

**Technical Data Sheet for AvK-Alternators**

FM 7.3-5

Date:	08/01/14	Customer:	GENERIC DATASHEET only
Project No.:		AvK Reference:	dsg114m2_8_50_690_A048M989

Object data:

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

Generator data:

Generator:	DSG 114 M2/8	Poles:	8	Standards:	IEC 60034
Rated power:	3070 kVA	2456 kWe	2537 kWm		
Power factor:	0.80				
Power at pf 1,0	2476 kVA	2476 kWe	2537 kWm		
Rated voltage:	0.69 kV				
Speed:	750 1/min				
Frequency:	50 Hz			Voltage range / frequency range:	
Rated current:	2568.8 A			Zone A according IEC 60034-1 (dU = +/-5%, df = +/-2%)	

Winding pitch:	ca. 5/6
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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):	360 kgm ²	Cooling air vol.:	3.0 m ³ /s	Cooling water quantity:	n/a
		Weight:	11300 Kg	Losses (environment):	81 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	96,64	96,8	96,8	96,6	95,4
Power factor 0.9	97,06	97,2	97,15	96,85	95,4
Power factor 1.0	97,48	97,6	97,5	97,1	95,4

Reactances and time constants

	unsaturated	saturated		unsaturated	saturated					
X _d	2.10	1.89 p.u.	X _q	1.05	1.03 p.u.	T _{d0'}	3 s	T _{d0''}	0.03503 s	
X _{d'}	0.275	0.275 p.u.	X _{q'}	1.05	1.03 p.u.	T _{d'}	0.39 s	T _{q0'}	0.4 s	
X _{d''}	0.173	0.157 p.u.	X _{q''}	0.173	0.173 p.u.	T _{d''}	0.02 s	T _{q0''}	0.24277 s	
X ₂	0.182	0.165 p.u.	X ₀	0.052	0.047 p.u.	T _a	0.06 s	T _{q'}	0.4 s	
X _{1s}	n.a.	0.094 p.u.						T _{q''}	0.04 s	

Short circuit ratio saturated:	0.53	Z _n	0.155 Ohm
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Short circuit data:

Initial short circuit current (3-phase):	I _{k''}	16362 A	
Max. peak current (3-phase):	I _s	41651 A	
Sustained short circuit current:	I _k	7706 A	Minimum 3 x rated current for max.10 s
Initial short circuit torque:	M _{k2}	323.7 kNm	
	M _{k3}	194.2 kNm	
Max. faulty synchron moment:	M _f	696.0 kNm	
Rated kVA torque:	M _{SN}	39.09 kNm	
Rated torque	M _N	31.27 kNm	
Shaft torque	M _{Sh}	32.30 kNm	

Load application:

max. load application: 1675 kVA (corresponds to 54,54 % from 3070 kVA) for Power factor 0.4 15% transient voltage drop	Power: 3070 kVA Power factor: 0.8 transient voltage drop: -21.6 %
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Remarks:

Alternator : DSG 114 M2/8

Rated output [kVA]

3070

Rated power factor:

