



Technical Data Sheet for AvK-Alternators

FM 7.3-5

Date:	03/10/13	Customer:	GENERIC DATASHEET only
Project No.:		AvK Reference:	DSG099M1_6_60_480

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

Generator data:					
Generator:	DSG 99 M1/6	Poles:	6	Standards: IEC 60034	
Rated power:	3240 kVA	2592 kWe	2703 kWm		
Power factor:	0.80				
Power at pf 1,0	2622 kVA	2622 kWe	2703 kWm		
Rated voltage:	0.48 kV				
Speed:	1200 1/min				
Frequency:	60 Hz				
Rated current:	3897.1 A				
Voltage range / frequency range: 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):	160 kgm²	Weight:	7200 Kg	Losses (environment):	111 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	95,7	95,9	96	95,9	94,6
Power factor 0.9	96,28	96,45	96,5	96,3	94,85
Power factor 1.0	96,85	97	97	96,7	95,1

Reactances and time constants										
	unsaturated		saturated			unsaturated		saturated		
X _d	2.25	2.03	p.u.	X _q	1.13	1.11	p.u.	T _{d0'}	2.5	s
X _{d'}	0.297	0.297	p.u.	X _{q'}	1.13	1.11	p.u.	T _{d'}	0.33	s
X _{d''}	0.186	0.169	p.u.	X _{q''}	0.186	0.186	p.u.	T _{d''}	0.015	s
X ₂	0.196	0.178	p.u.	X ₀	0.056	0.051	p.u.	T _a	0.05	s
X _{1s}	n.a.	0.101	p.u.					T _{q'}	0.3	s
								T _{q''}	0.03	s
Short circuit ratio saturated: 0.49					Z _n 0.071 Ohm					

Short circuit data:		
Initial short circuit current (3-phase):	I _{k'}	23060 A
Max. peak current (3-phase):	I _s	58701 A
Sustained short circuit current:	I _k	11691 A
Minimum 3 x rated current for max.10 s		
Initial short circuit torque:	M _{k2}	198.3 kNm
	M _{k3}	119.0 kNm
Max. faulty synchron moment:	M _f	426.3 kNm
Rated kVA torque:	M _{SN}	25.79 kNm
Rated torque	M _N	20.63 kNm
Shaft torque	M _{Sh}	21.51 kNm

Load application:	
max. load application: 1636 kVA (corresponds to 50,51 % from 3240 kVA) for Power factor 0.4 15% transient voltage drop	Power: 3240 kVA Power factor: 0.8 transient voltage drop: -22.9 %

Remarks:

Alternator : DSG 99 M1/8

Rated output [kVA]

2430

Rated power factor:

0.8

Rated voltage [kV]: 0.48

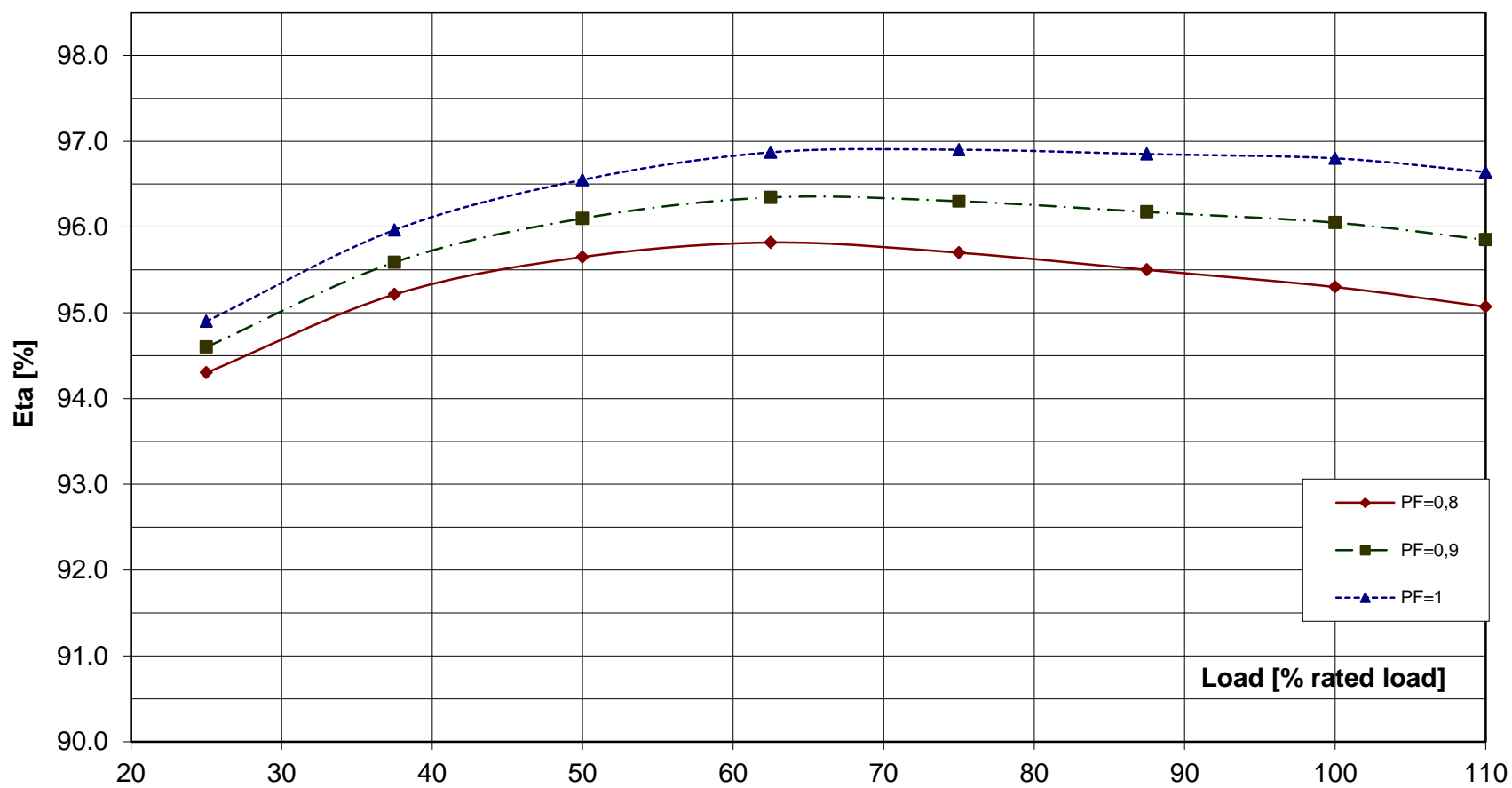
Rated frequency [Hz]

60

Rated speed [rpm]

900

Wirkungsgrad-Kennlinie - Efficiency Curve



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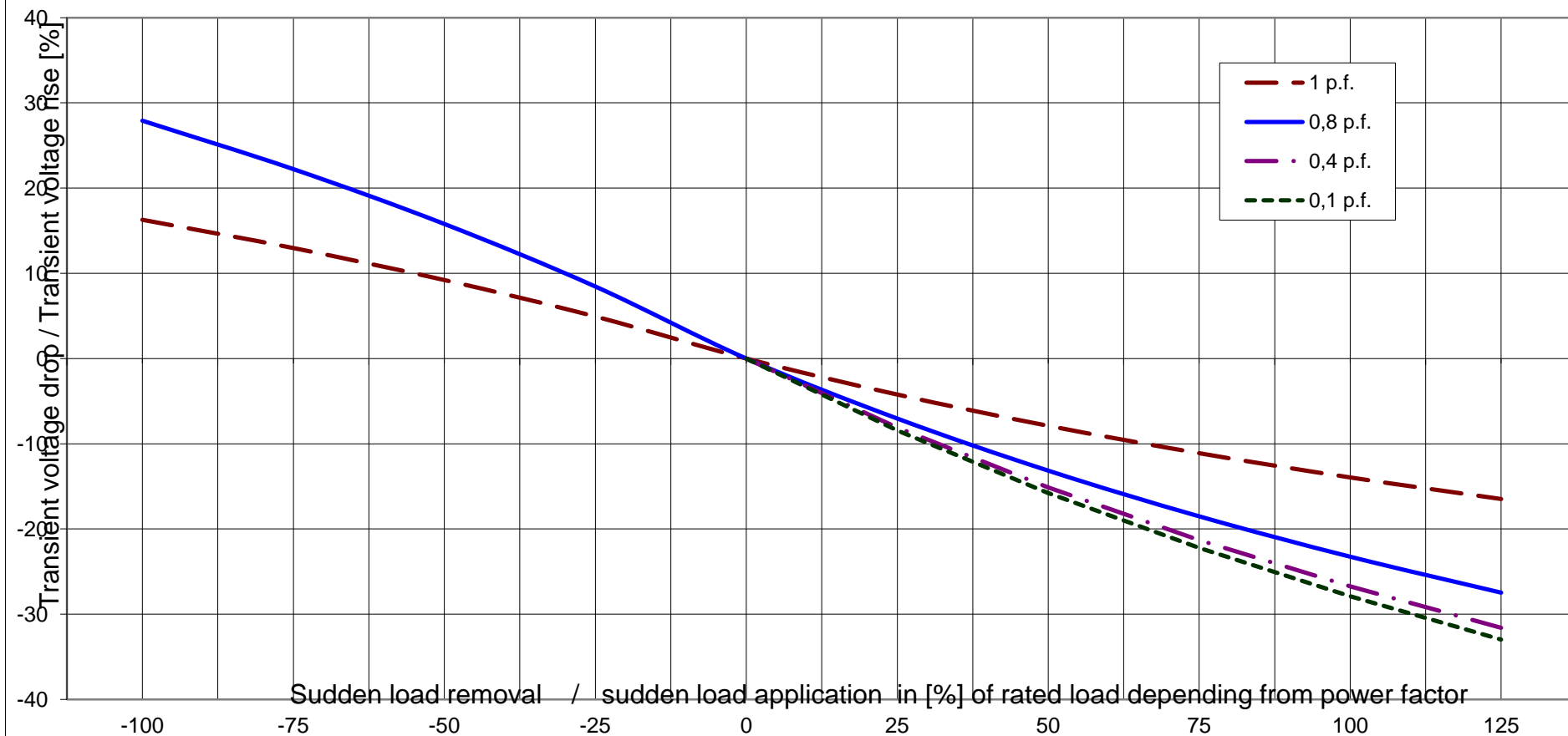
Rated frequency [Hz]

