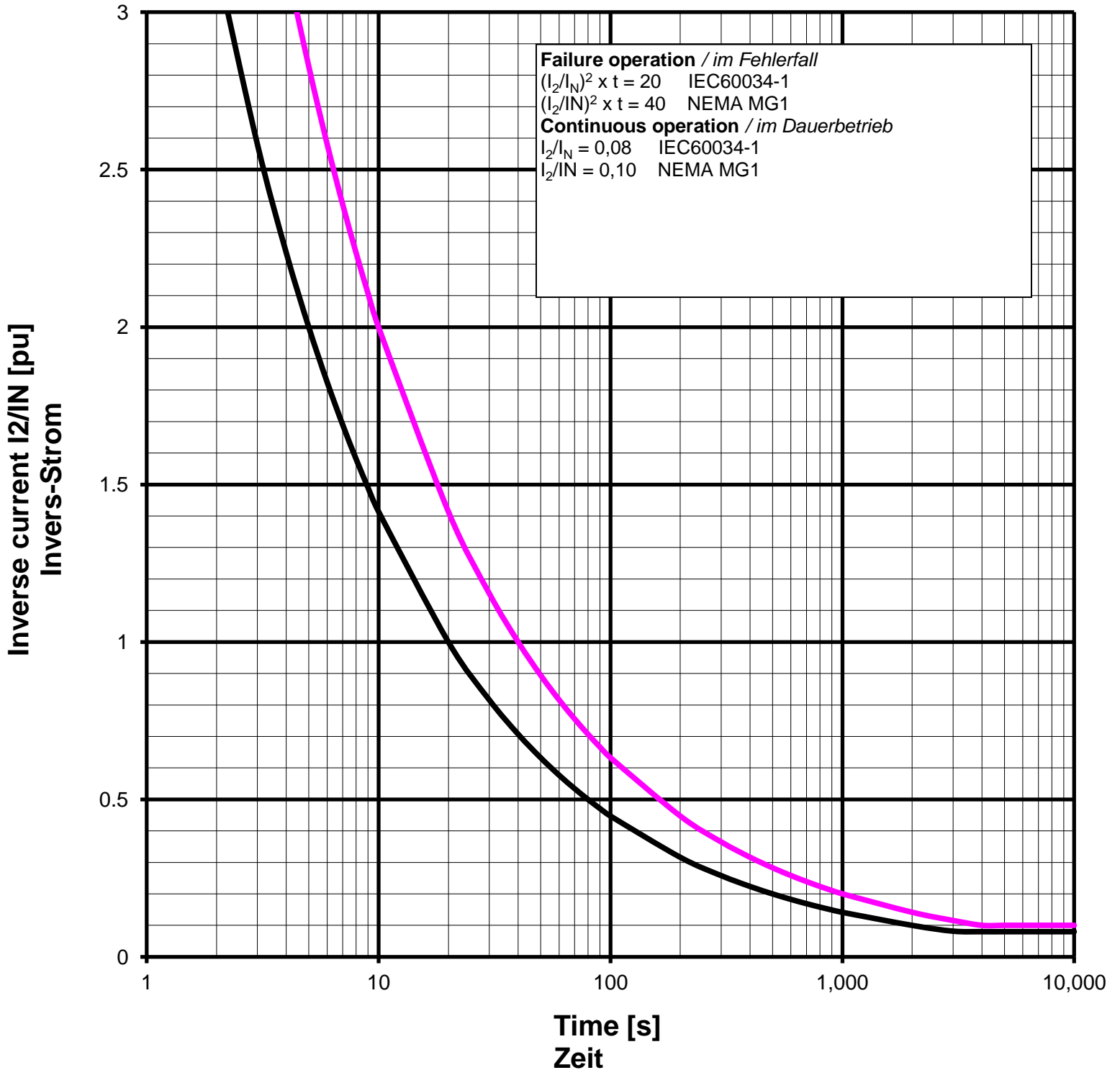
Frequenz

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