0.8

Rated voltage [kV]: 0.69

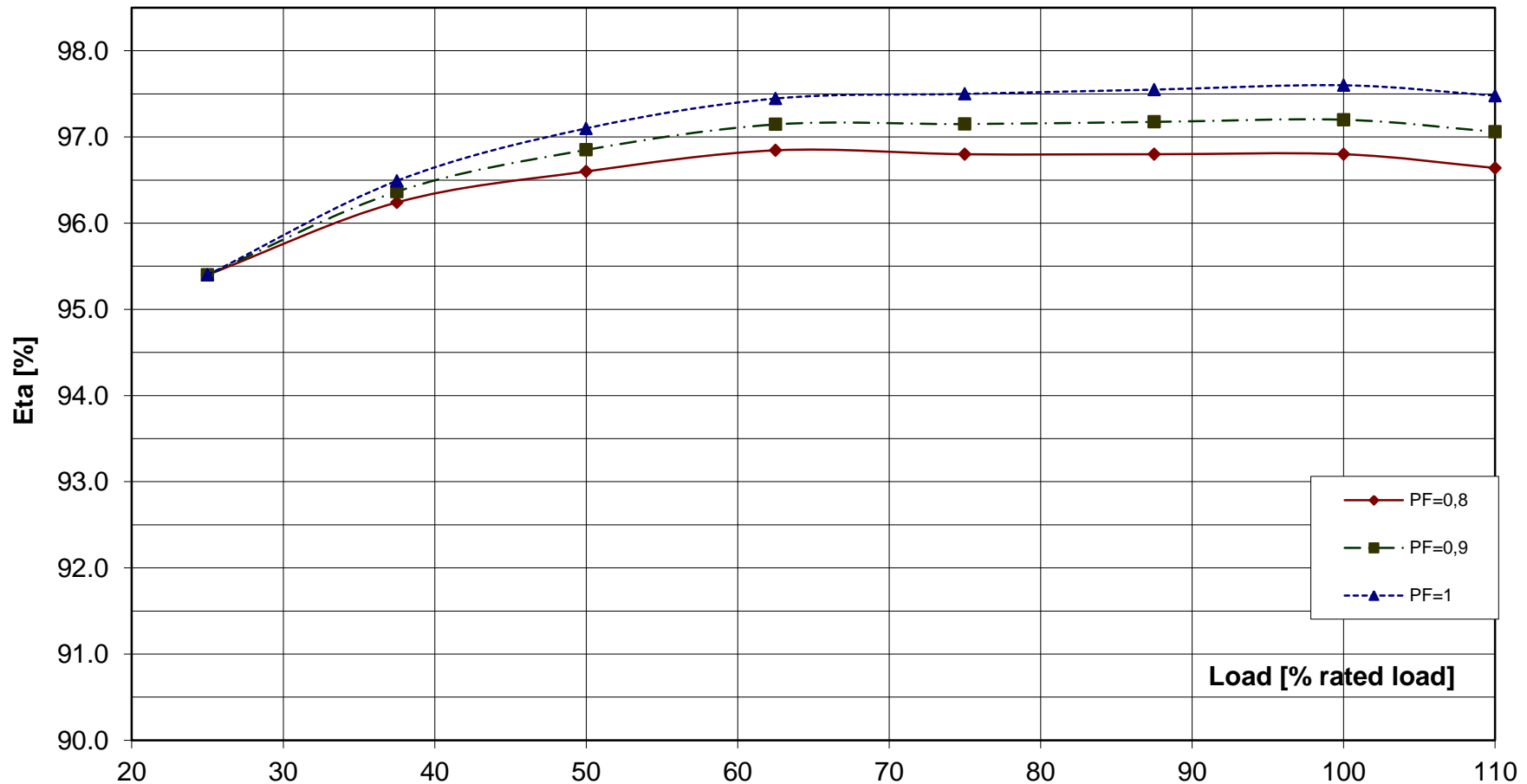
Rated frequency [Hz]

50

Rated speed [rpm]

750

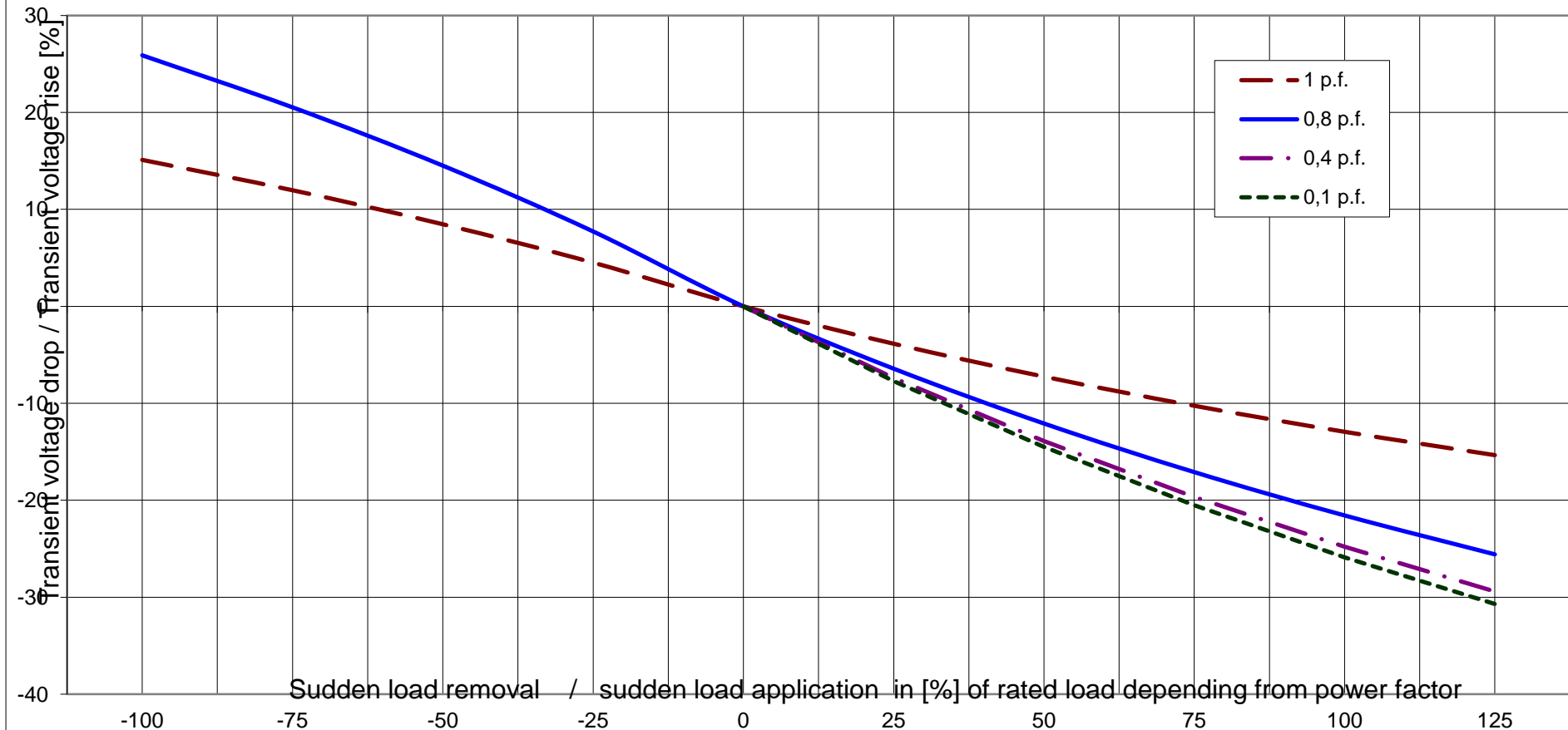
Wirkungsgrad-Kennlinie - Efficiency Curve



