

**Technical Data Sheet for AvK-Alternators**

FM 7.3-5

Date:	08/01/14	Customer:	GENERIC DATASHEET only
Project No.:		AvK Reference:	dsg086k1_8_50_690_A048M975

Object data:

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

Generator data:

Generator:	DSG 86 K1/8	Poles:	8	Standards:	IEC 60034
Rated power:	1000 kVA	800 kWe	844 kWm		
Power factor:	0.80				
Power at pf 1,0	813 kVA	813 kWe	844 kWm		
Rated voltage:	0.69 kV				
Speed:	750 1/min				
Frequency:	50 Hz			Voltage range / frequency range:	
Rated current:	836.7 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
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		Coolant:		generator:	
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		Cooling air vol.:	1.7 m³/s	Cooling water quantity:	n/a
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Moment of inertia (I):	83 kgm²	Weight:	3900 Kg	Losses (environment):	44 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	94,54	94,8	95	94,8	92,8
Power factor 0.9	95,36	95,57	95,65	95,3	93,1
Power factor 1.0	96,17	96,35	96,3	95,8	93,4

Reactances and time constants

	unsaturated		saturated			unsaturated		saturated				
X_d	1.75	1.58	p.u.	X_q	0.88	0.86	p.u.	$T_{d0'}$	1.8	s	$T_{d0''}$	0.02345
X_d'	0.276	0.276	p.u.	X_q'	0.88	0.86	p.u.	$T_{d'}$	0.28	s	$T_{q0'}$	0.26
X_d''	0.168	0.153	p.u.	X_q''	0.168	0.168	p.u.	$T_{d''}$	0.013	s	$T_{q0''}$	0.13619
X_2	0.177	0.161	p.u.	X_0	0.051	0.046	p.u.	T_a	0.036	s	$T_{q'}$	0.26
X_{1s}	n.a.	0.092	p.u.								$T_{q''}$	0.026

Short circuit ratio saturated:	0.63	Z_n	0.476	Ohm
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Short circuit data:

Initial short circuit current (3-phase):	I_k''	5469 A	
Max. peak current (3-phase):	I_s	13922 A	
Sustained short circuit current:	I_k	2510 A	Minimum 3 x rated current for max.10 s
Initial short circuit torque:	M_{k2}	108.2 kNm	
	M_{k3}	64.9 kNm	
Max. faulty synchron moment:	M_f	232.6 kNm	
Rated kVA torque:	M_{SN}	12.73 kNm	
Rated torque	M_N	10.18 kNm	
Shaft torque	M_{Sh}	10.74 kNm	

