



Technical Data Sheet for AvK-Alternators

FM 7.3-5

Date:	02/10/13	Customer:	GENERIC DATASHEET only
Project No.:	GENERIC DATASHEET only	AvK Reference:	DSG099M1_8_50_400

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

Generator data:					
Generator:	DSG 99 M1/8	Poles:	8	Standards: IEC 60034	
Rated power:	1930 kVA	1544 kWe	1620 kWm		
Power factor:	0.80				
Power at pf 1,0	1568 kVA	1568 kWe	1620 kWm		
Rated voltage:	0.4 kV				
Speed:	750 1/min				
Frequency:	50 Hz		Voltage range / frequency range:		
Rated current:	2785.7 A		Zone A according IEC 60034-1 (dU = +/-5%, df = +/-2%)		
Winding pitch:	ca. 5/6				
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.:	2.5 m³/s	Cooling water quantity:	n/a
Moment of inertia (I):	205 kgm²	Weight:	7000 Kg	Losses (environment):	76 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	95,07	95,3	95,7	95,75	94,5
Power factor 0.9	95,85	96,05	96,3	96,2	94,8
Power factor 1.0	96,64	96,8	96,9	96,65	95,1

Reactances and time constants											
	unsaturated		saturated			unsaturated		saturated			
X _d	1.90	1.71	p.u.	X _q	0.95	0.93	p.u.	T _{d0'}	2.1 s	T _{d0''}	0.02871 s
X _{d'}	0.289	0.289	p.u.	X _{q'}	0.95	0.93	p.u.	T _{d'}	0.32 s	T _{q0'}	0.3 s
X _{d''}	0.166	0.151	p.u.	X _{q''}	0.166	0.166	p.u.	T _{d''}	0.015 s	T _{q0''}	0.17169 s
X ₂	0.175	0.159	p.u.	X ₀	0.050	0.045	p.u.	T _a	0.045 s	T _{q'}	0.3 s
X _{1s}	n.a.	0.091	p.u.							T _{q''}	0.03 s
Short circuit ratio saturated: 0.58					Z _n 0.083 Ohm						

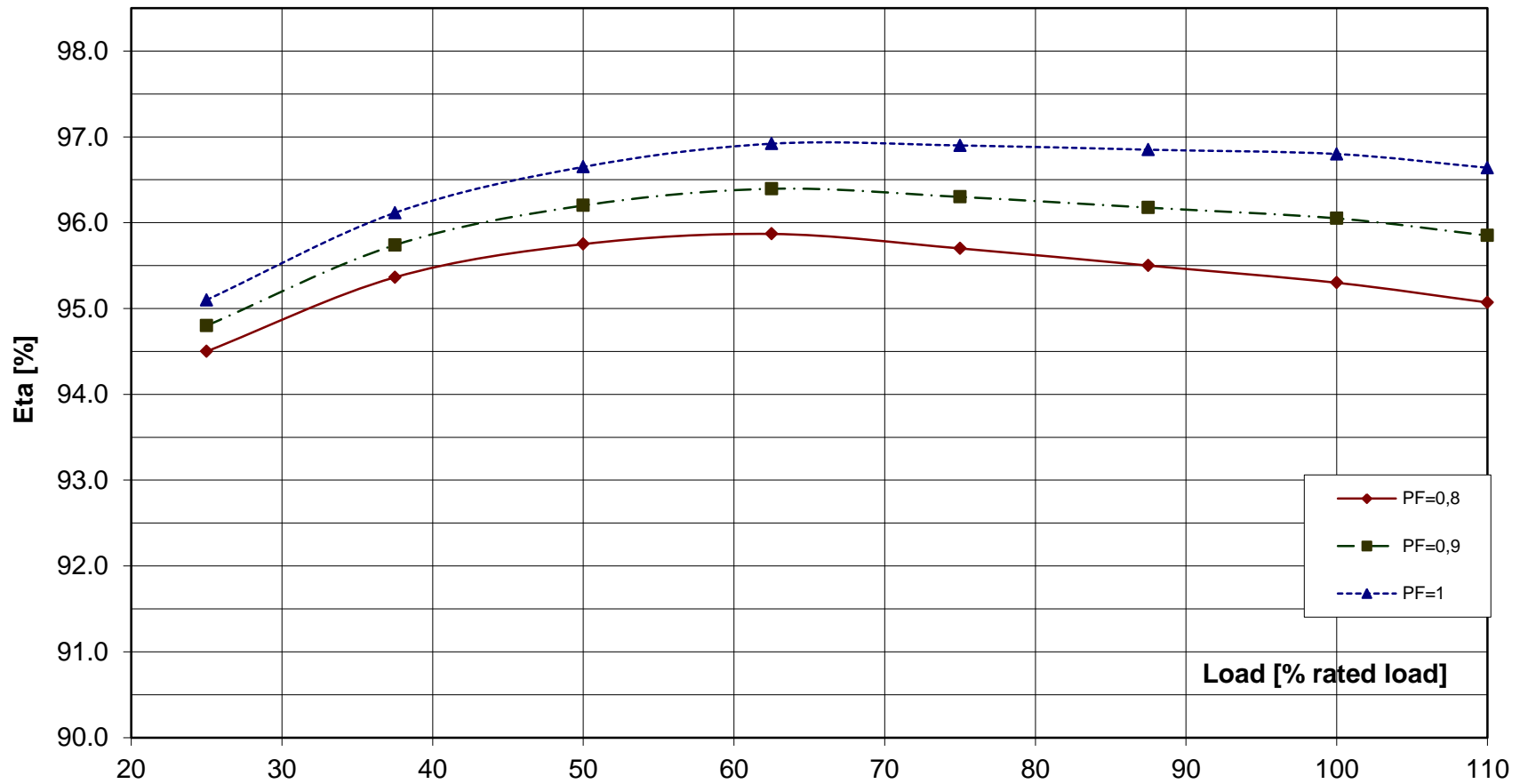
Short circuit data:		
Initial short circuit current (3-phase):	I _{k'}	18448 A
Max. peak current (3-phase):	I _s	46961 A
Sustained short circuit current:	I _k	8357 A
Minimum 3 x rated current for max.10 s		
Initial short circuit torque:	M _{k2}	211.6 kNm
	M _{k3}	127.0 kNm
Max. faulty synchron moment:	M _f	454.9 kNm
Rated kVA torque:	M _{SN}	24.58 kNm
Rated torque	M _N	19.66 kNm
Shaft torque	M _{Sh}	20.63 kNm