Alternator : DSG 114 M2/8

Rated output [kVA]	3070	Rated power factor:	0.8	Rated voltage [kV]:	0.69
Rated frequency [Hz]	50	Rated speed [rpm]	750		

Transient Voltage rise or drop for sudden load removal or application



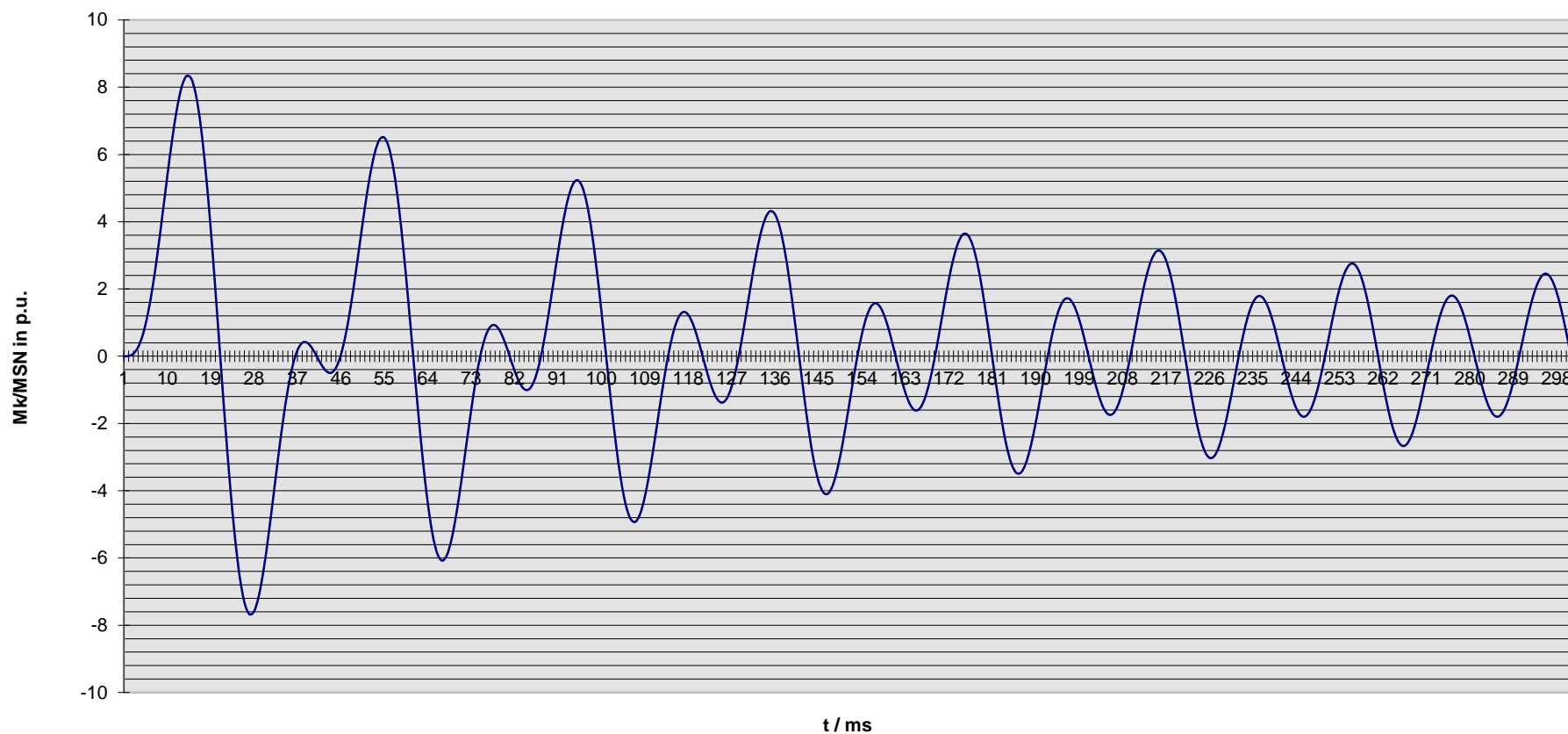


Technisches Datenblatt - Diagramme
Technical data sheet - Diagrams

ING-FCD-0112

Alternator :	DSG 114 M2/8			
Rated output [kVA]	3070	Rated power factor:	0.8	Rated voltage [kV]: 0.69
Rated frequency [Hz]	50	Rated speed [rpm]	750	MSN related to kVA: 39.09 KNm

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



Nenndaten / nominal data

DSG 114 M2/8

Leistung S_N : **3070 kVA**

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

Rating

p.f.