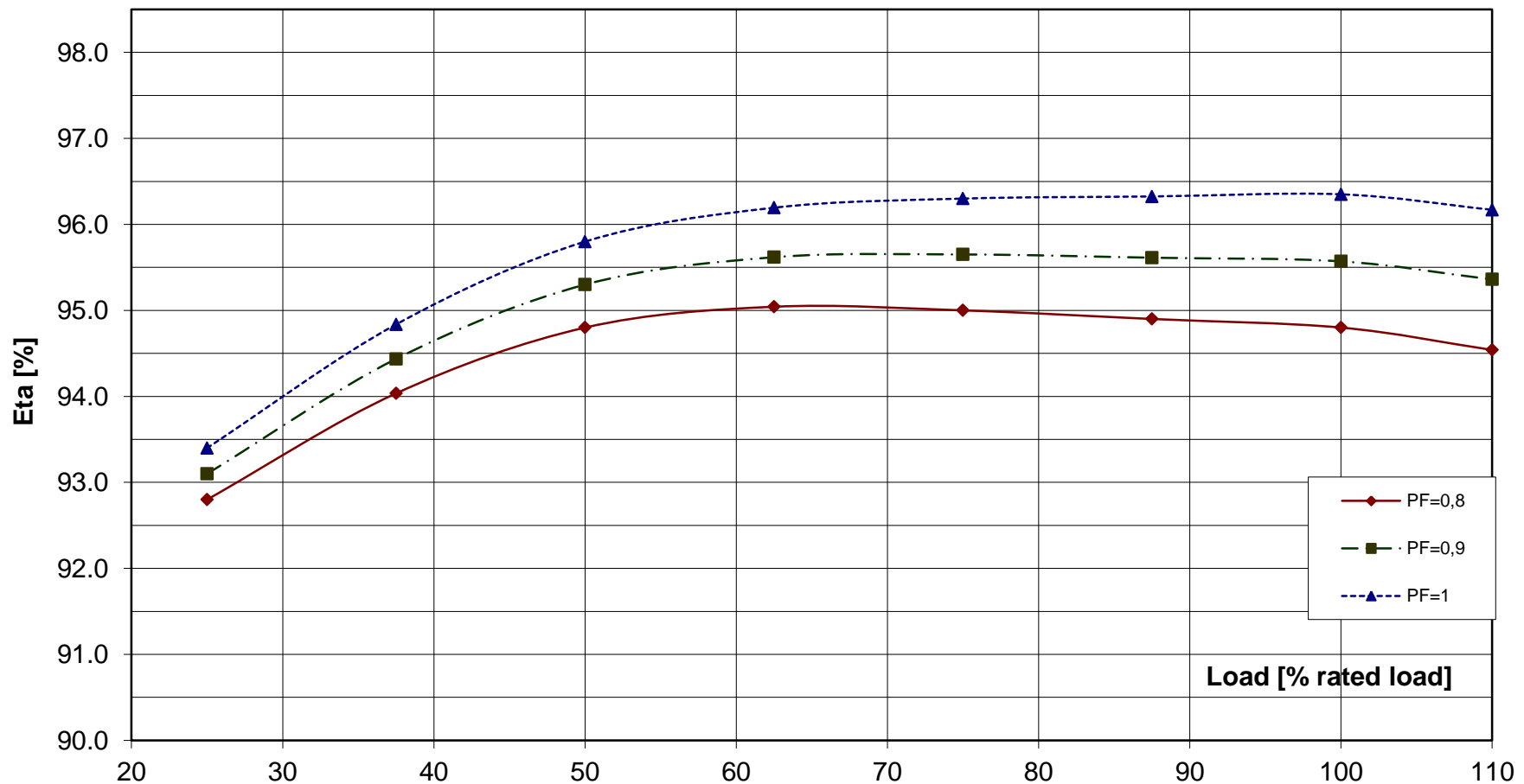
Load application:

max. load application: 544 kVA (corresponds to 54,35 % from 1000 kVA) for Power factor 0.4 15% transient voltage drop	Power: 1000 kVA Power factor: 0.8 transient voltage drop: -21.6 %
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Remarks:

Alternator :	DSG 86 K1/8			
Rated output [kVA]	1000	Rated power factor:	0.8	Rated voltage [kV]: 0.69
Rated frequency [Hz]	50	Rated speed [rpm]	750	