60

Rated speed [rpm]

900

Transient Voltage rise or drop for sudden load removal or application





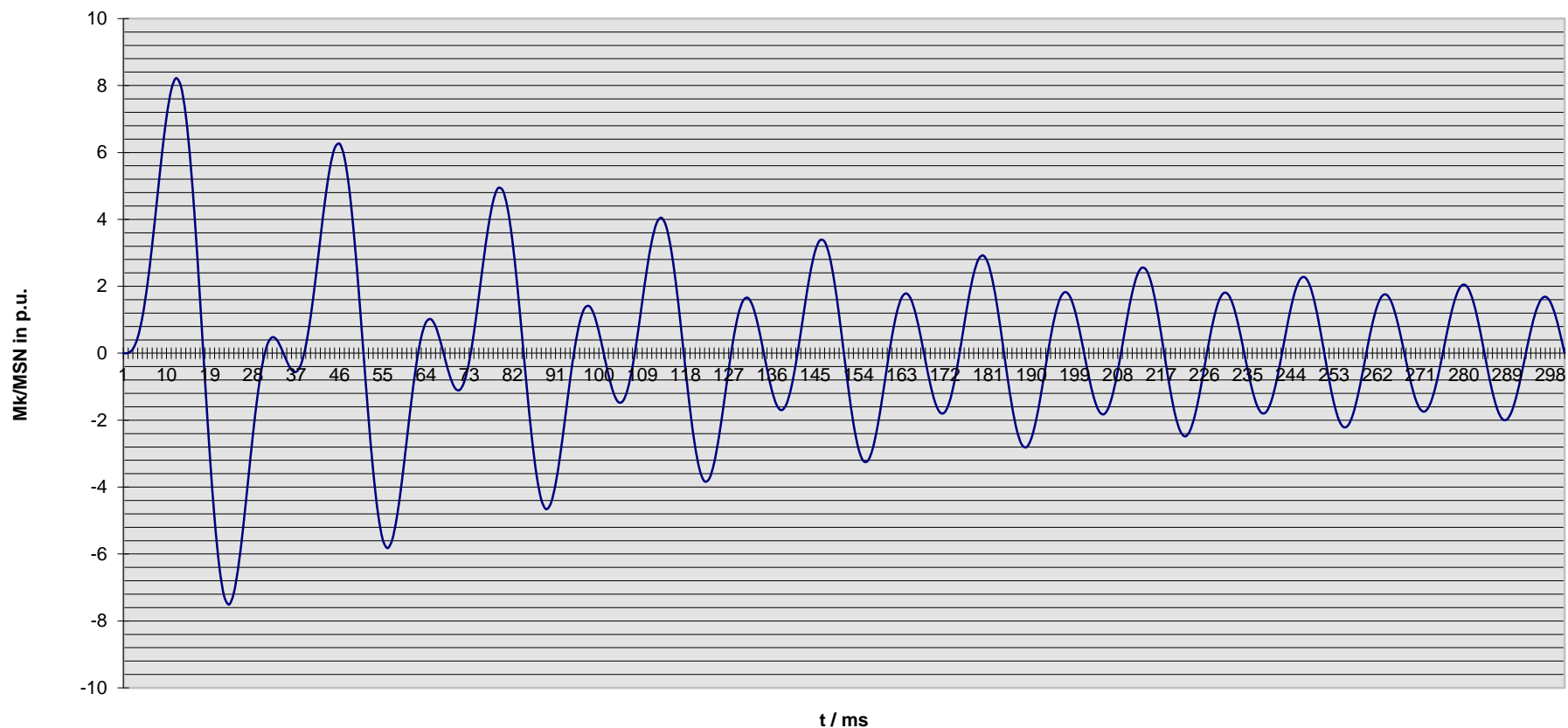
Technisches Datenblatt - Diagramme
Technical data sheet - Diagrams

