



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_60_480

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

Generator data:					
Generator:	DSG 99 M1/8	Poles:	8	Standards: IEC 60034	
Rated power:	2430 kVA	1944 kWe	2040 kWm		
Power factor:	0.80				
Power at pf 1,0	1975 kVA	1975 kWe	2040 kWm		
Rated voltage:	0.48 kV				
Speed:	900 1/min				
Frequency:	60 Hz		Voltage range / frequency range:		
Rated current:	2922.8 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.:	3.0 m³/s	Cooling water quantity:	n/a
Moment of inertia (I):	205 kgm²	Weight:	7000 Kg	Losses (environment):	96 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	95,65	94,3
Power factor 0.9	95,85	96,05	96,3	96,1	94,6
Power factor 1.0	96,64	96,8	96,9	96,55	94,9

Reactances and time constants									
	unsaturated		saturated			unsaturated		saturated	
X_d	2.00	1.80 p.u.	X_q	1.00	0.98 p.u.	T_{d0}'	2.1 s	T_{d0}''	0.02877 s
X_d'	0.303	0.303 p.u.	X_q'	1.00	0.98 p.u.	T_d'	0.32 s	T_{q0}'	0.3 s
X_d''	0.174	0.158 p.u.	X_q''	0.174	0.174 p.u.	T_d''	0.015 s	T_{q0}''	0.17241 s
X_2	0.183	0.166 p.u.	X_0	0.053	0.048 p.u.	T_a	0.045 s	T_{q1}'	0.3 s
X_{1s}	n.a.	0.095 p.u.						T_{q1}''	0.03 s
Short circuit ratio saturated:	0.56		Z_n		0.095 Ohm				

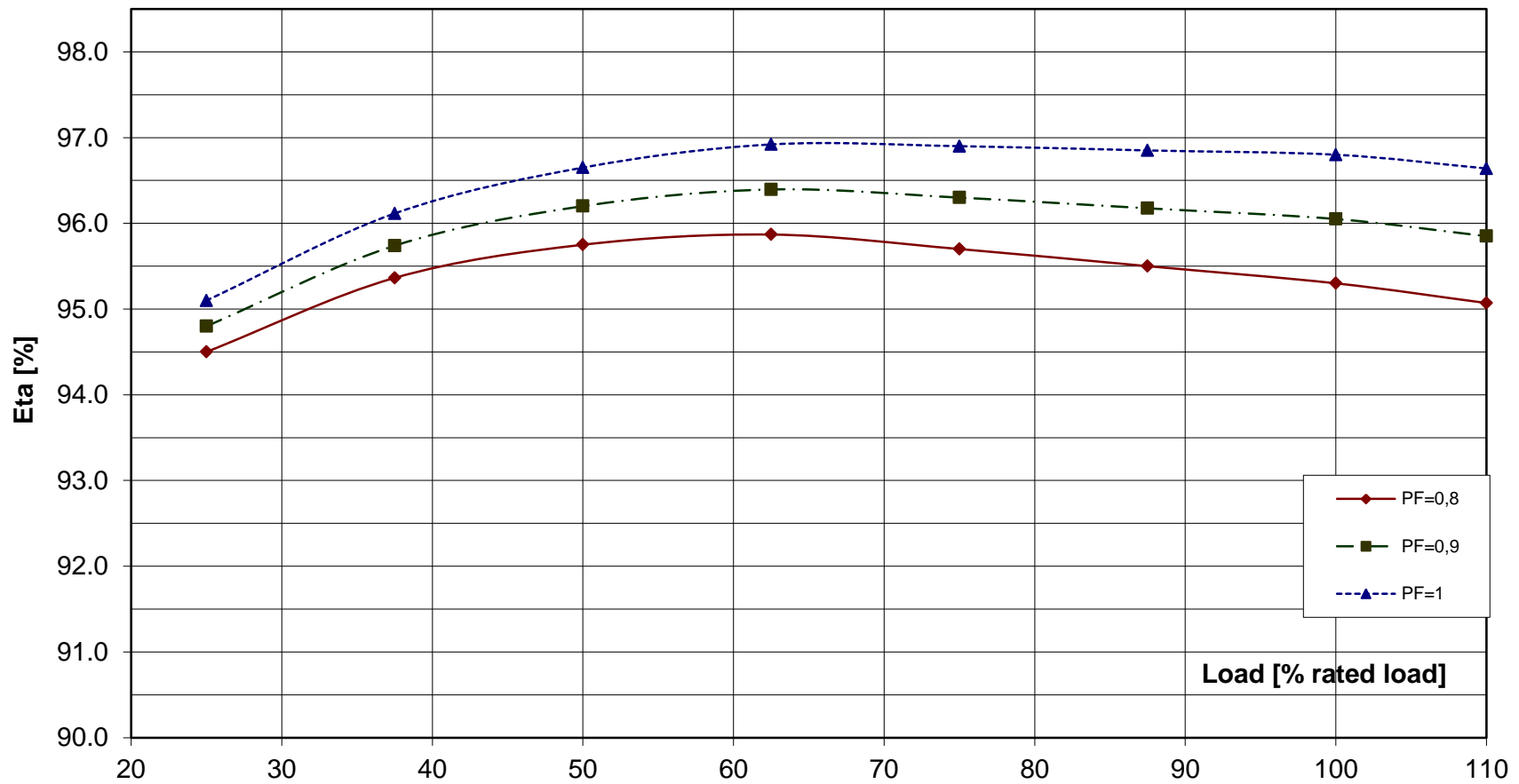
Short circuit data:			
Initial short circuit current (3-phase):	I_k'	18499 A	
Max. peak current (3-phase):	I_s	47091 A	
Sustained short circuit current:	I_k	8769 A	Minimum 3 x rated current for max.10 s
Initial short circuit torque:	M_{k2}	212.1 kNm	
	M_{k3}	127.3 kNm	
Max. faulty synchron moment:	M_f	456.0 kNm	
Rated kVA torque:	M_{SN}	25.79 kNm	
Rated torque	M_N	20.63 kNm	
Shaft torque	M_{Sh}	21.65 kNm	

