

**Technical Data Sheet for AvK-Alternators**

FM 7.3-5

Date:	25/09/13	Customer:	GENERIC DATASHEET only
Project No.:		AvK Reference:	DSG062L2_4_50_400

<b>Object data:</b>	
Site:	Prime Mover:
Application: Stationary Power Plant	Manufacturer:

<b>Generator data:</b>					
Generator:	DSG 62 L2/4	Poles:	4	Standards: IEC 60034	
Rated power:	1100 kVA	880 kWe	928 kWm		
Power factor:	0.80				
Power at pf 1,0	893 kVA	893 kWe	928 kWm		
Rated voltage:	0.4 kV				
Speed:	1500 1/min				
Frequency:	50 Hz	Voltage range / frequency range:			
Rated current:	1587.7 A	Zone A according IEC 60034-1 (dU = +/-5%, df = +/-2%)			
Winding pitch:	2/3				
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.:	1.8 m³/s	Cooling water quantity:	n/a
Moment of inertia (I):	19.6 kgm²	Weight:	2750 Kg	Losses (environment):	48 KW
				Losses (cooling):	n/a

Wires:	4 terminals, starpoint connected in terminal box
Operation mode:	Single mode
Regulators:	
Voltage regulator:	DECS 100

<b>Electrical data: (acc. IEC)</b>					
Efficiencies:	110%	100%	75%	50%	25%
Power factor 0.8	94,54	94,8	95	94,6	92,1
Power factor 0.9	95,28	95,5	95,55	95,05	92,35
Power factor 1.0	96,01	96,2	96,1	95,5	92,6

<b>Reactances and time constants</b>											
	unsaturated		saturated			unsaturated		saturated			
X <sub>d</sub>	2.59	2.33	p.u.	X <sub>q</sub>	1.20	1.18	p.u.	T <sub>d0'</sub>	2.537 s	T <sub>d0''</sub>	0.01494 s
X <sub>d'</sub>	0.198	0.198	p.u.	X <sub>q'</sub>	1.20	1.18	p.u.	T <sub>d'</sub>	0.20 s	T <sub>q0'</sub>	0.16 s
X <sub>d''</sub>	0.117	0.106	p.u.	X <sub>q''</sub>	0.126	0.126	p.u.	T <sub>d''</sub>	0.008 s	T <sub>q0''</sub>	0.15238 s
X <sub>2</sub>	0.127	0.115	p.u.	X <sub>0</sub>	0.051	0.046	p.u.	T <sub>a</sub>	0.02 s	T <sub>q'</sub>	0.16 s
X <sub>1s</sub>	n.a.	0.064	p.u.							T <sub>q''</sub>	0.016 s
Short circuit ratio saturated: 0.43					Z <sub>n</sub> 0.145 Ohm						