ING-FCD-0112

Alternator : DSG 99 M1/8

Rated output [kVA]	2430	Rated power factor:	0.8	Rated voltage [kV]:	0.48
Rated frequency [Hz]	60	Rated speed [rpm]	900	MSN related to kVA:	25.78 KNm

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



Nennenden / nominal data

DSG 99 M1/8

Leistung S_N : **2430** kVA

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

Rating

p.f.

Spannung U_N : **0.48** kV

Strom I_N : **2923** A

Voltage

Current

Frequenz f : **60** Hz

Drehzahl n : **900** min⁻¹

Frequency

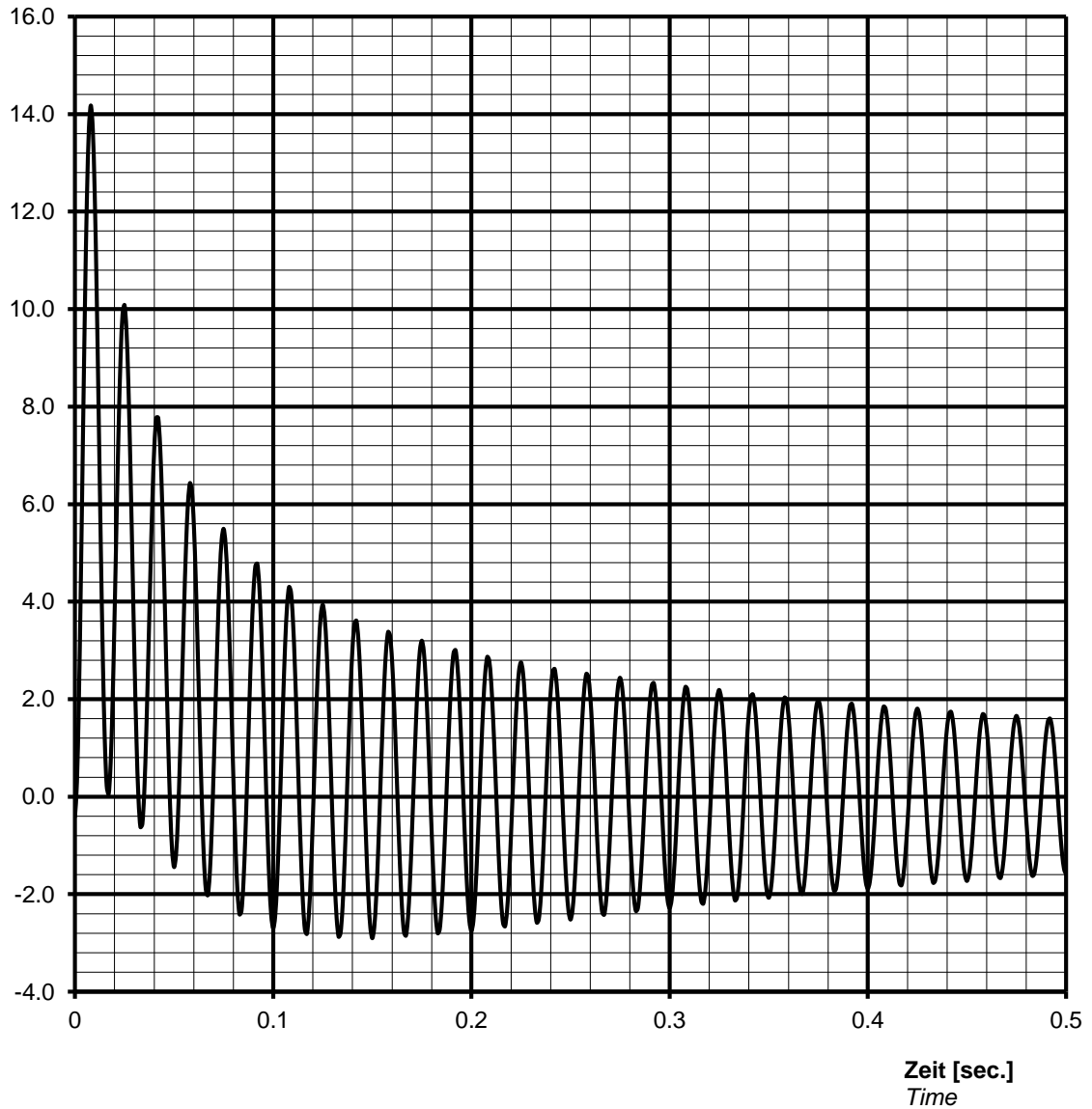
Speed

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 $I_{\text{speak}} =$ **41435 A** or **14.18 p.u.**