Load application:	
max. load application: 1203 kVA (corresponds to 49,51 % from 2430 kVA) for Power factor 0.4 15% transient voltage drop	Power: 2430 kVA Power factor: 0.8 transient voltage drop: -23.3 %

Remarks:

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

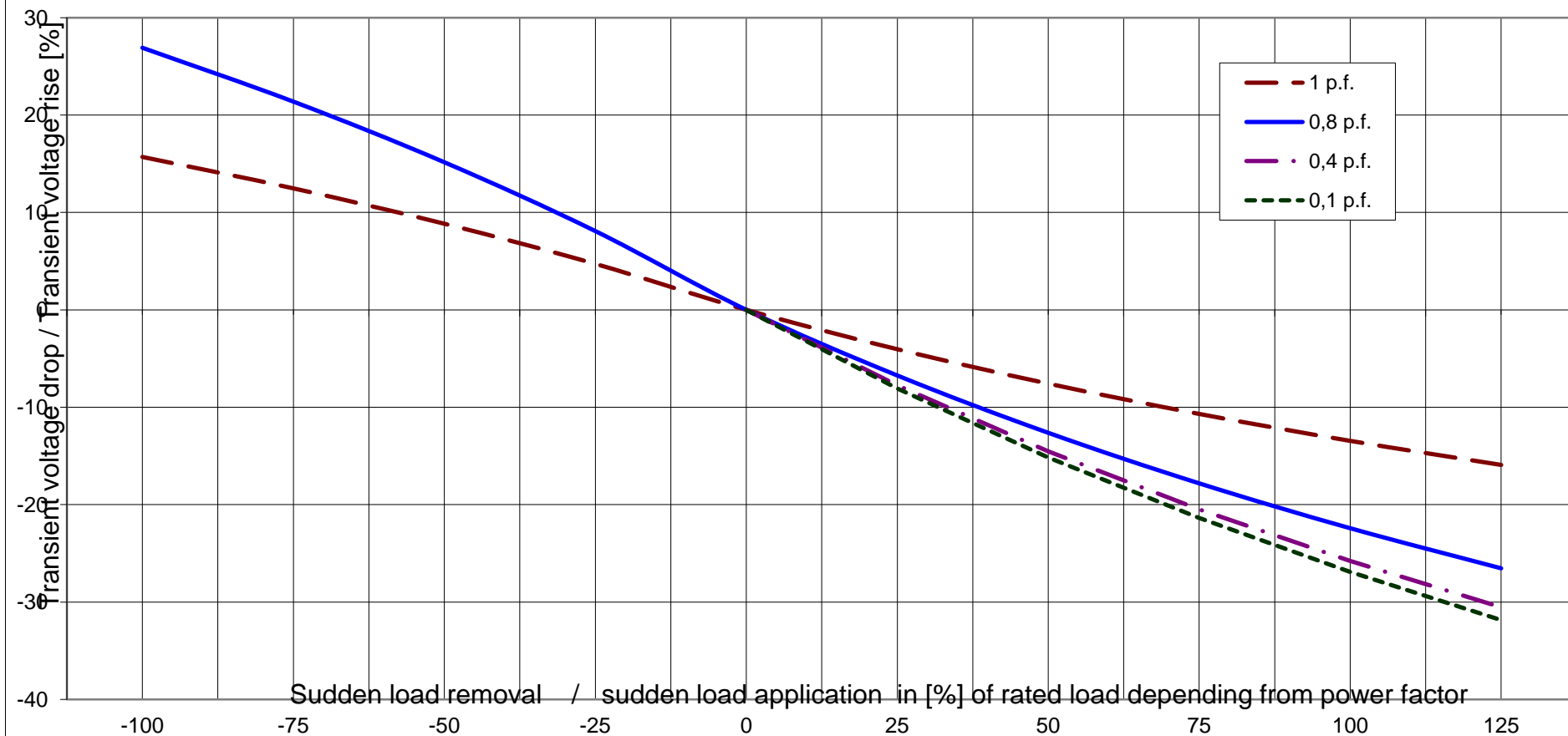
Wirkungsgrad-Kennlinie - Efficiency Curve