Spannung U_N : **0.69 kV**

Strom I_N : **2569 A**

Voltage

Current

Frequenz f : **50 Hz**

Drehzahl n : **750 min⁻¹**

Frequency

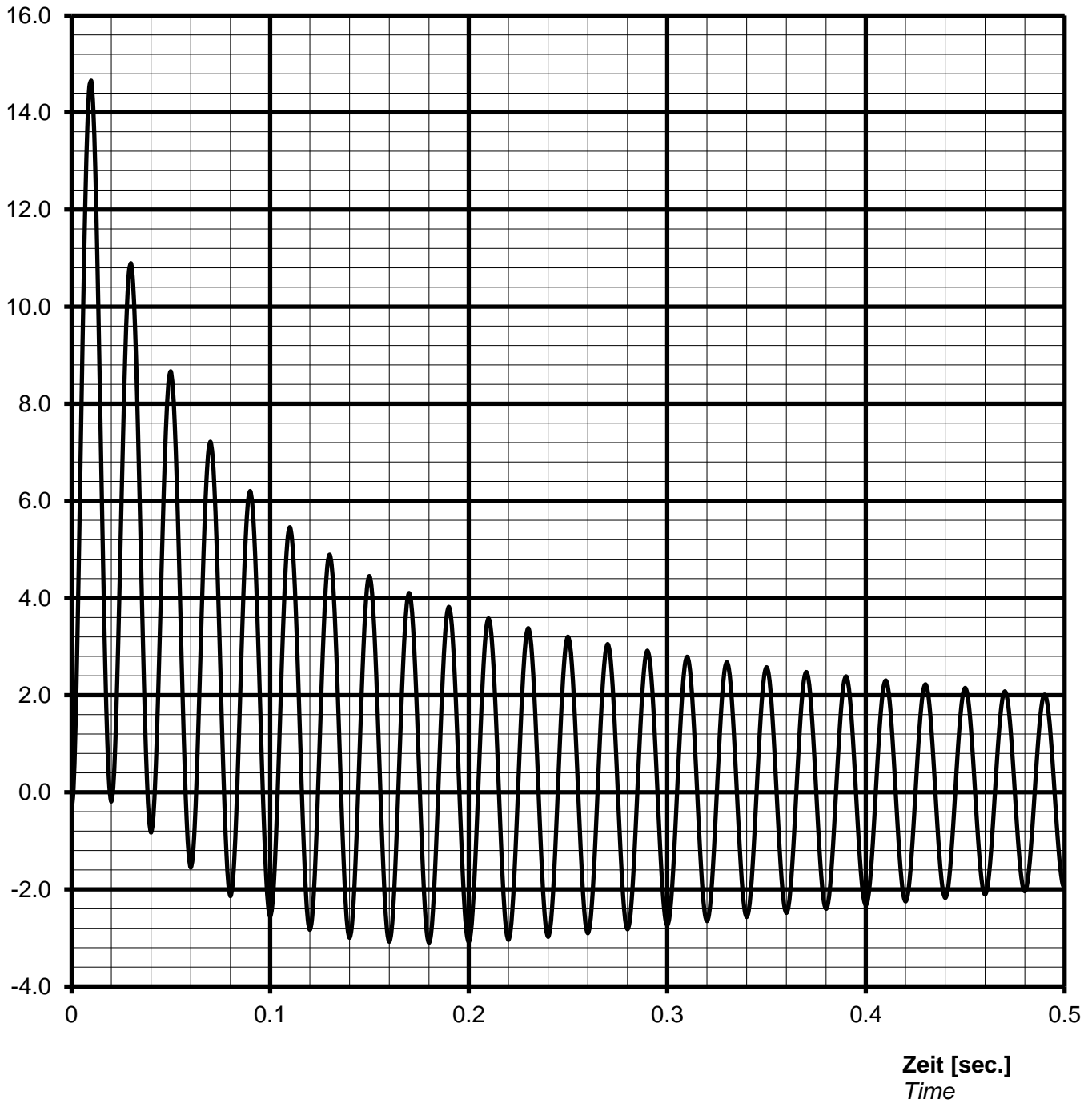
Speed

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 $I_{\text{peak}} = 37630 \text{ A}$ or 14.65 p.u.

Nennwerten / nominal data

DSG 114 M2/8

Leistung S_N : **3070 kVA**

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

Rating

p.f.