Nenndaten / nominal data

DSG 99 M1/8

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

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Frequenz f: **60** Hz

Drehzahl n: **900** min⁻¹

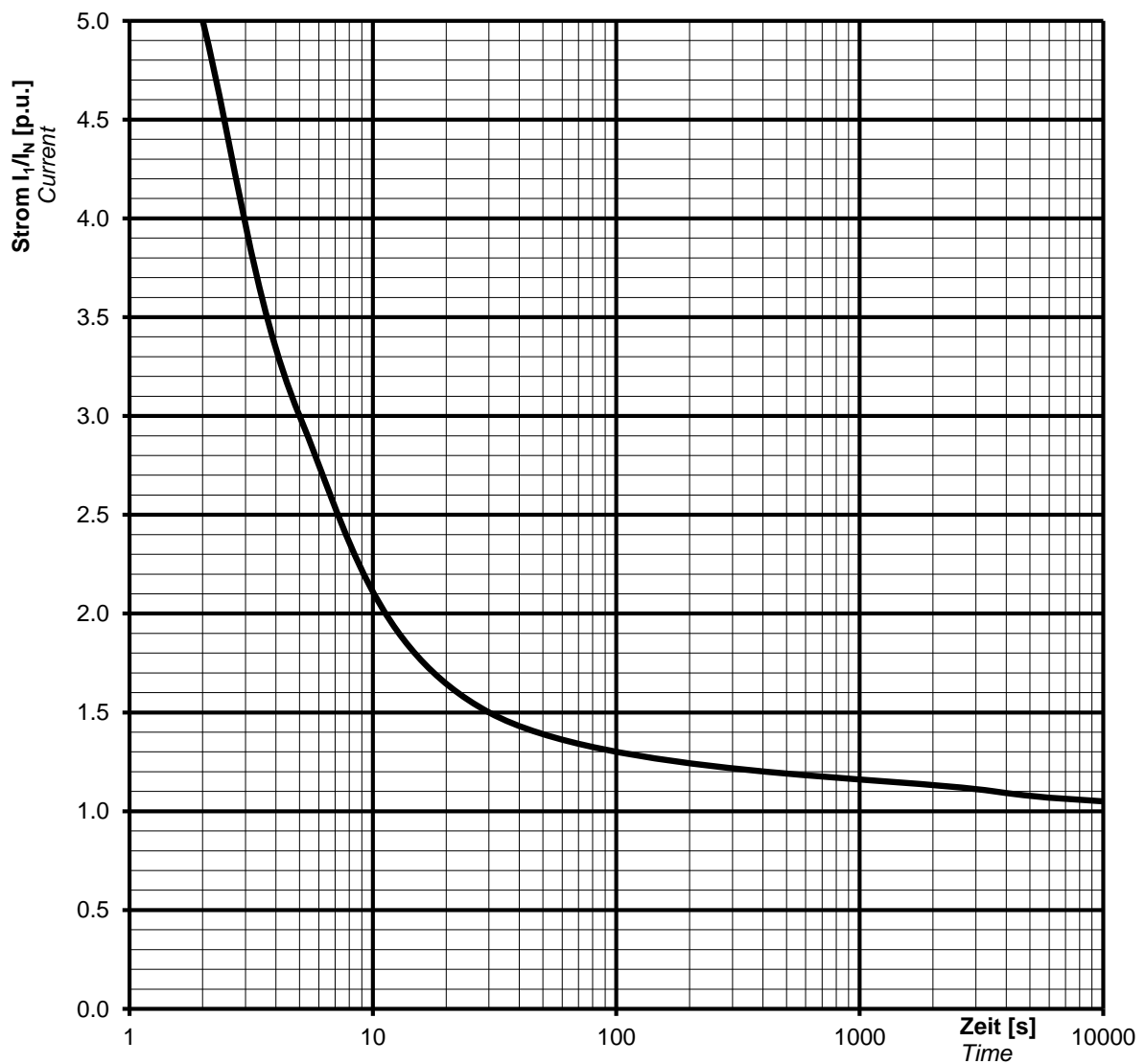
Frequency

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