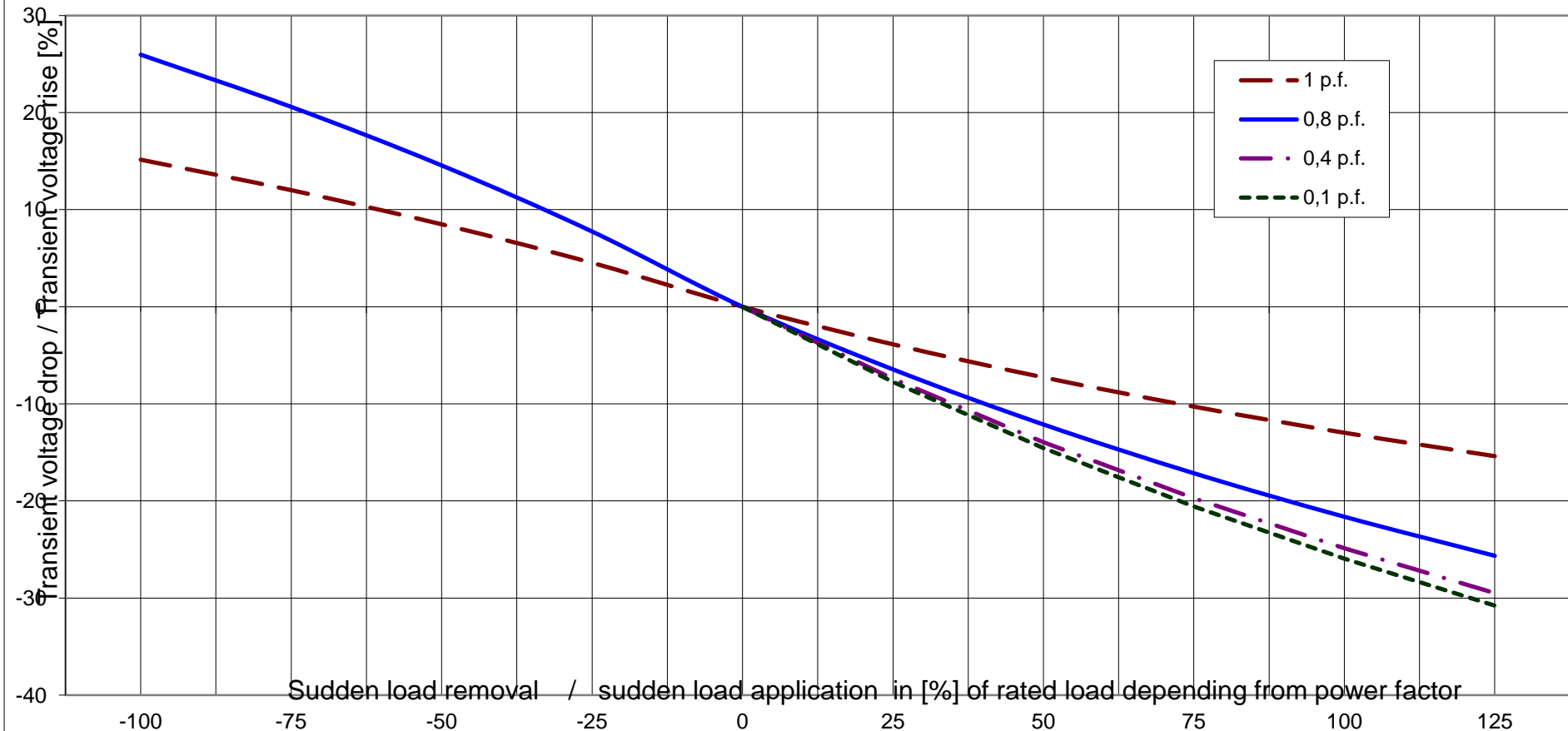
Wirkungsgrad-Kennlinie - Efficiency Curve