Spannung U_N : **0.69 kV**

Strom I_N : **2569 A**

Voltage

Current

Frequenz f: **50 Hz**

Drehzahl n: **750 min⁻¹**

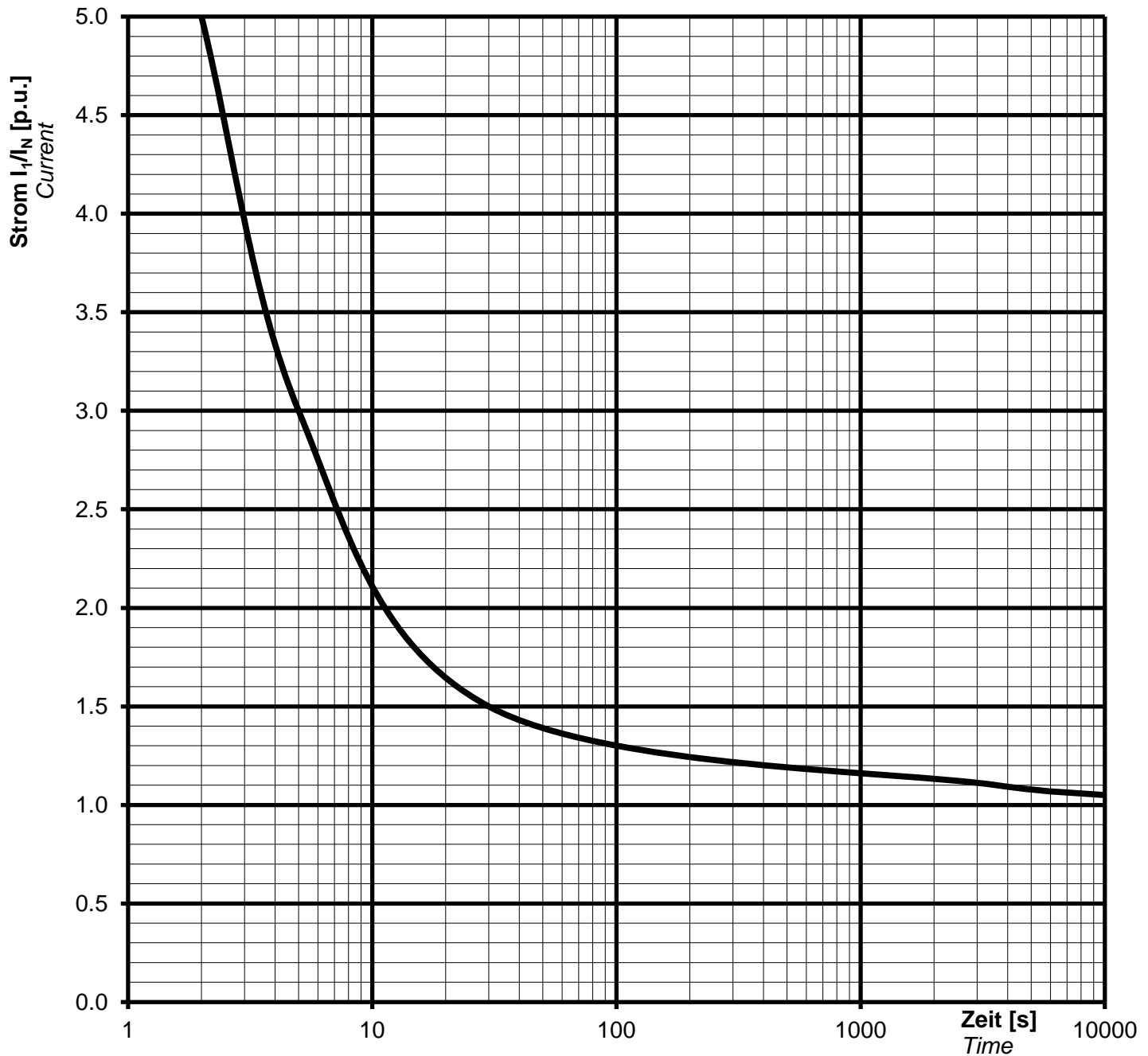
Frequency

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 114 M2/8

Rating S_N : **3070 kVA**

p.f. **0.80**

Bemessungsleistung

Leistungsfaktor $\cos \varphi$:

Nominal voltage U_N : **0.69 kV**

Nominal current I_N : **2569 A**

Bemessungsspannung

Bemessungsstrom

Frequency f_N : **50 Hz**

Speed n : **750 min⁻¹**

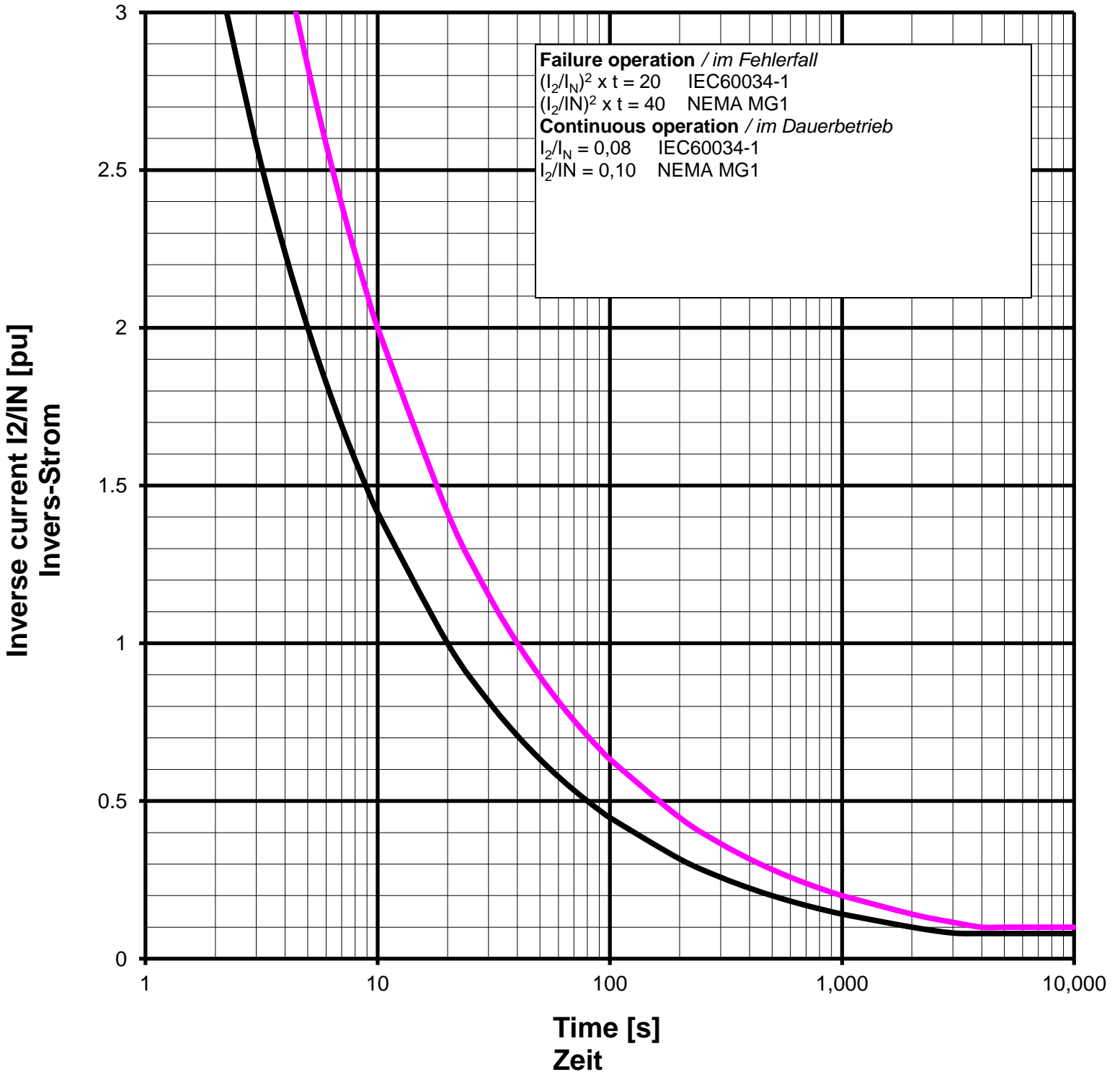
Frequenz

Drehzahl

Protection: **IP23**

Schutzart

Inverse current or unbalanced negative sequence current



Remarks / Notizen:

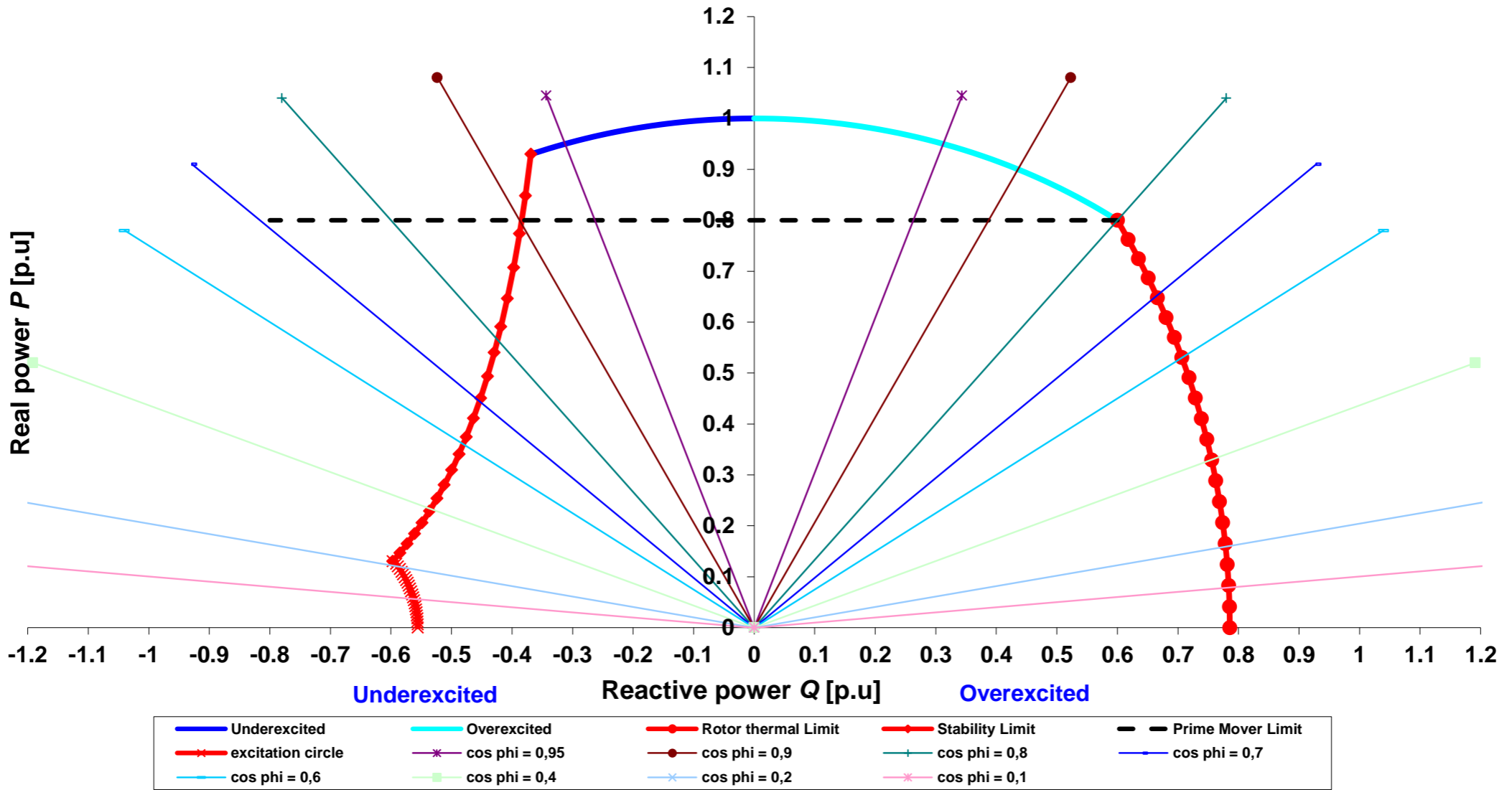
TYPE

DSG 114 M2/8

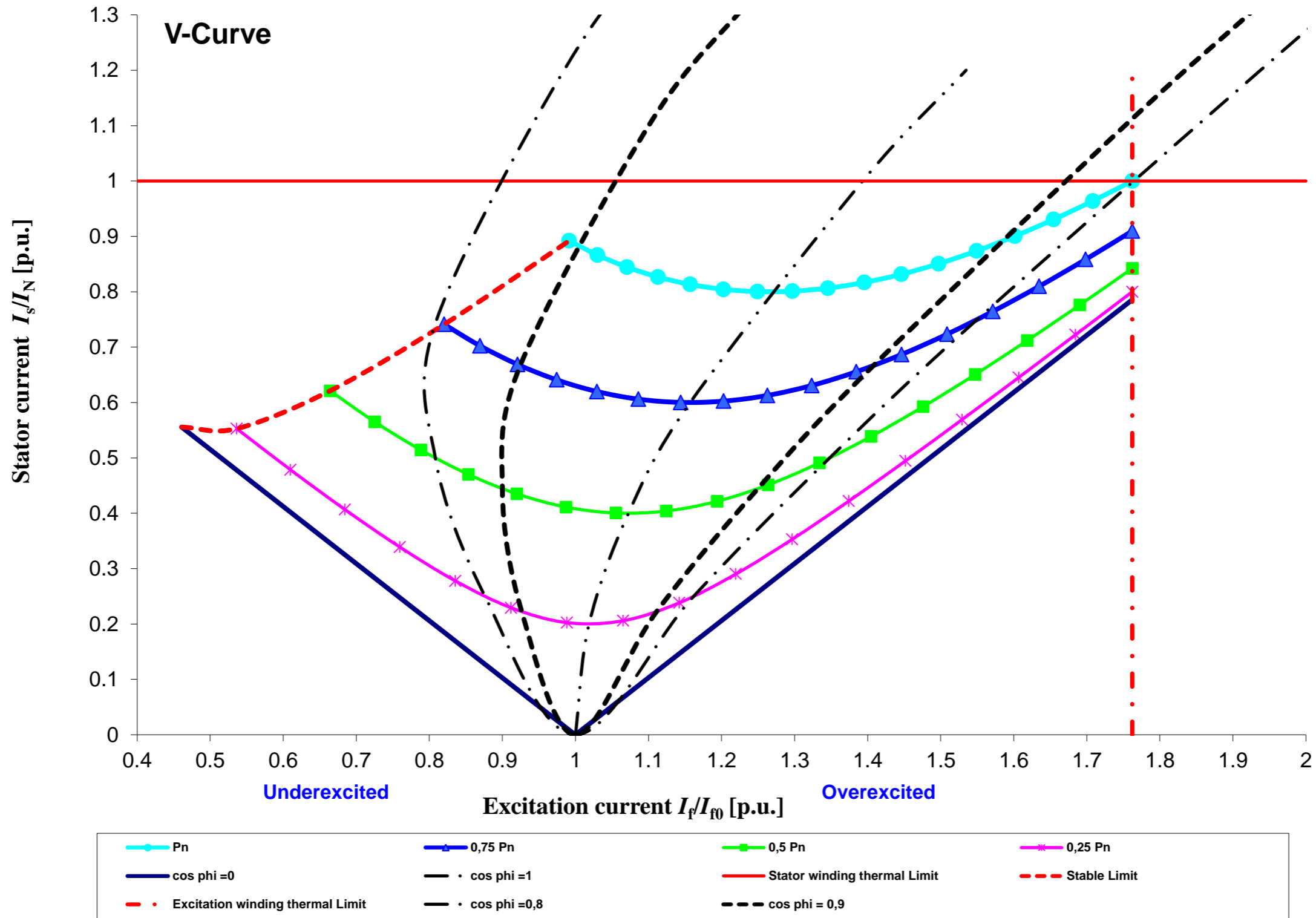
Projekt:

Order Nr.:

Capability (P-Q) Diagram



TYPE	DSG 114 M2/8	Projekt:		Order Nr.:	
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Cummins Generator Technologies	Datum / date:	
	21/01/2014	