Alternator : DSG 99 M1/8

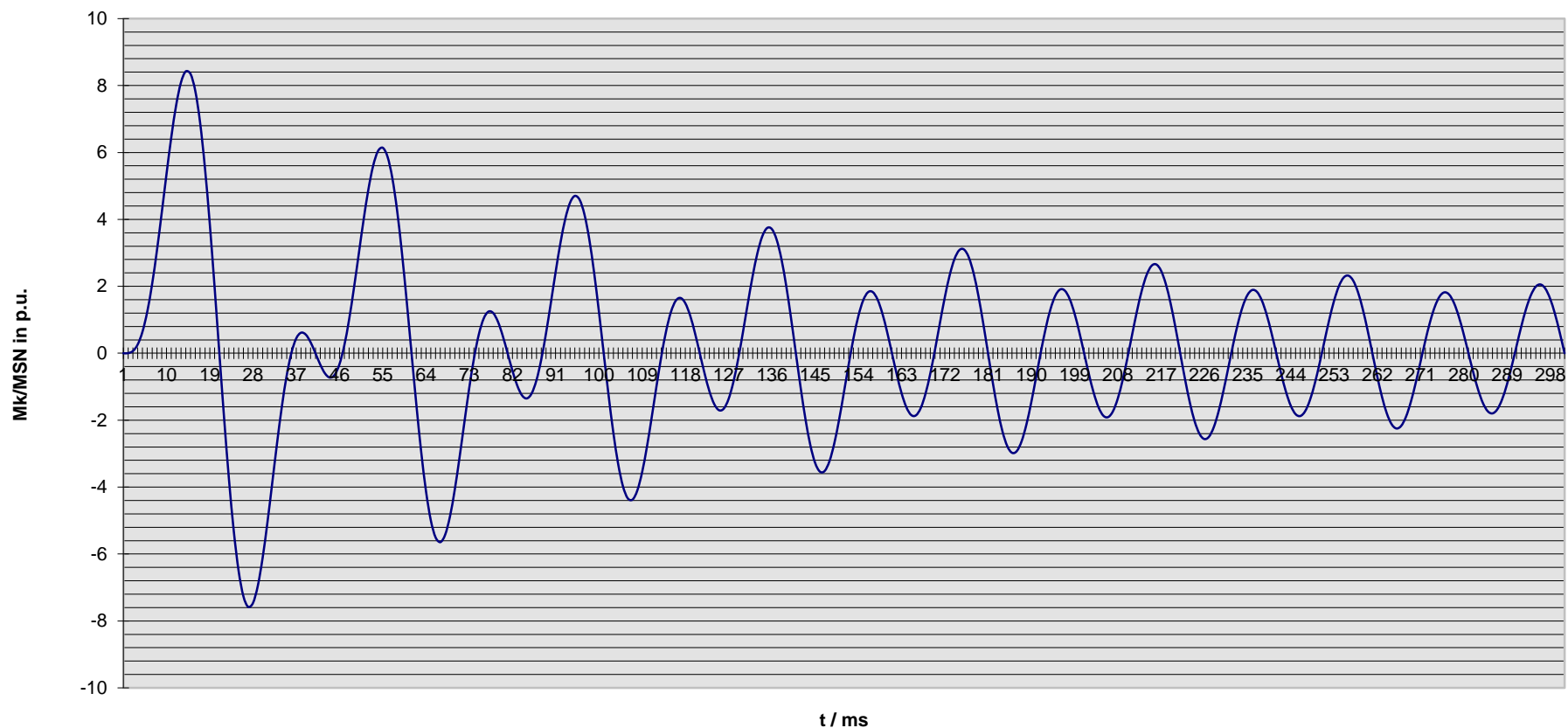
Rated output [kVA]	1930	Rated power factor:	0.8	Rated voltage [kV]:	0.4
Rated frequency [Hz]	50	Rated speed [rpm]	750		