Alternator : DSG 86 K1/8

Rated output [kVA]	1000	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



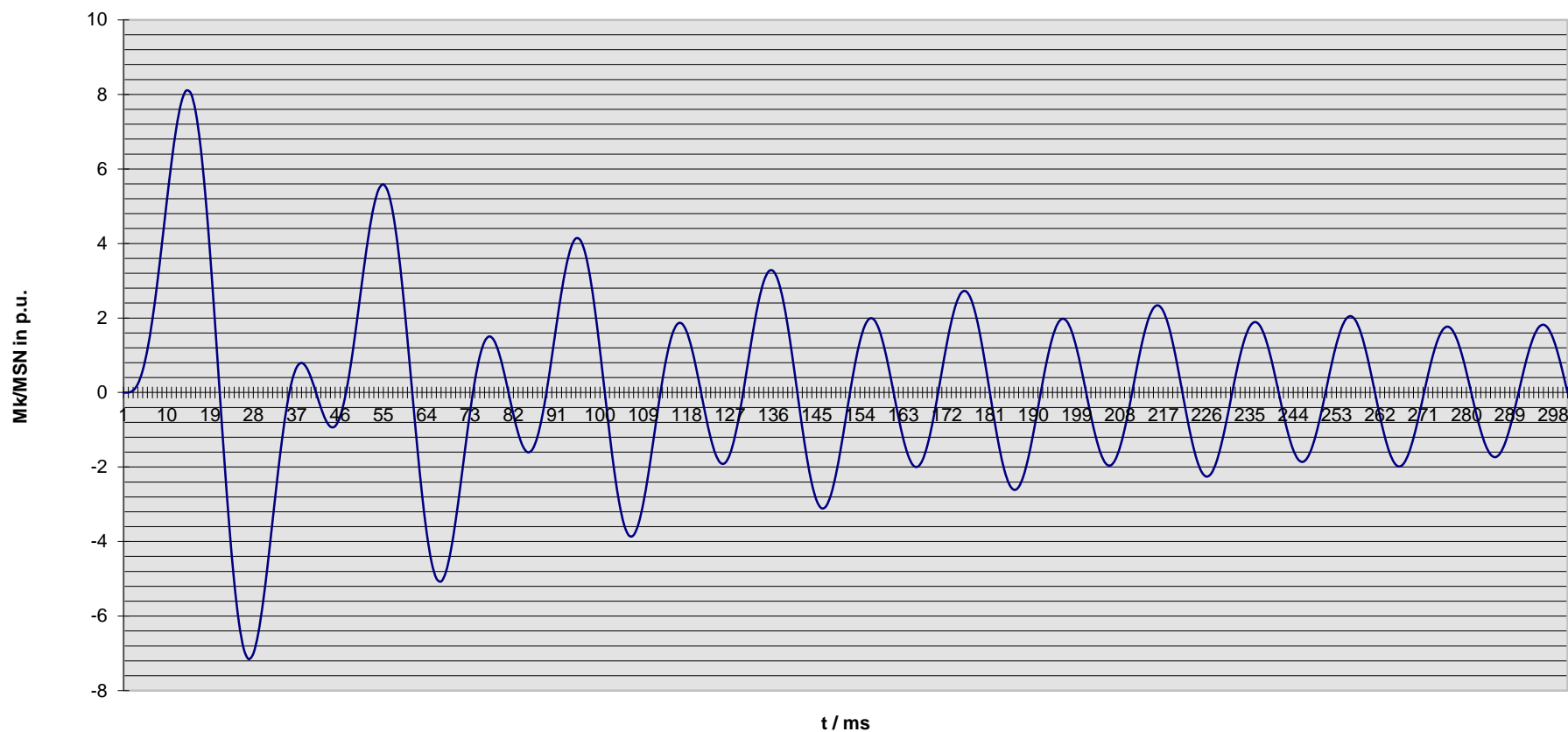


Technisches Datenblatt - Diagramme
Technical data sheet - Diagrams

ING-FCD-0112

Alternator :	DSG 86 K1/8			
Rated output [kVA]	1000	Rated power factor:	0.8	Rated voltage [kV]: 0.69
Rated frequency [Hz]	50	Rated speed [rpm]	750	MSN related to kVA: 12.73 KNm

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



Nenndaten / nominal data

DSG 86 K1/8

Leistung S_N : **1000 kVA**

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

Rating

p.f.