Load application:	
max. load application: 1002 kVA (corresponds to 51,9 % from 1930 kVA) for Power factor 0.4 15% transient voltage drop	Power: 1930 kVA Power factor: 0.8 transient voltage drop: -22.4 %

Remarks:

Alternator :	DSG 99 M1/8			
Rated output [kVA]	1930	Rated power factor:	0.8	Rated voltage [kV]: 0.4
Rated frequency [Hz]	50	Rated speed [rpm]	750	

Wirkungsgrad-Kennlinie - Efficiency Curve



Alternator : DSG 99 M1/8

Rated output [kVA]

1930

Rated power factor:

0.8

Rated voltage [kV]: 0.4

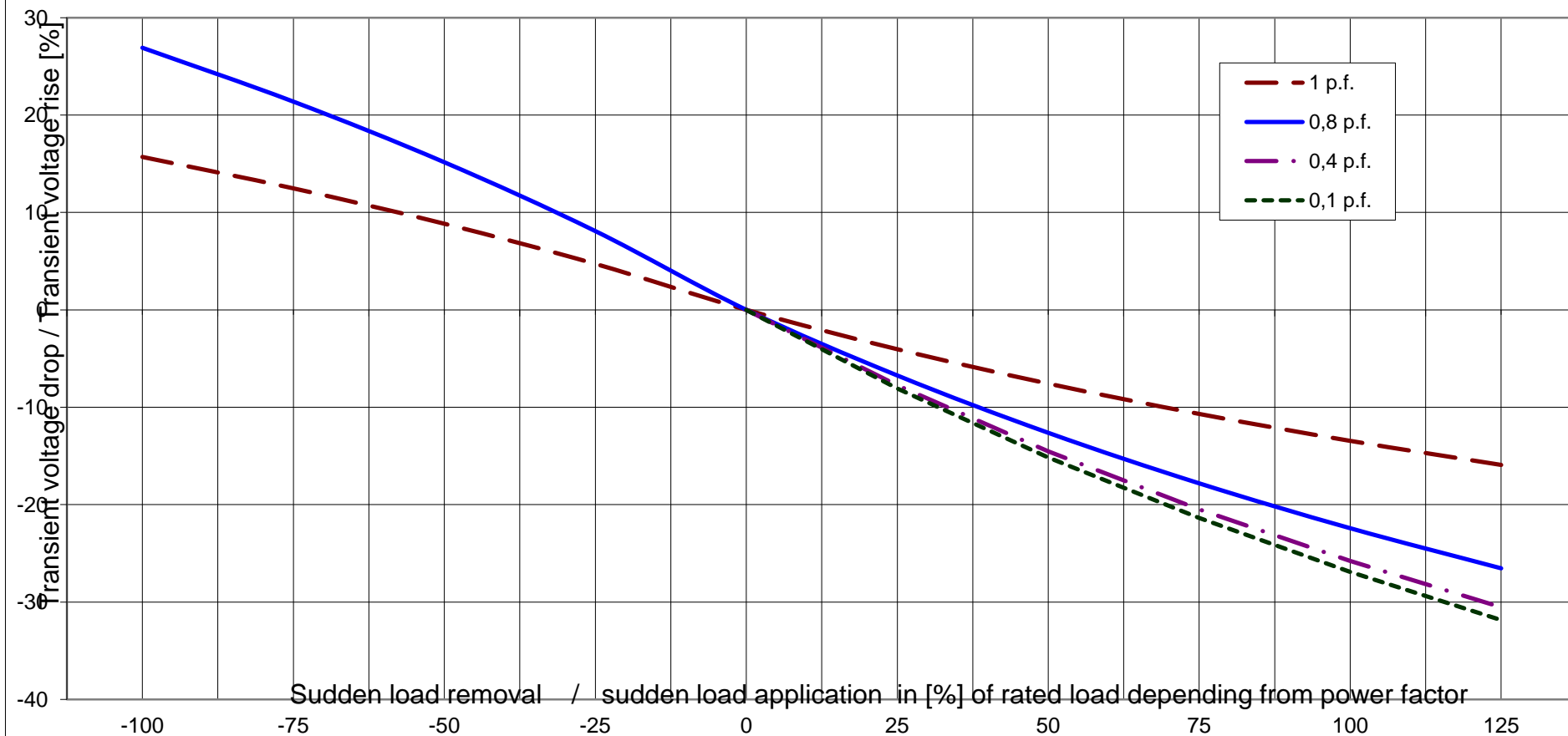
Rated frequency [Hz]

50

Rated speed [rpm]

750

Transient Voltage rise or drop for sudden load removal or application





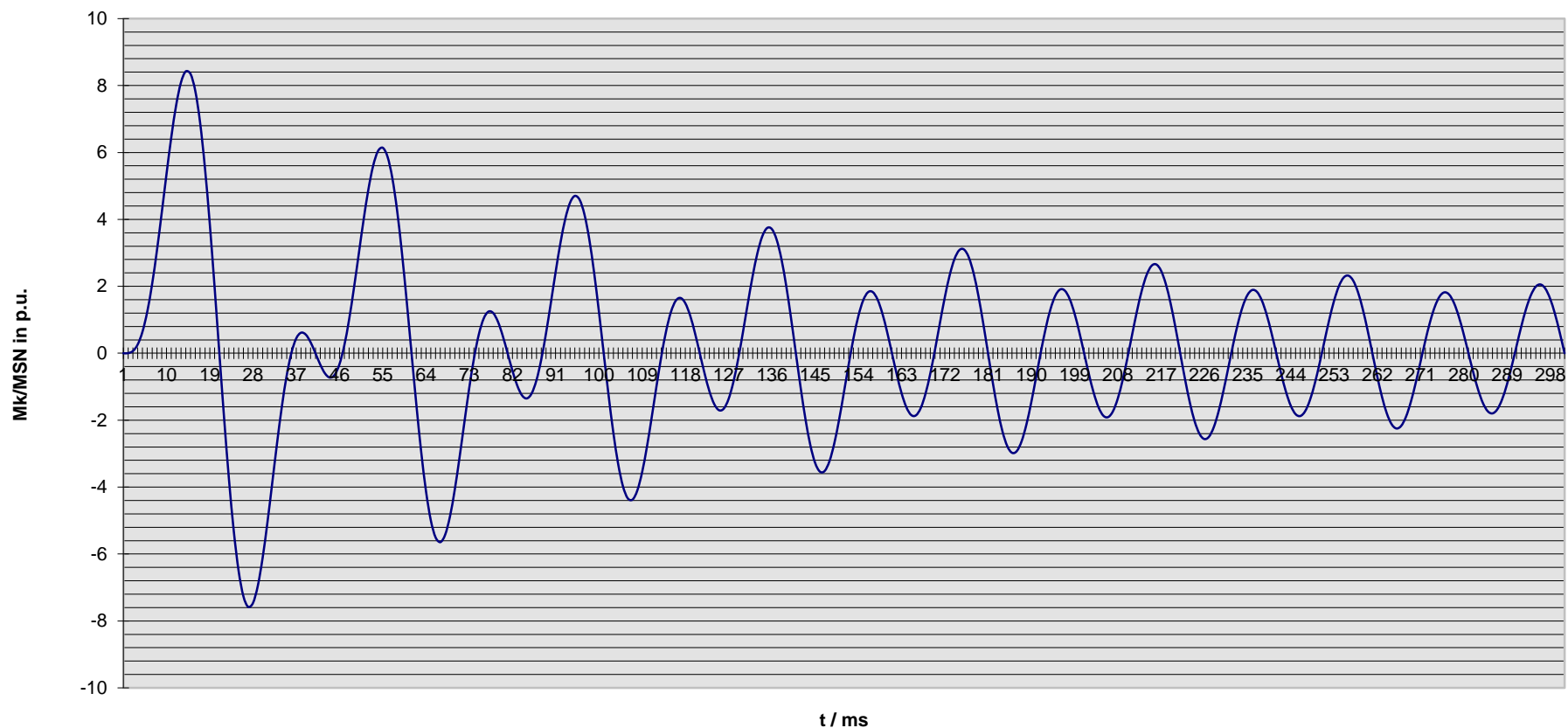
Technisches Datenblatt - Diagramme
Technical data sheet - Diagrams