Transient Voltage rise or drop for sudden load removal or application



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

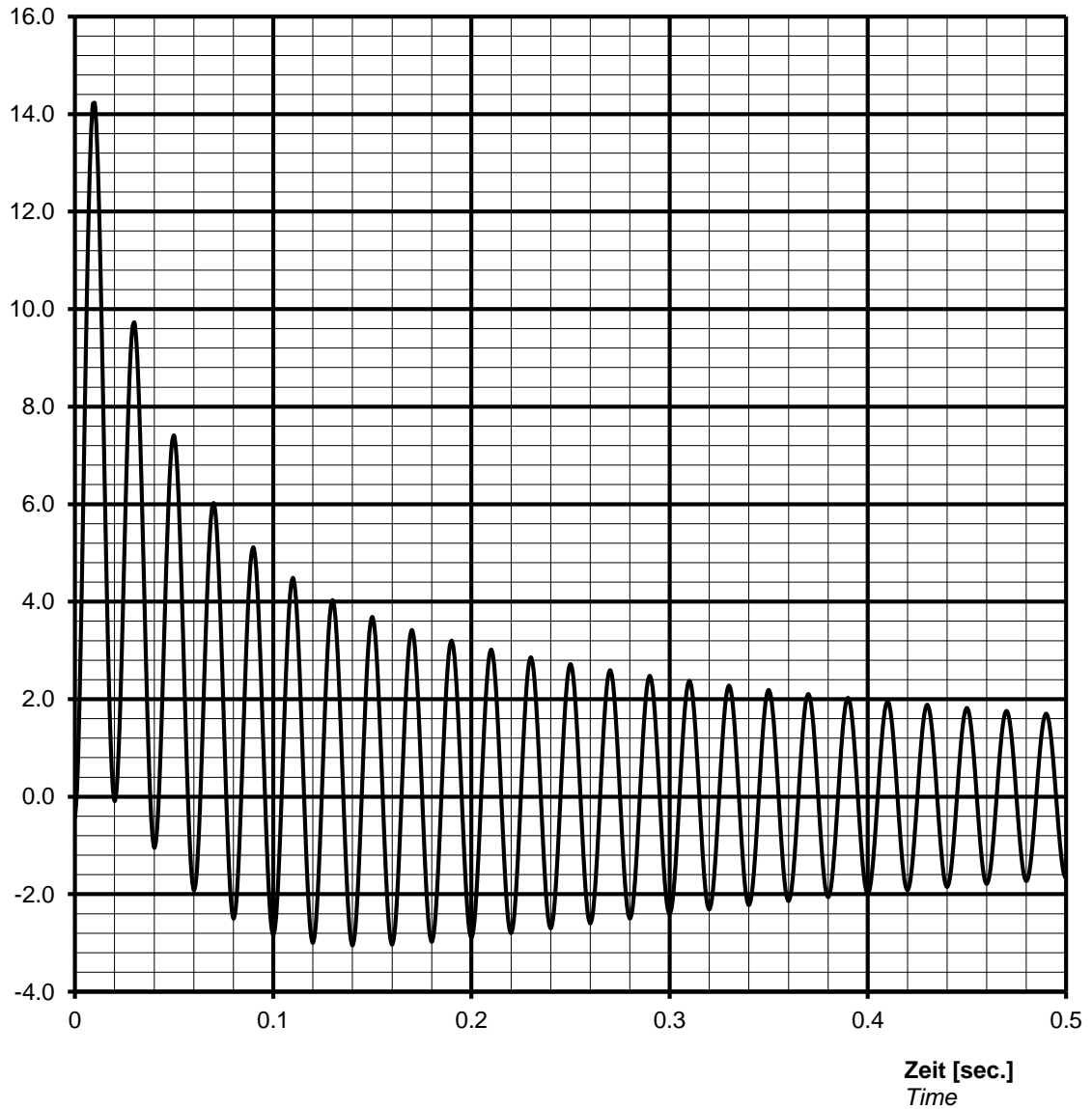