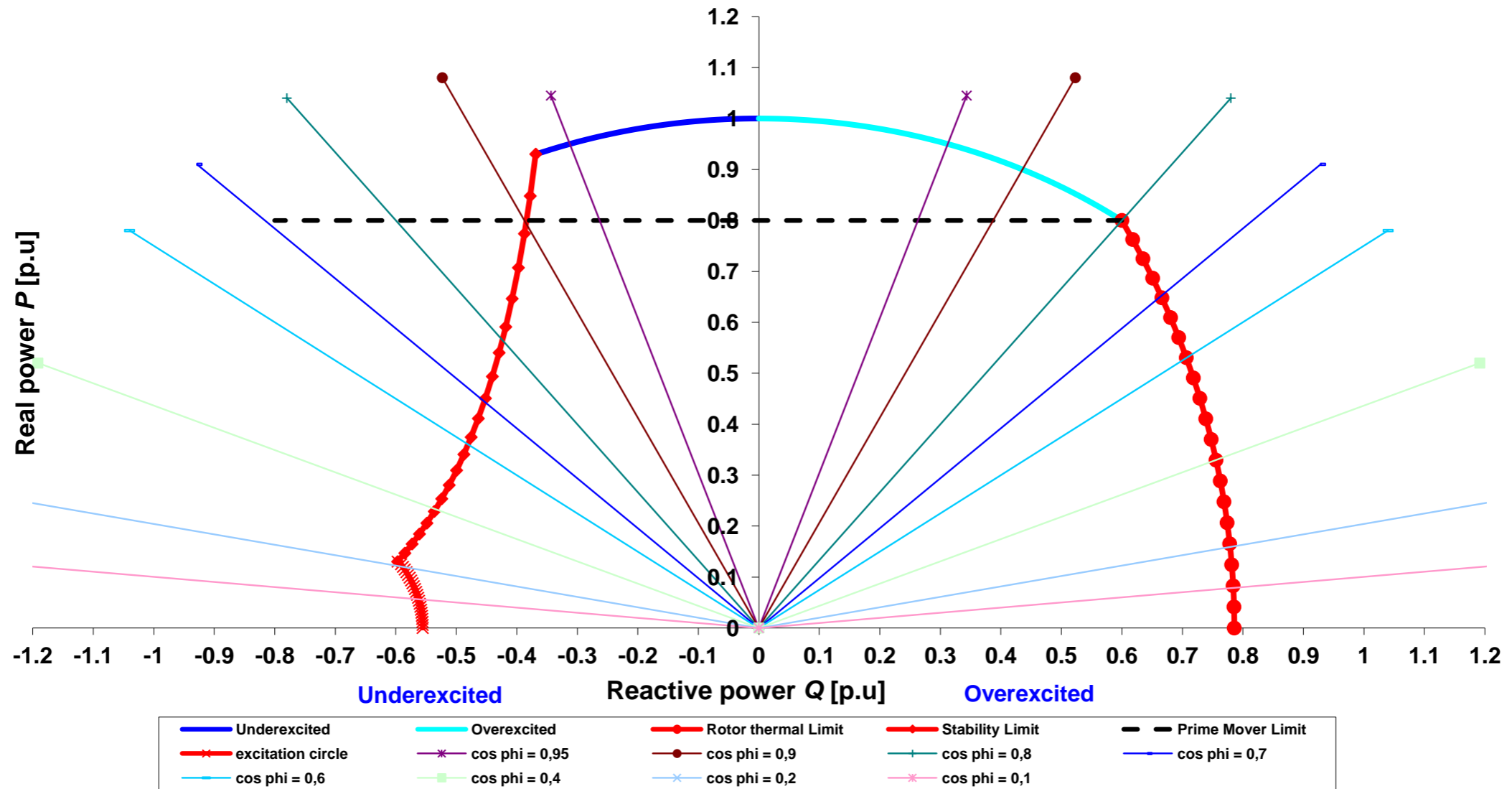
TYPE

DSG 74 M1/4

Projekt:

Order Nr.:

Capability (P-Q) Diagram

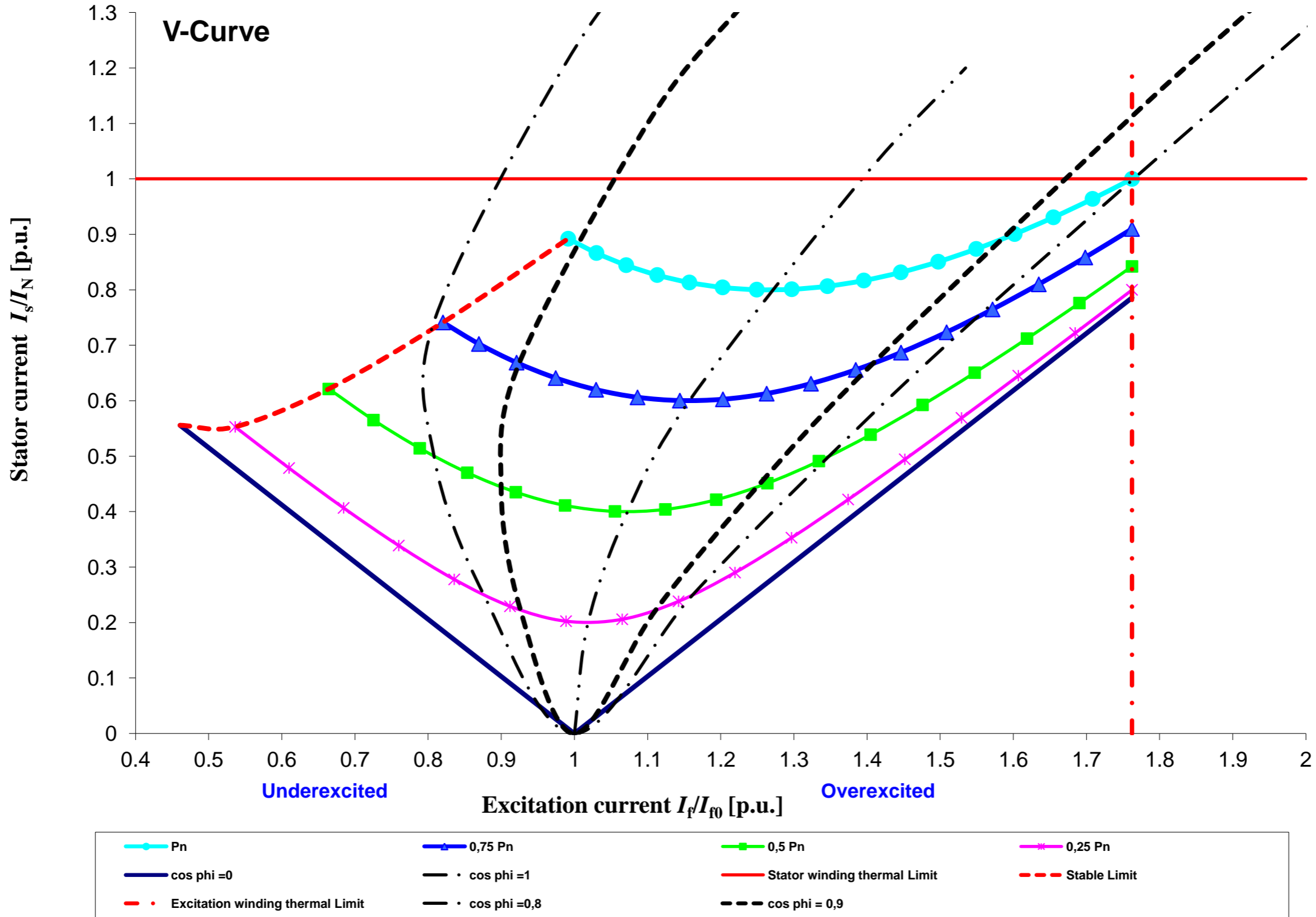


Cummins Generator Technologies

Datum / date:

30/09/2013

TYPE	DSG 74 M1/4	Projekt:		Order Nr.:	
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