Neurdaten / nominal data

DSG 99 M1/8

Rating S_N : **2430** kVA
Bemessungsleistung

p.f. **0.80**

Nominal voltage U_N : **0.48** kV
Bemessungsspannung

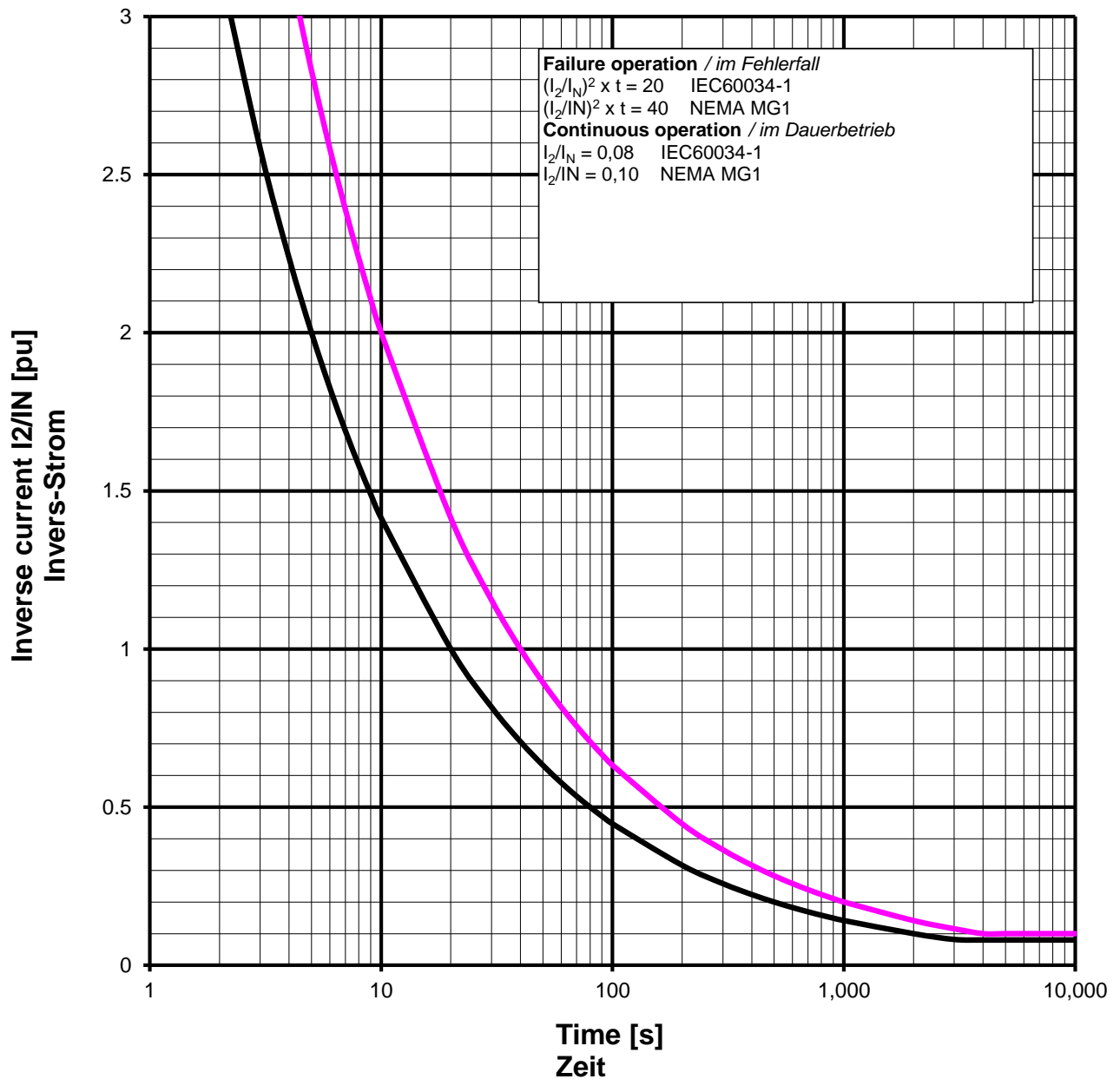
Leistungsfaktor $\cos \varphi$:
Nominal current I_N : **2923** A
Bemessungsstrom