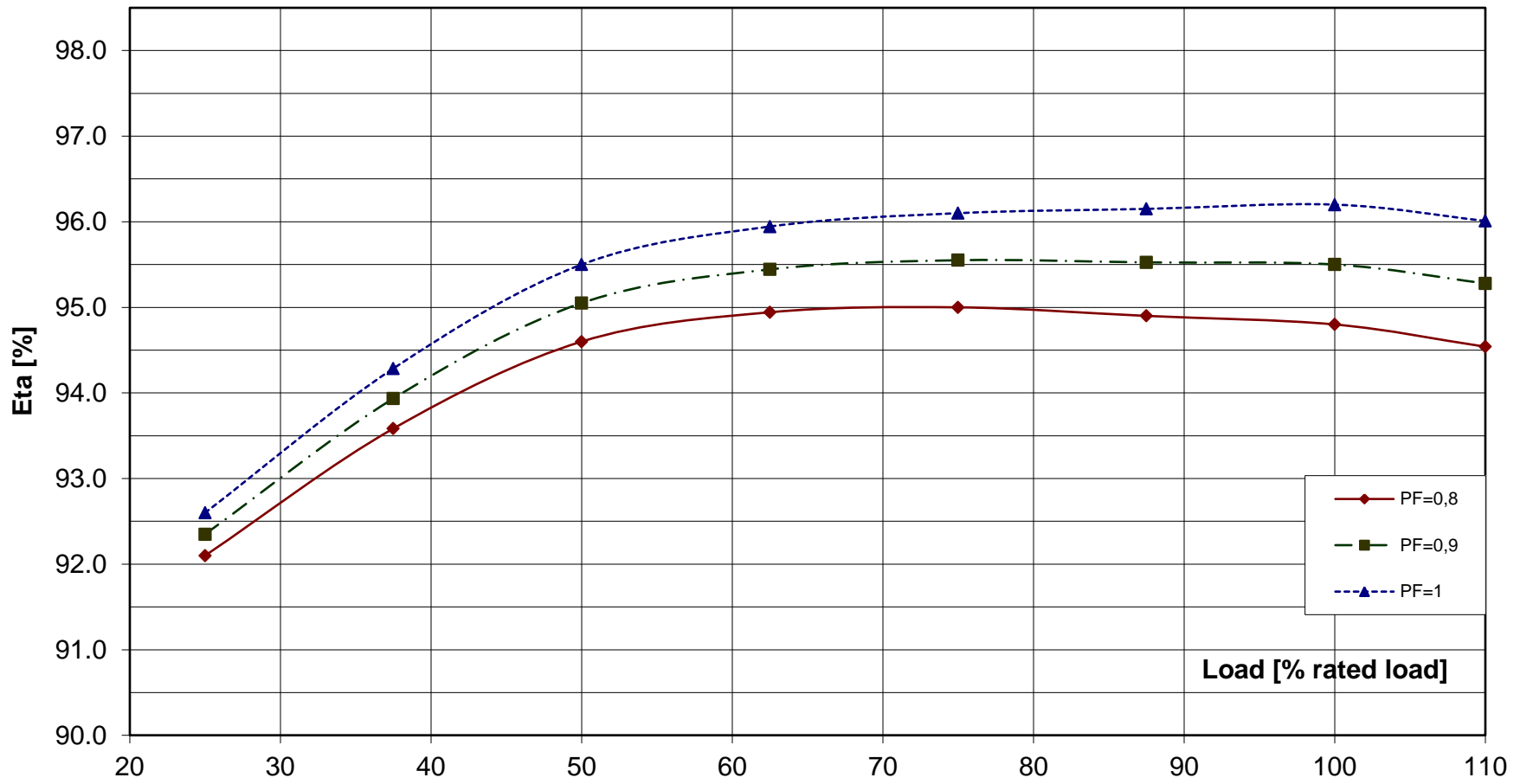
<b>Short circuit data:</b>		
Initial short circuit current (3-phase):	I <sub>k''</sub>	14978 A
Max. peak current (3-phase):	I <sub>s</sub>	38128 A
Sustained short circuit current:	I <sub>k</sub>	4763 A
Minimum 3 x rated current for max.10 s		
Initial short circuit torque:	M <sub>k2</sub>	85.9 kNm
	M <sub>k3</sub>	51.5 kNm
Max. faulty synchron moment:	M <sub>f</sub>	184.7 kNm
Rated kVA torque:	M <sub>SN</sub>	7.00 kNm
Rated torque	M <sub>N</sub>	5.60 kNm
Shaft torque	M <sub>Sh</sub>	5.91 kNm

<b>Load application:</b>	
max. load application: 833 kVA (corresponds to 75,75 % from 1100 kVA) for Power factor 0.4 15% transient voltage drop	Power: 1100 kVA Power factor: 0.8 transient voltage drop: -16.5 %

**Remarks:**

<b>Alternator :</b>	<b>DSG 62 L2/4</b>		
Rated output [kVA]	1100	Rated power factor:	0.8
Rated frequency [Hz]	50	Rated speed [rpm]	1500
			Rated voltage [kV]: 0.4

### Wirkungsgrad-Kennlinie - Efficiency Curve



**Alternator : DSG 62 L2/4**

Rated output [kVA]

1100

Rated power factor:

0.8

Rated voltage [kV]: 0.4

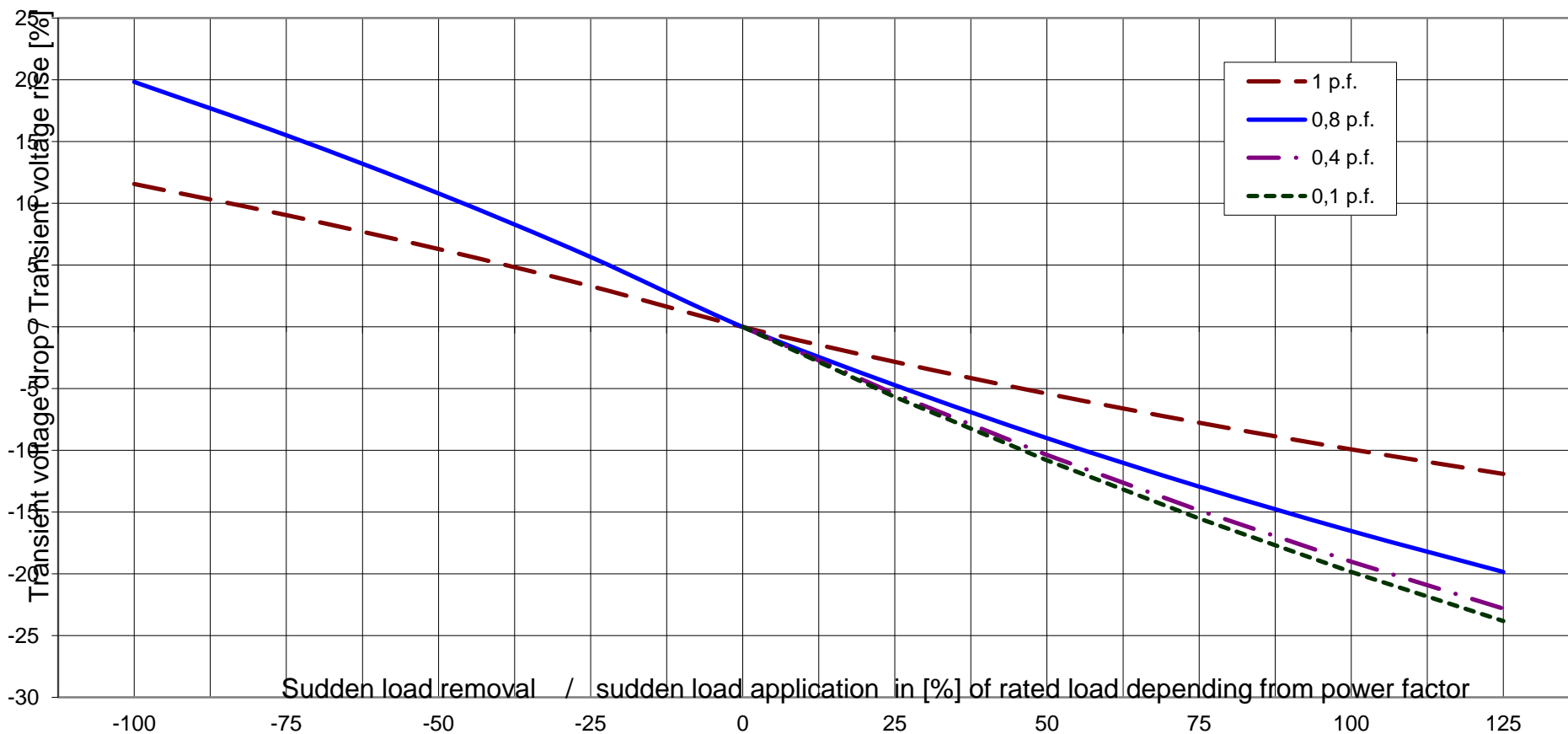
Rated frequency [Hz]

50

Rated speed [rpm]