Speed

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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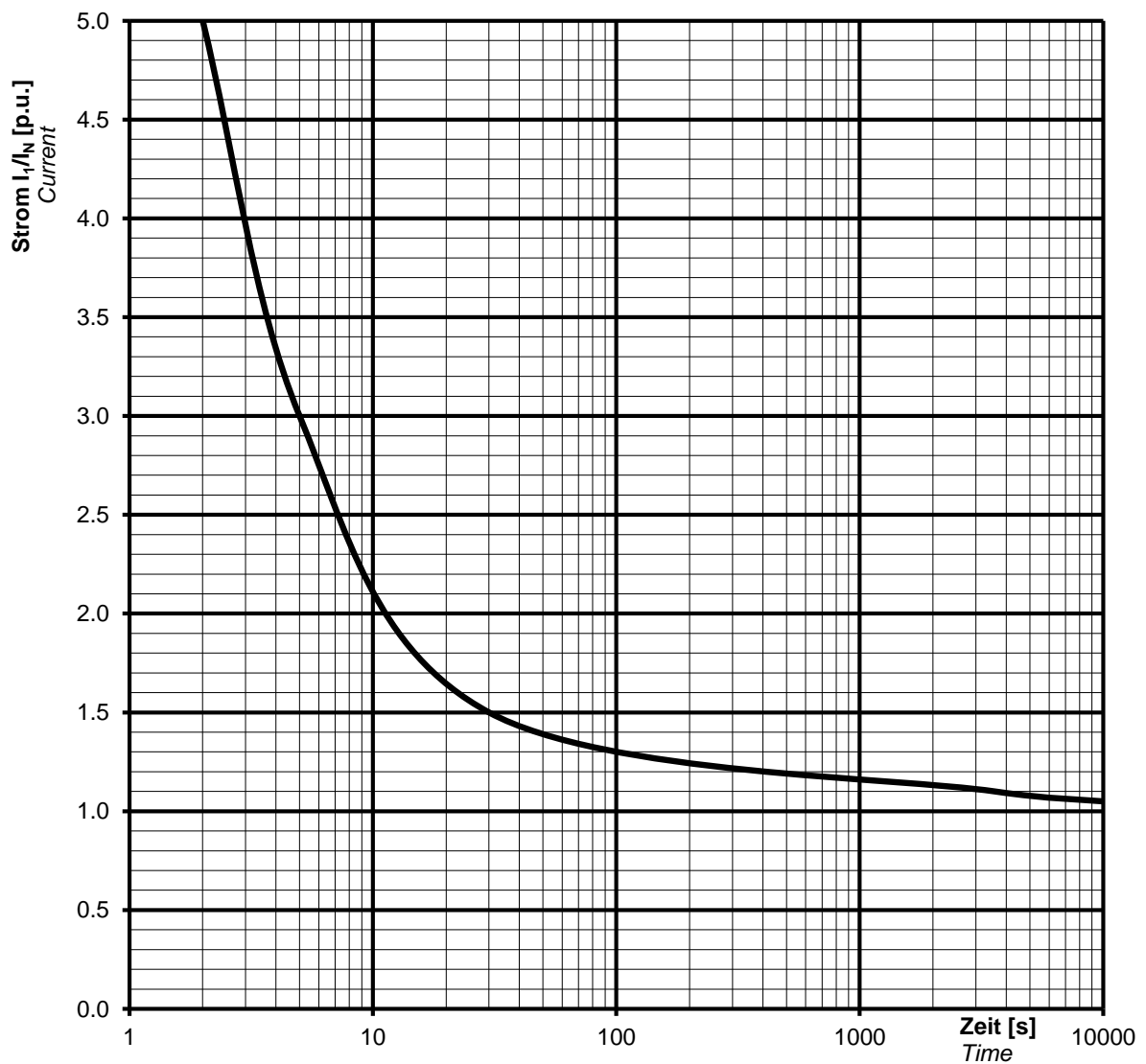
Frequency