ING-FCD-0112

Alternator : DSG 99 M1/8

Rated output [kVA]	1930	Rated power factor:	0.8	Rated voltage [kV]:	0.4
Rated frequency [Hz]	50	Rated speed [rpm]	750	MSN related to kVA:	24.57 KNm

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



Nennenden / nominal data

DSG 99 M1/8

Leistung S_N : **1930** kVA

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

Rating

p.f.

Spannung U_N : **0.40** kV

Strom I_N : **2786** A

Voltage

Current

Frequenz f : **50** Hz

Drehzahl n : **750** min⁻¹

Frequency

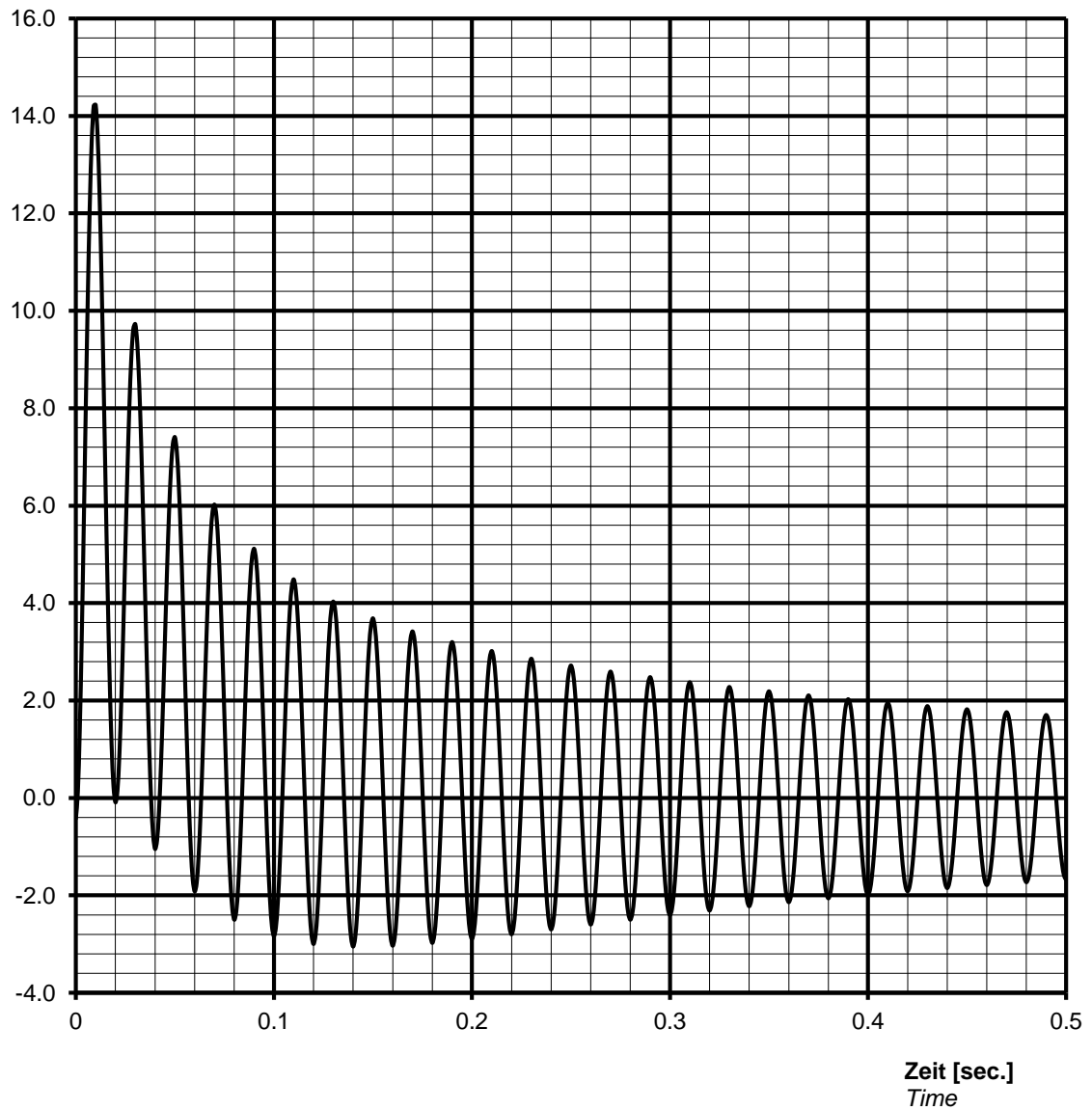
Speed

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

$I_{\text{speak}} =$ **39626** A or **14.22** p.u.

Nenndaten / nominal data

DSG 99 M1/8

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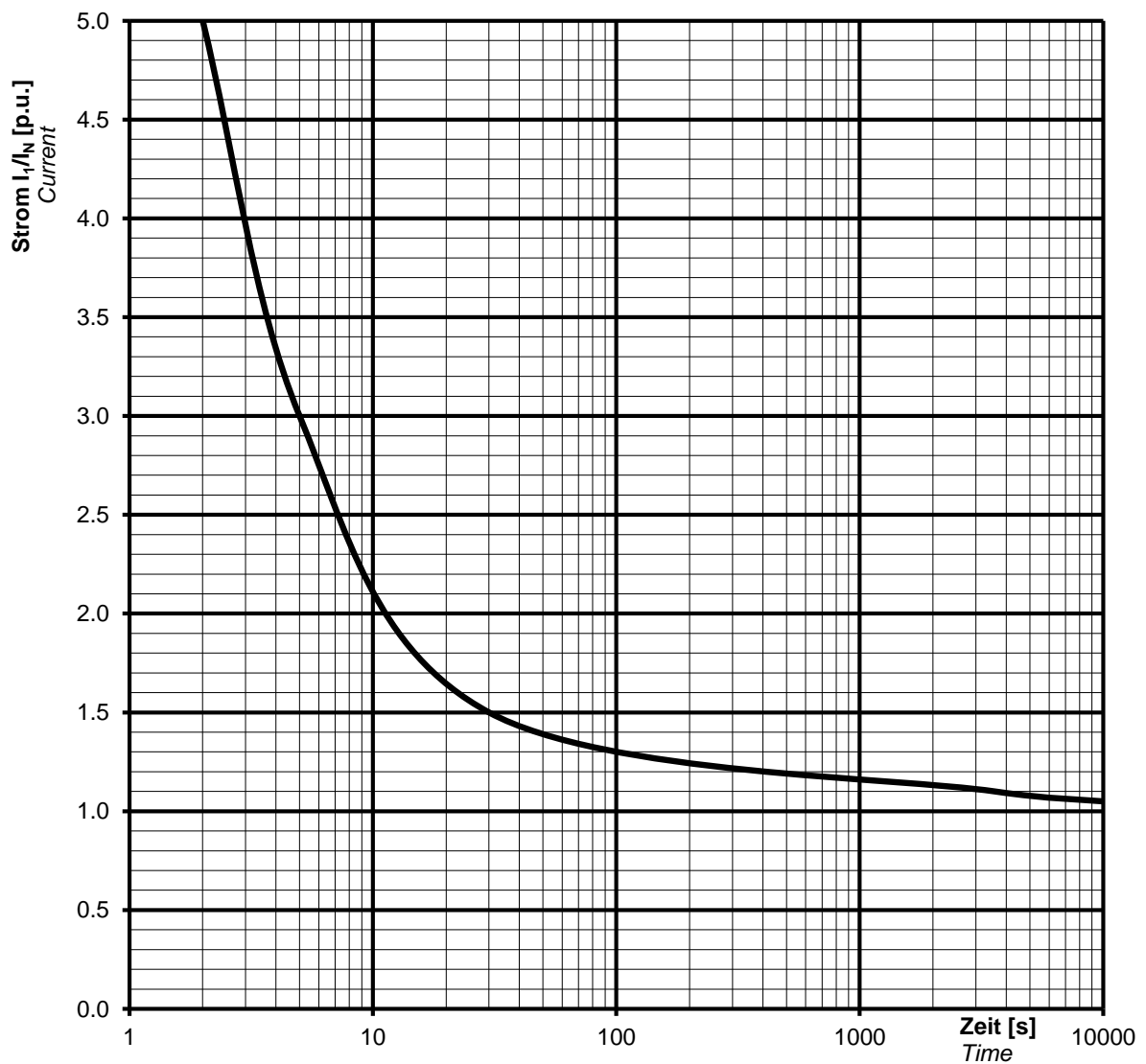
Frequency