1500

**Transient Voltage rise or drop for sudden load removal or application**



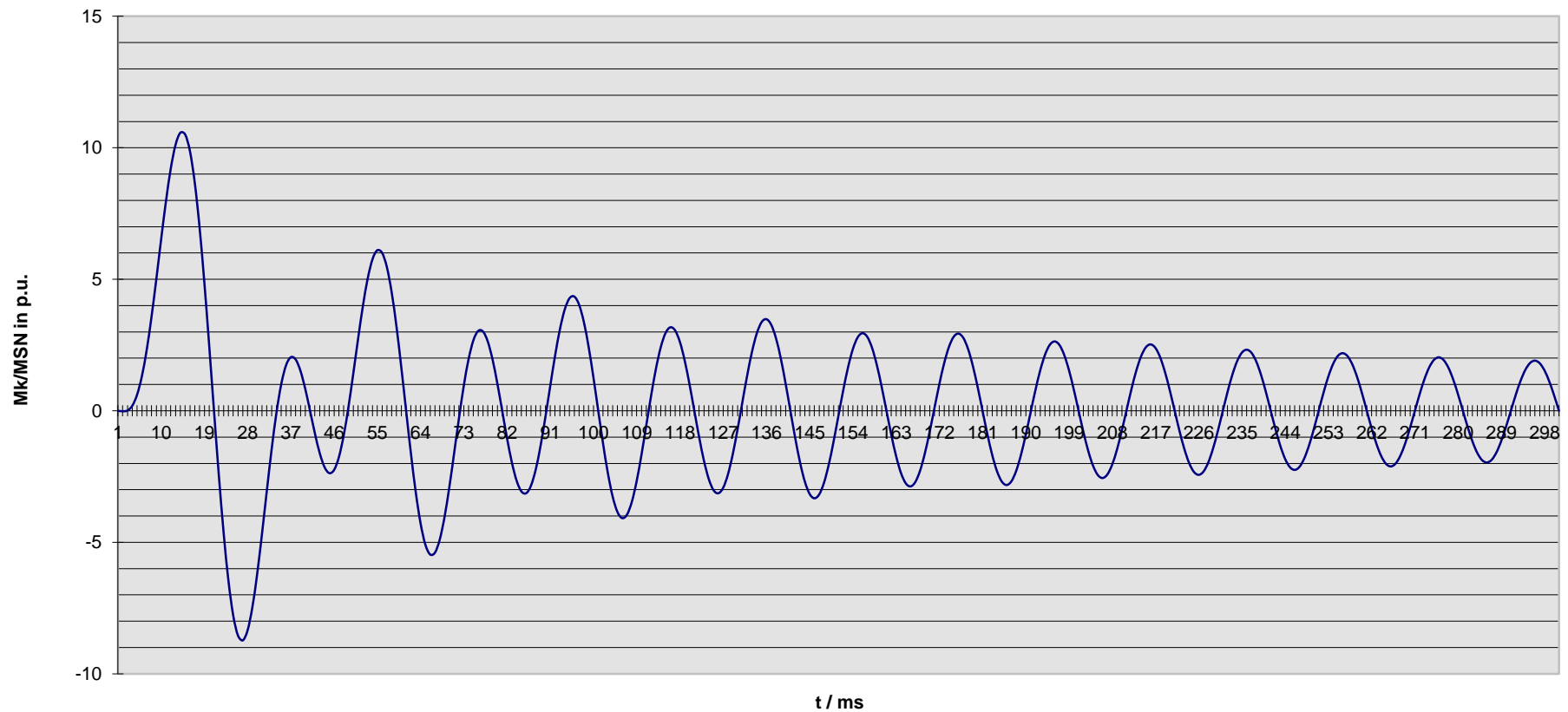


Technisches Datenblatt - Diagramme  
Technical data sheet - Diagrams

**ING-FCD-0112**

<b>Alternator :</b>	<b>DSG 62 L2/4</b>			
Rated output [kVA]	1100	Rated power factor:	0.8	Rated voltage [kV]: 0.4
Rated frequency [Hz]	50	Rated speed [rpm]	1500	MSN related to kVA: 7 KNm