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

Neurdaten / 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 $\cos \varphi$:

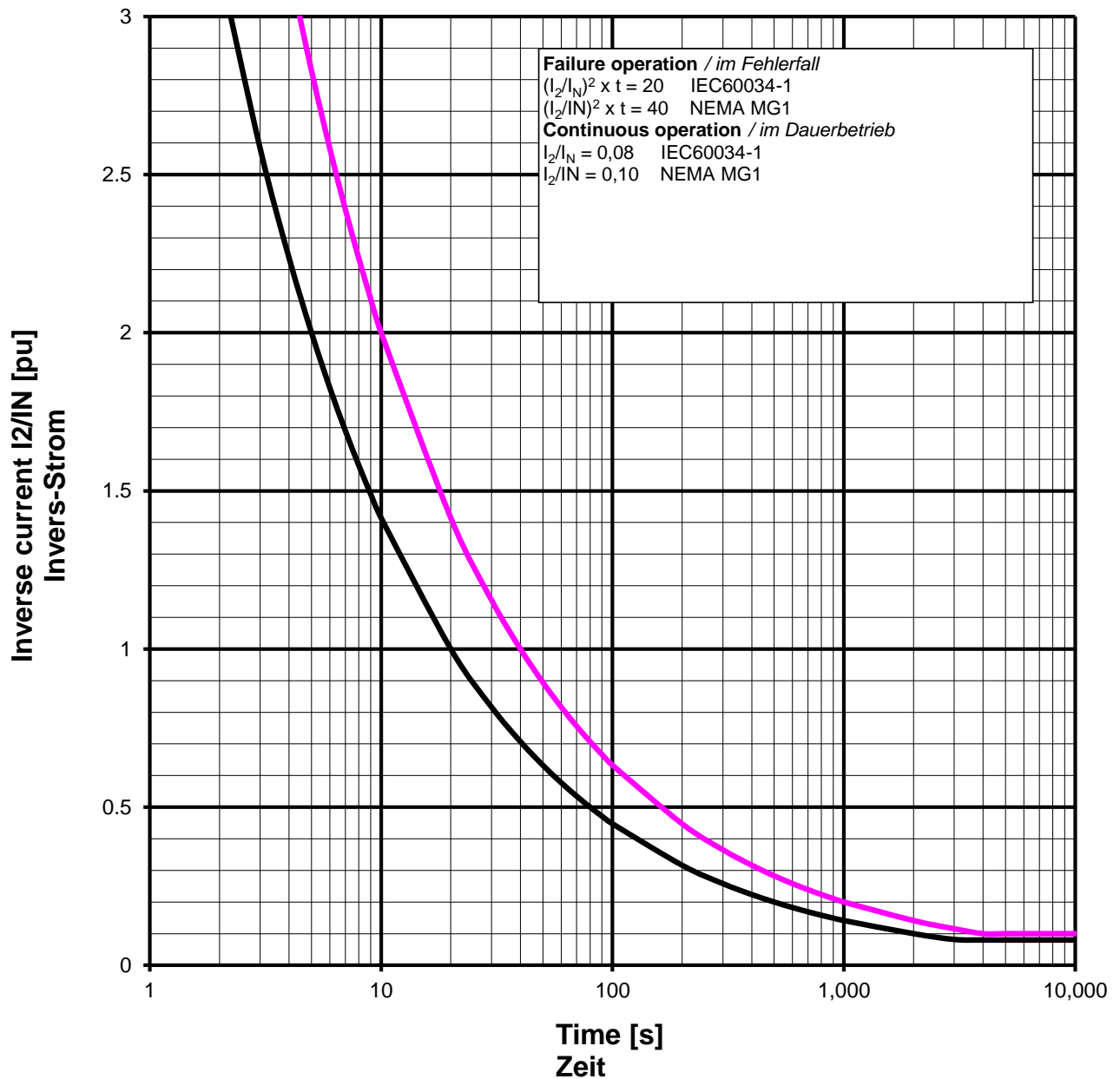