Spannung U_N : **0.69 kV**

Strom I_N : **837 A**

Voltage

Current

Frequenz f : **50 Hz**

Drehzahl n : **750 min⁻¹**

Frequency

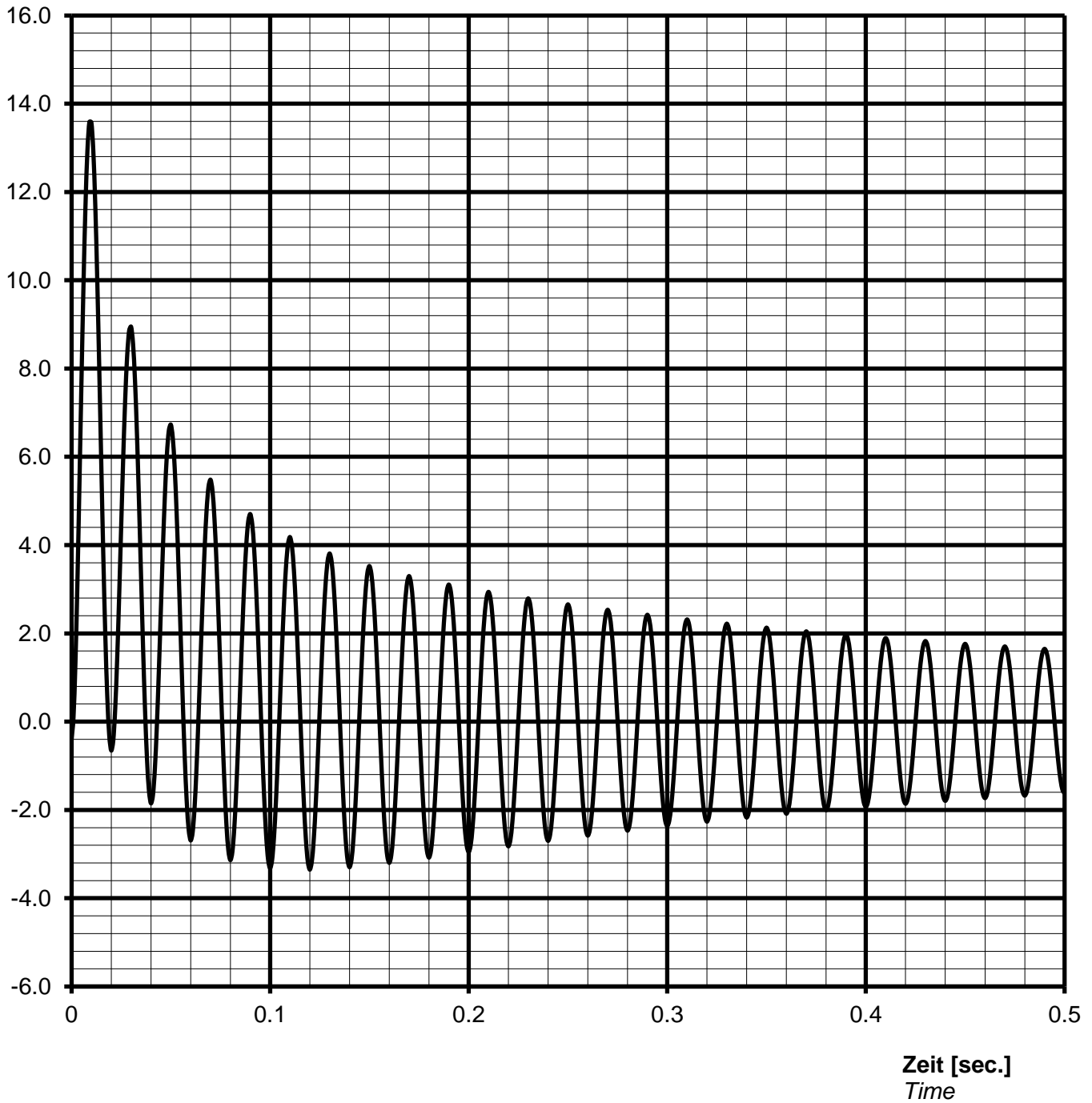
Speed

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 $I_{\text{peak}} =$ **11368 A** or **13.59 p.u.**

Nennwerten / nominal data

DSG 86 K1/8

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

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p.f.