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

Neendaten / nominal data

DSG 99 M1/8

Rating S_N : **1930 kVA**

Bemessungsleistung

Nominal voltage U_N : **0.40 kV**

Bemessungsspannung

Frequency f_N : **50 Hz**

Frequenz

Protection: **IP23**

Schutzart

p.f. **0.80**

Leistungsfaktor $\cos \varphi$:

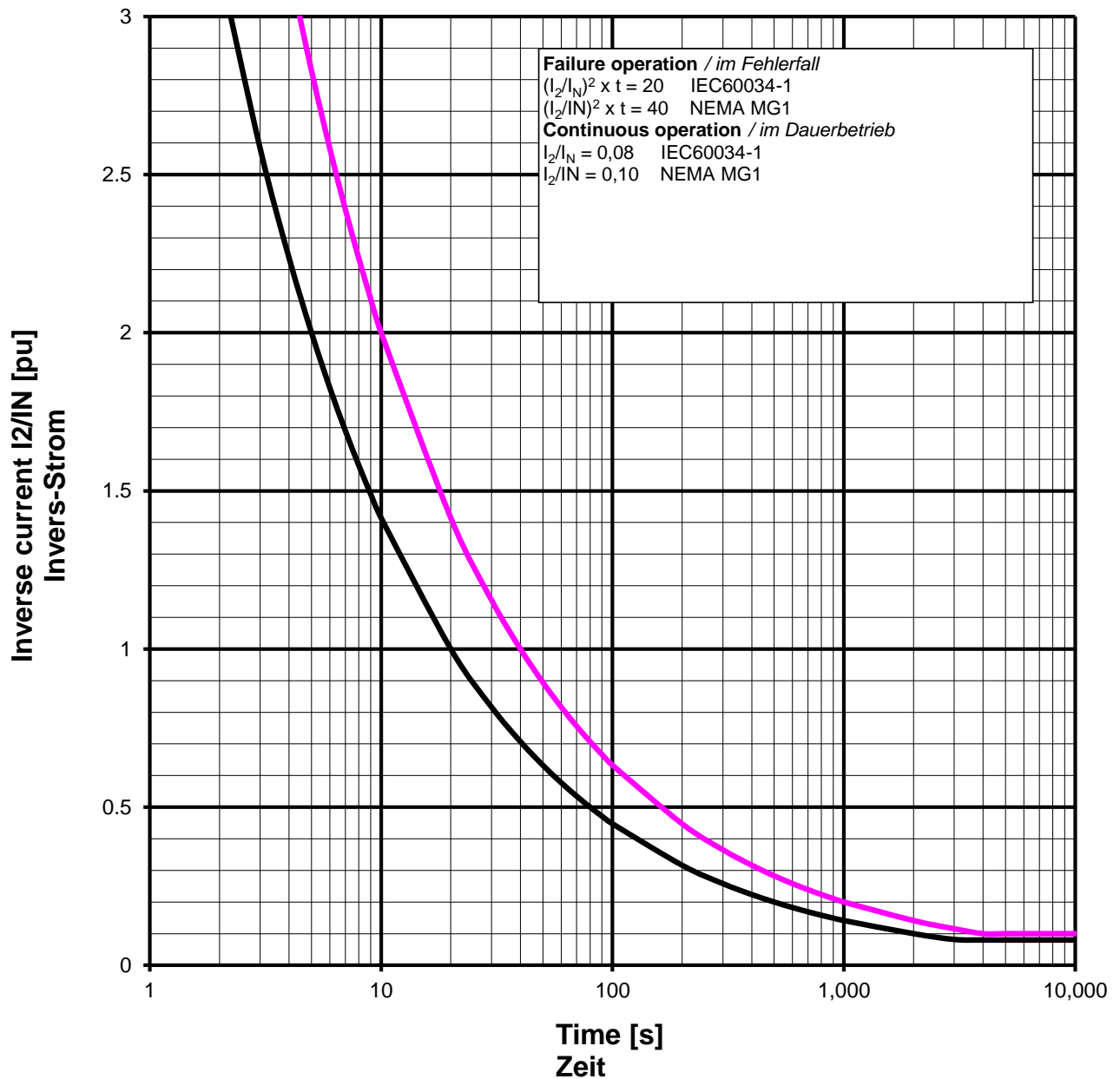