Nominal current I_N : **2786 A**

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

ING-FCD-0112

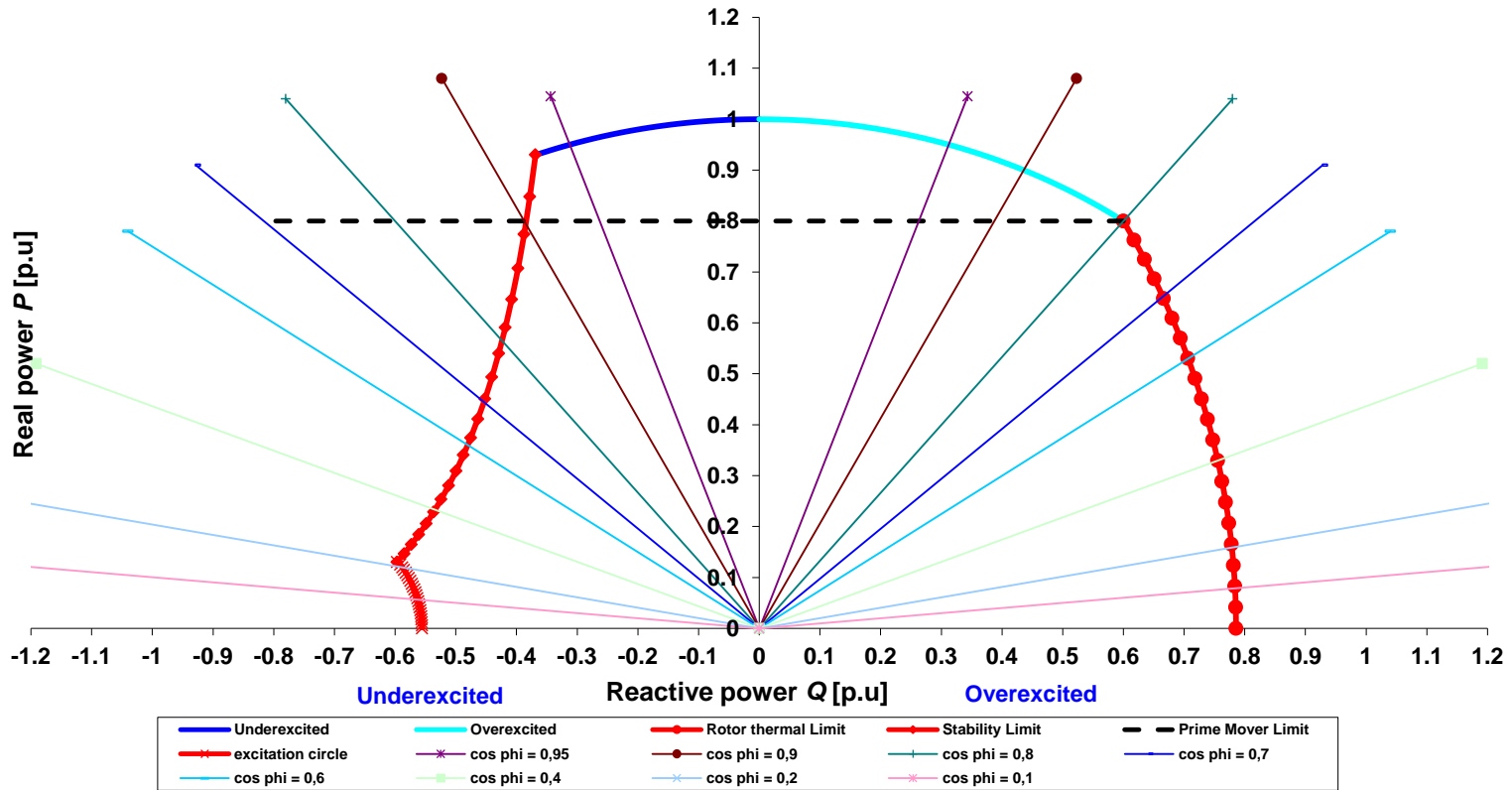