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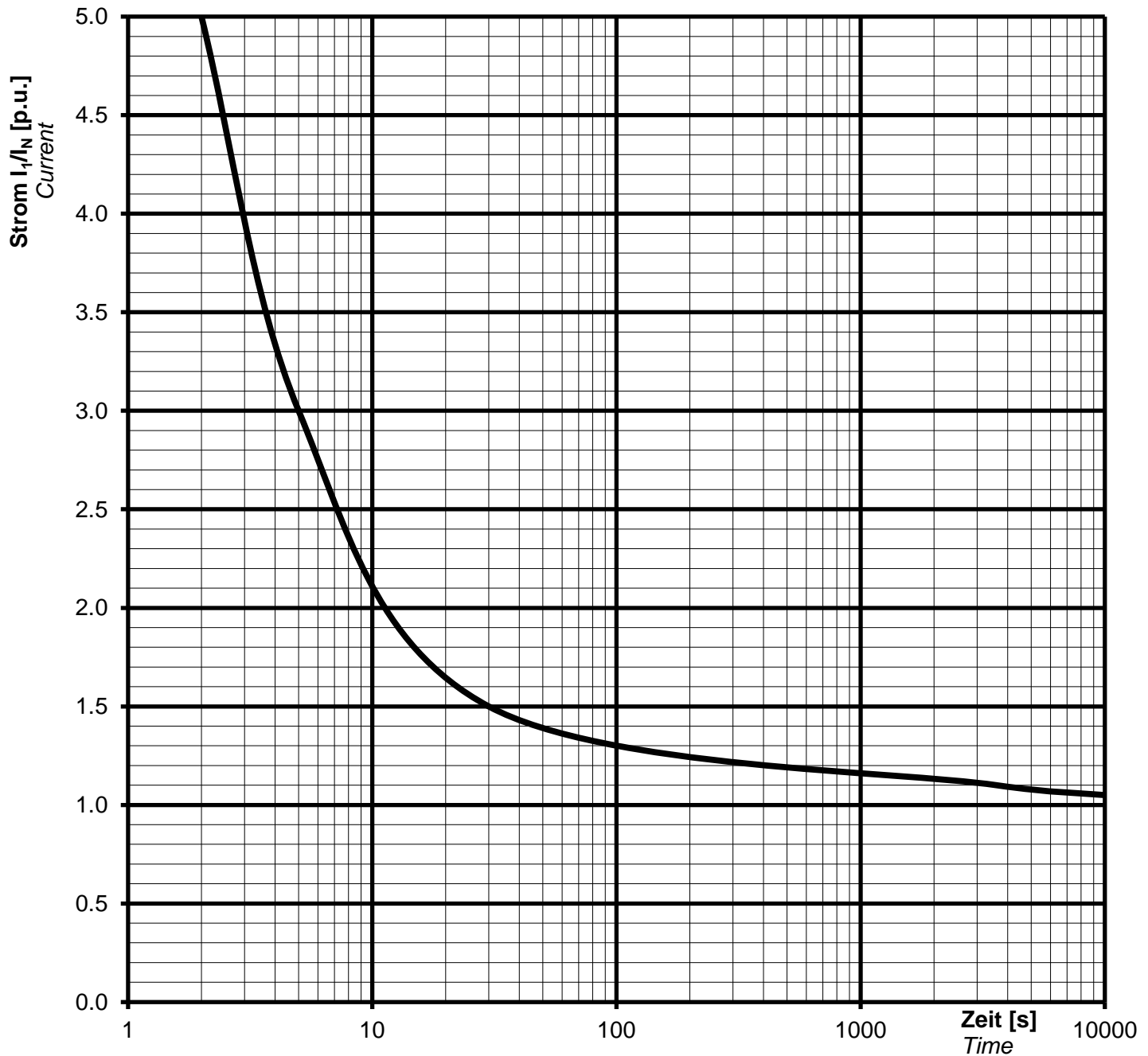
Frequency

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

Nennwerten / nominal data

DSG 86 K1/8

Rating S_N : **1000 kVA**

p.f. **0.80**

Bemessungsleistung

Leistungsfaktor $\cos \varphi$:

Nominal voltage U_N : **0.69 kV**

Nominal current I_N : **837 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:



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

ING-FCD-0112

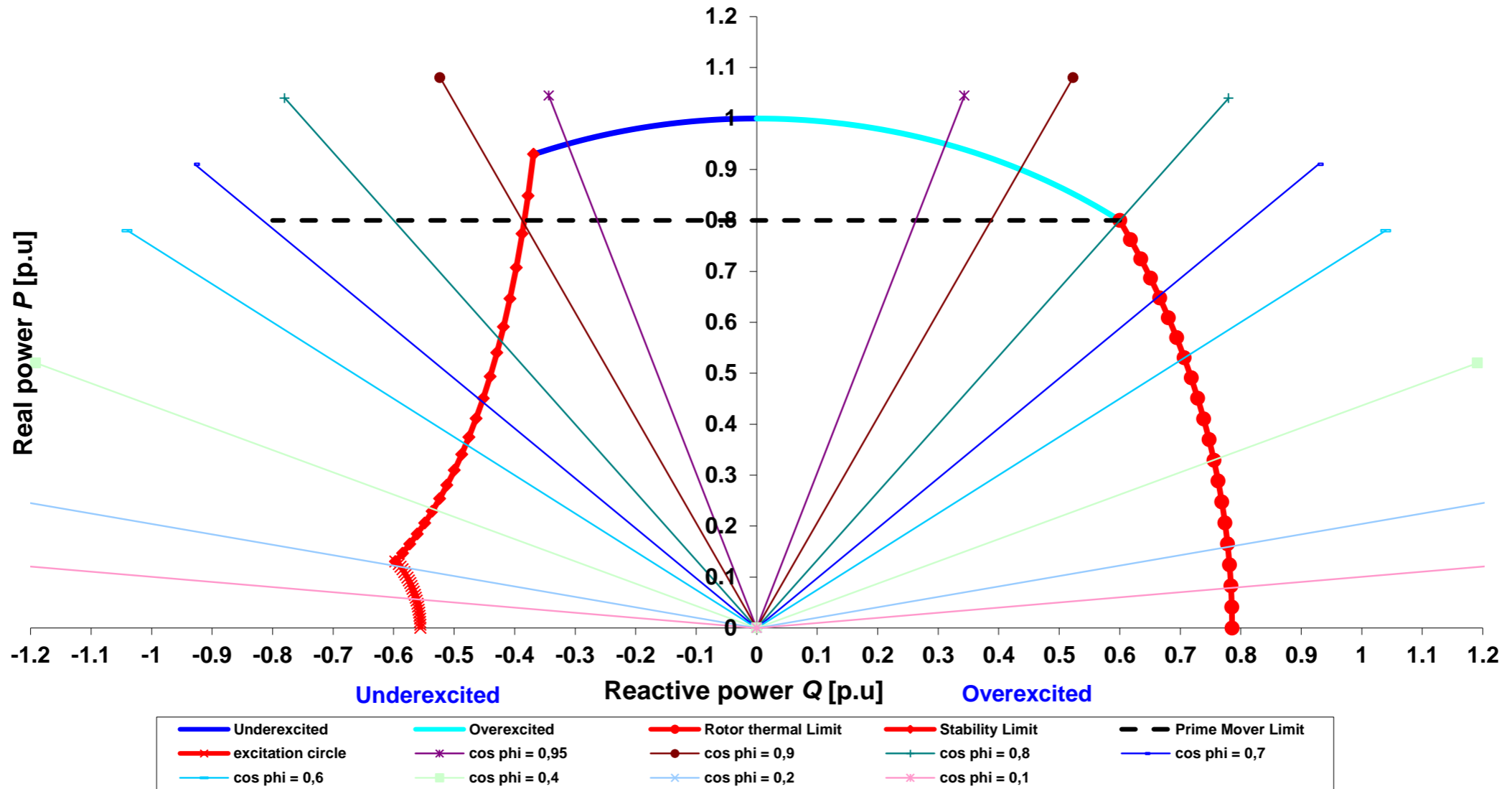
TYPE

DSG 86 K1/8

Projekt:

Order Nr.:

Capability (P-Q) Diagram

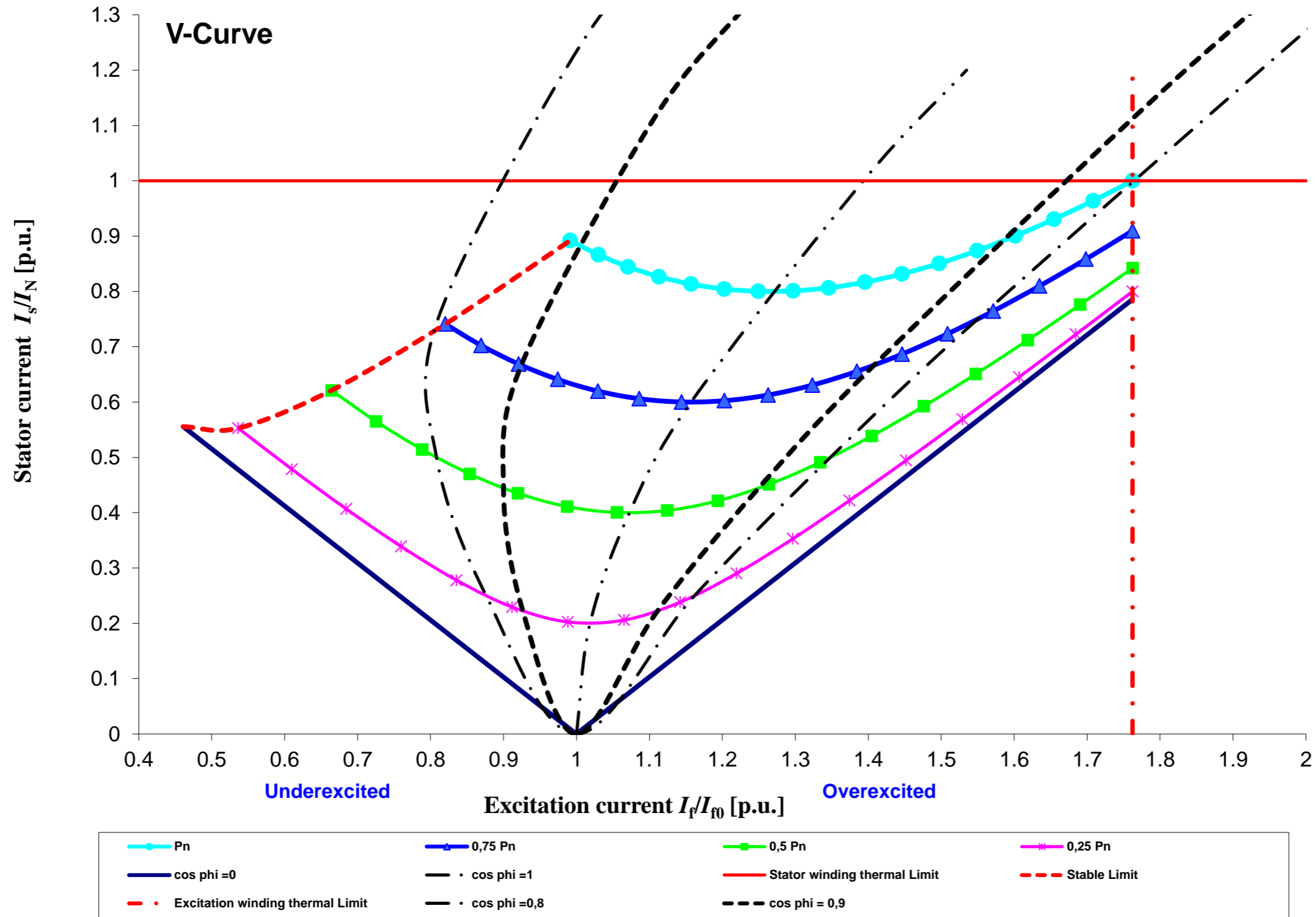


Cummins Generator Technologies

Datum / date:

10/01/2014

TYPE	DSG 86 K1/8	Projekt:		Order Nr.:	
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Cummins Generator Technologies	Datum / date:	
	10/01/2014	