Nominal current I_N : **2786 A**

Bemessungsstrom

Speed n : **750 min⁻¹**

Drehzahl

Inverse current or unbalanced negative sequence current



Remarks / Notizen:

All data according IEC 60034-1, NEMA MG1



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

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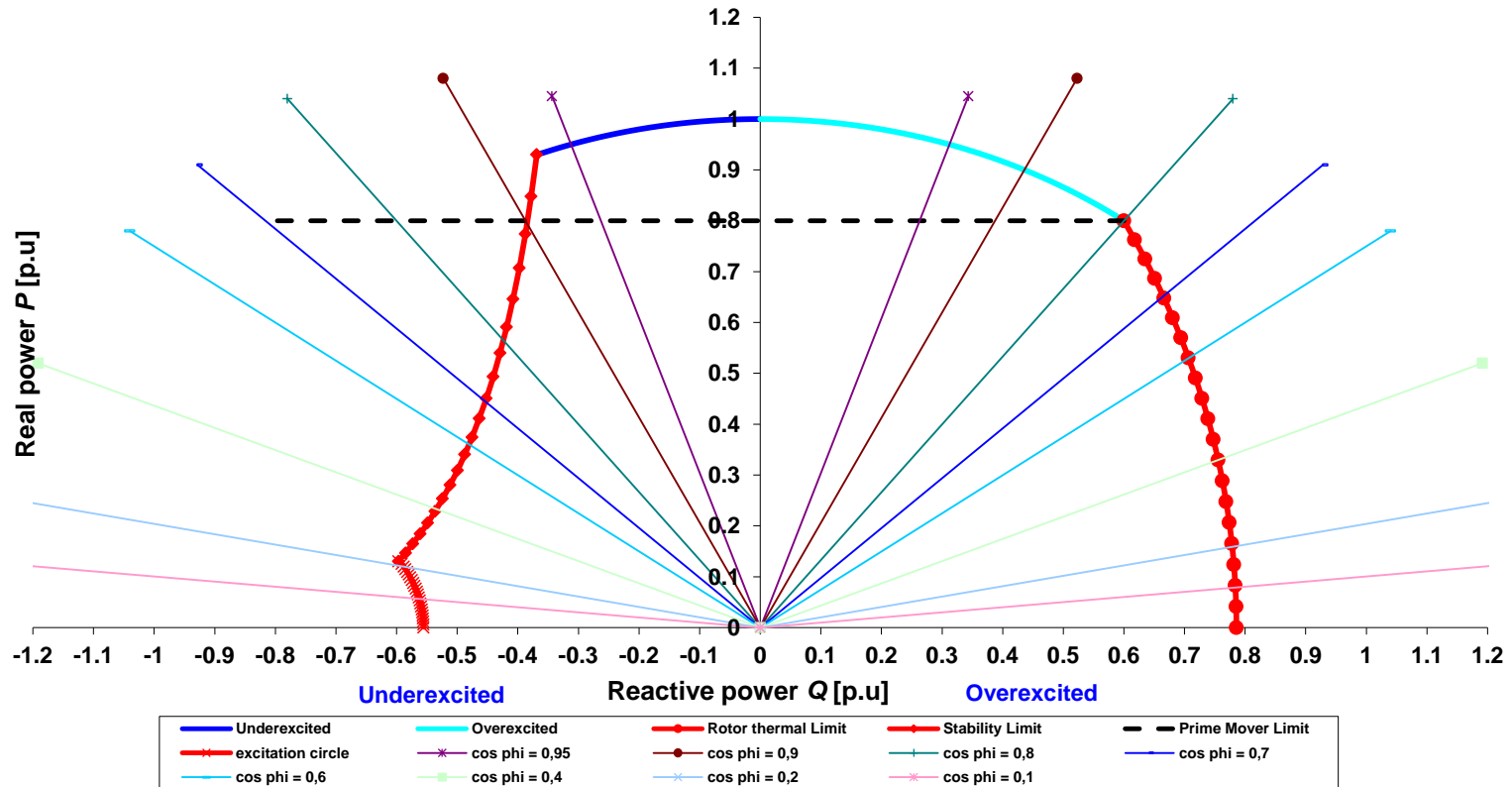
TYPE