Frequency f_N : **60** Hz
Frequenz

Speed n : **900** min⁻¹
Drehzahl

Protection: **IP23**
Schutzart

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

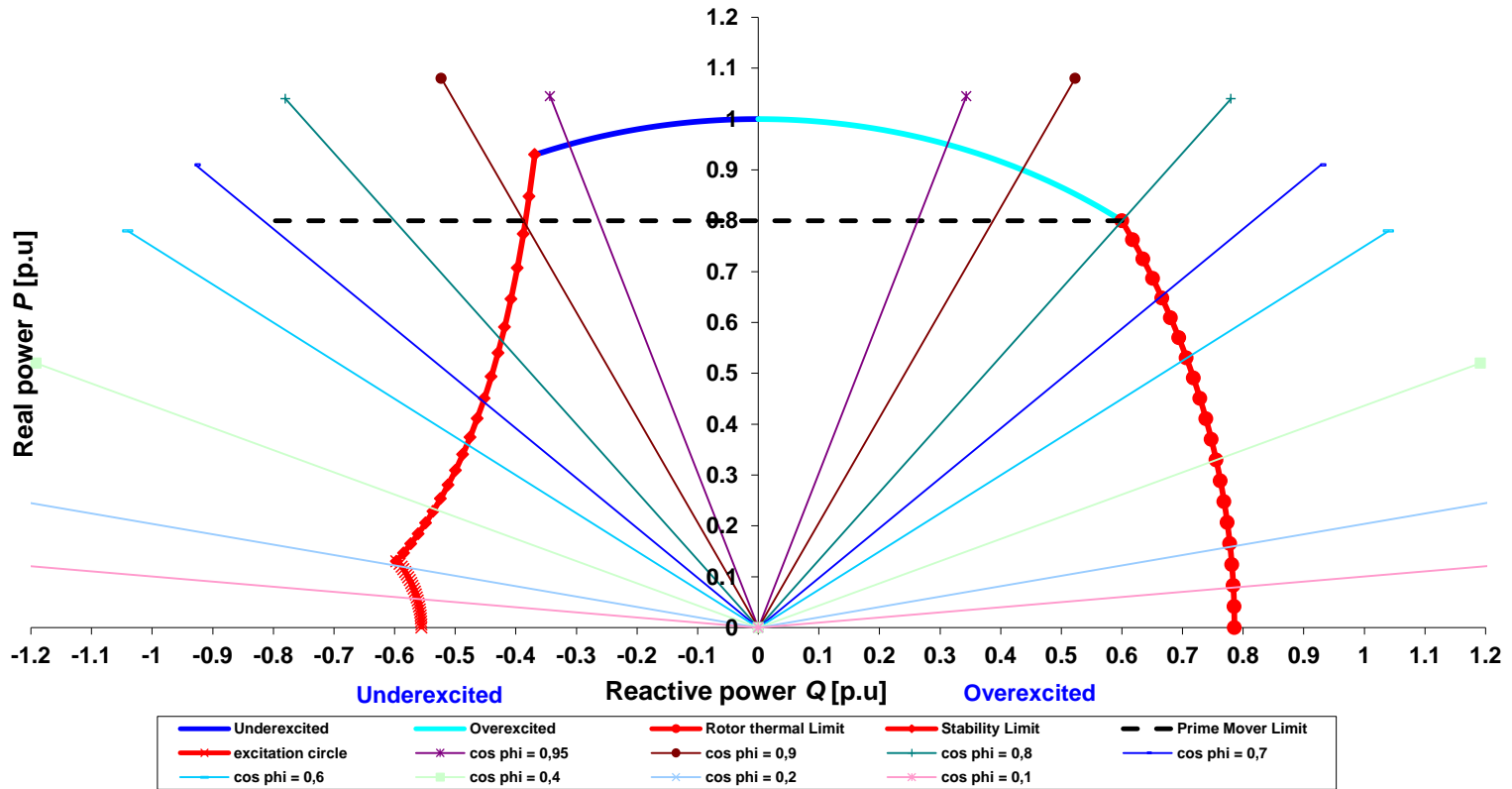
TYPE

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

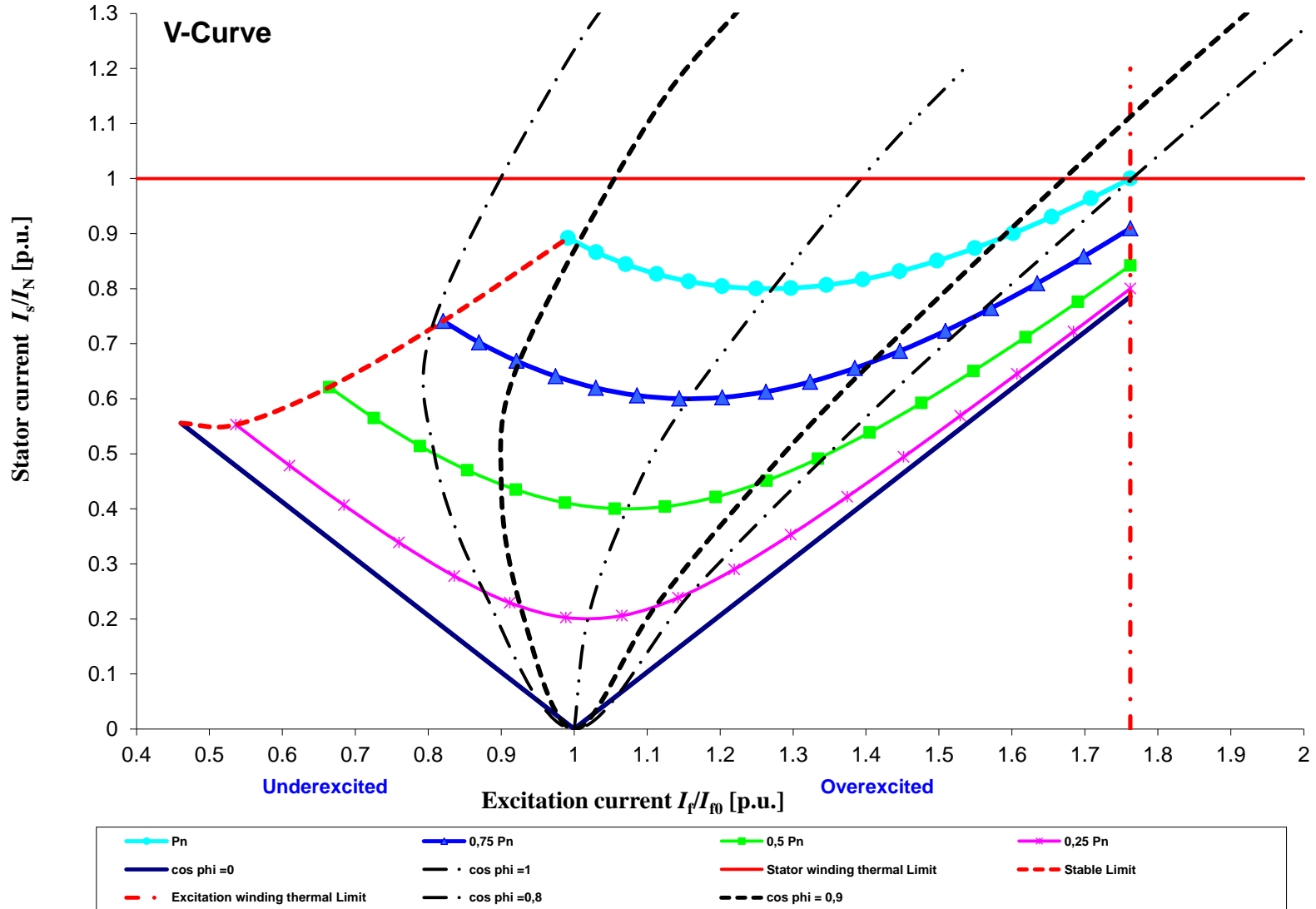
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