TYPE

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

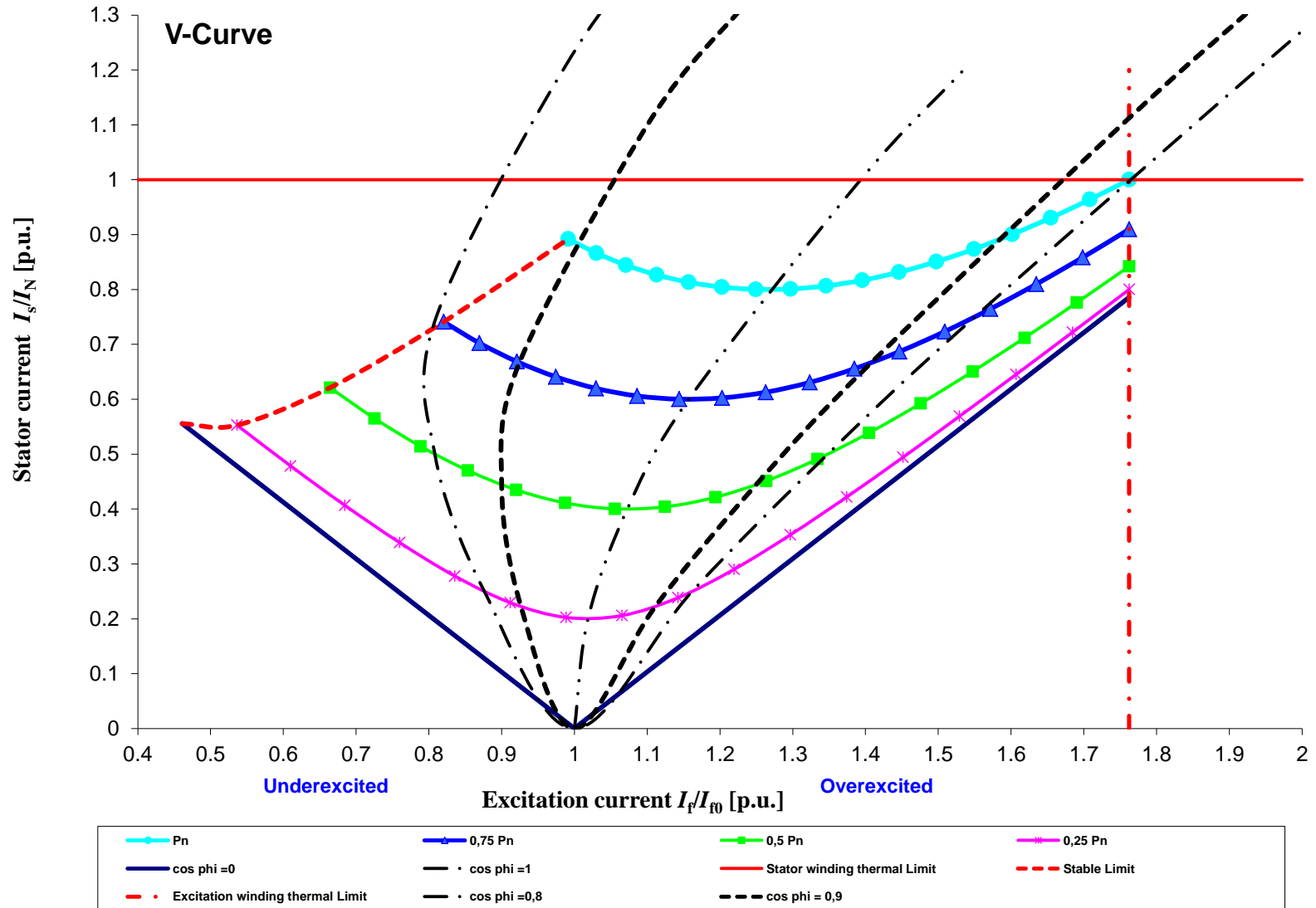
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