DSG 99 M1/8

Projekt:

Order Nr.:

Capability (P-Q) Diagram



Cummins Generator Technologies

Datum / date:

03/10/2013



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

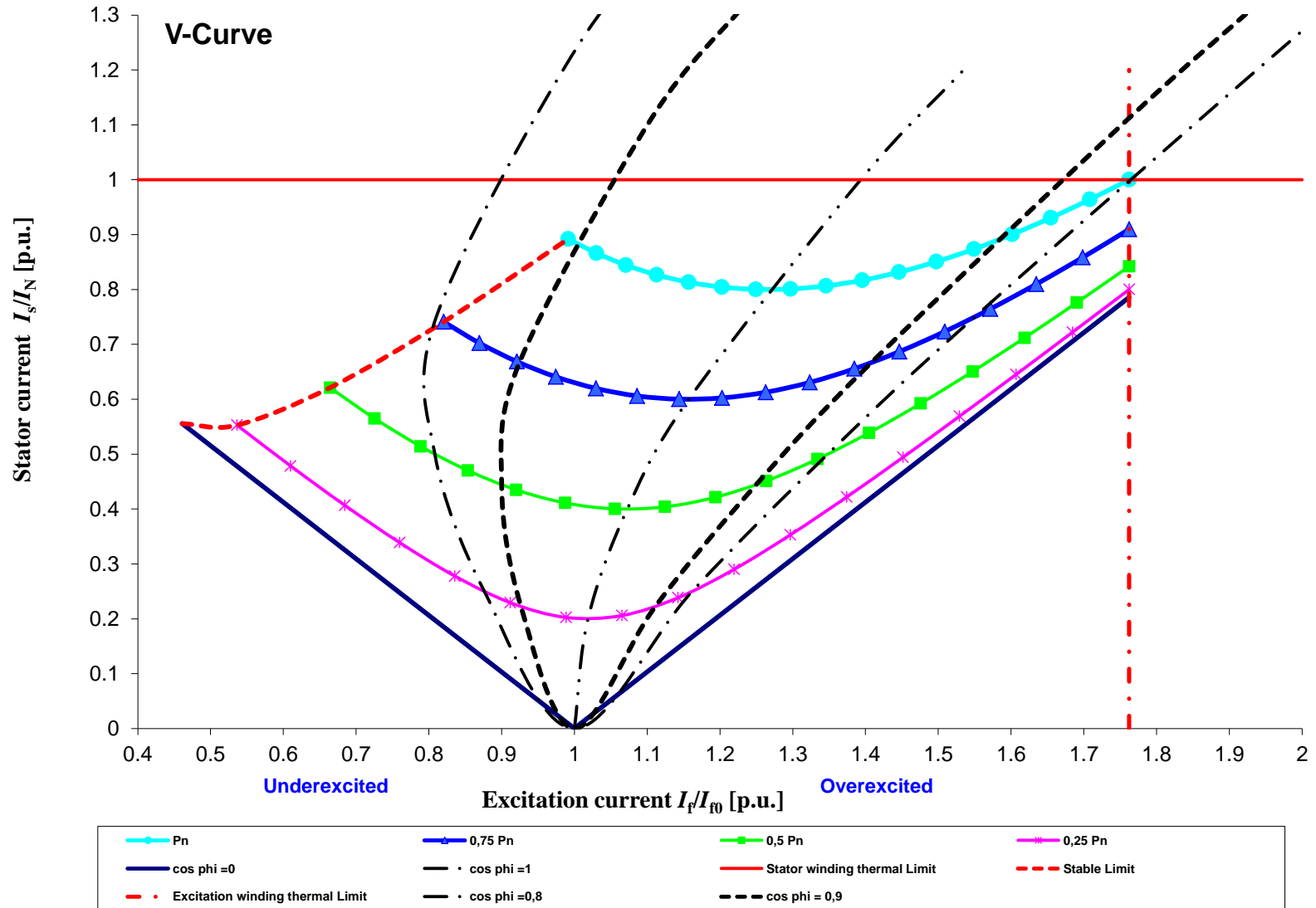
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