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



#### Nenn Daten / nominal data

DSG 62 L2/4

Leistung  $S_N$ : **1100** kVA

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

*Rating*

*p.f.*

Spannung  $U_N$ : **0.40** kV

Strom  $I_N$ : **1588** A

*Voltage*

*Current*

Frequenz  $f$ : **50** Hz

Drehzahl  $n$ : **1,500**  $\text{min}^{-1}$

*Frequency*

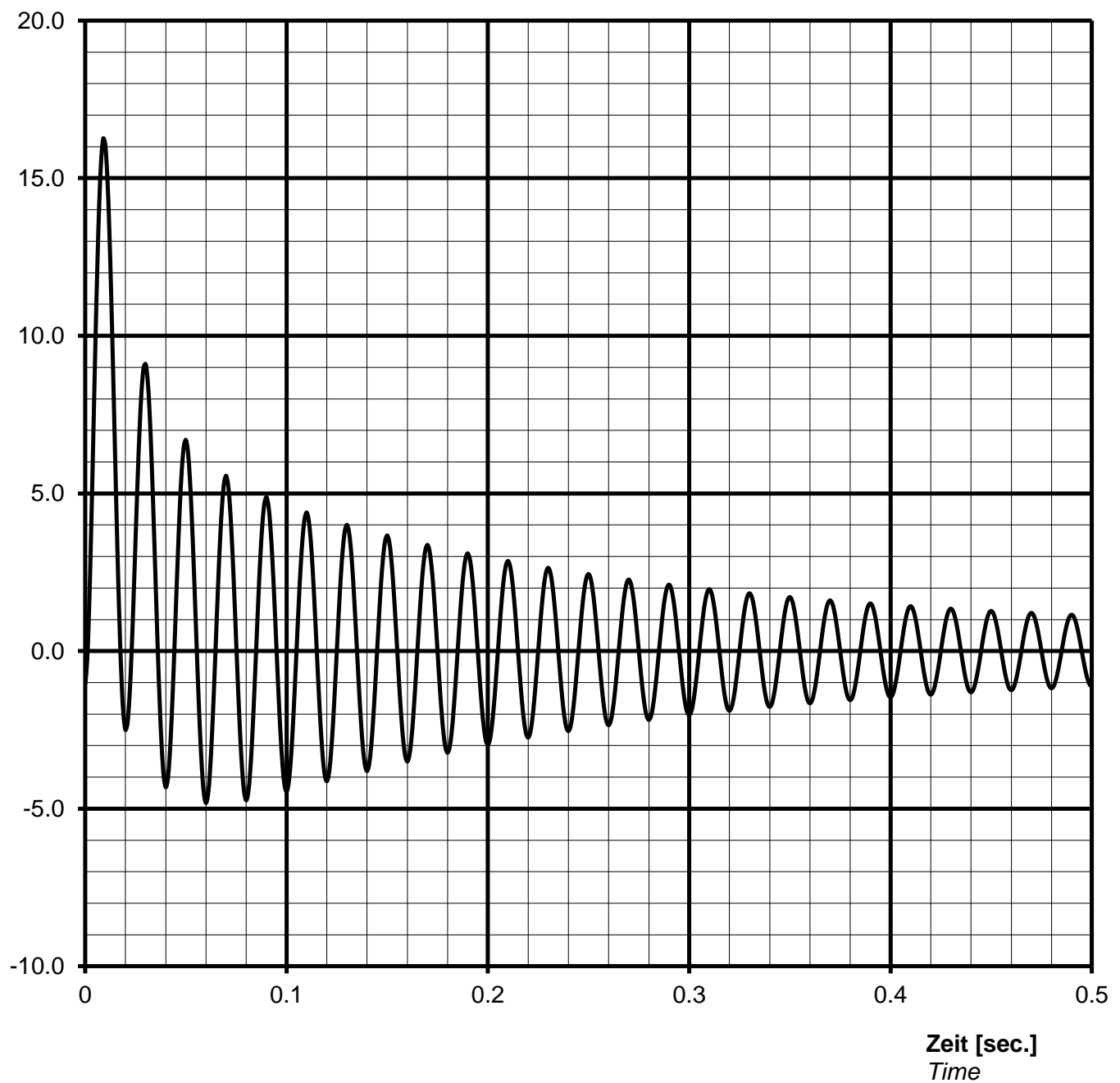
*Speed*

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  $I_{\text{peak}} =$  **25818 A** or **16.26 p.u.**



Technisches Datenblatt - Diagramme  
Technical data sheet - Diagrams

ING-FCD-0112

Nenn Daten / nominal data

DSG 62 L2/4

Leistung  $S_N$ : 1100 kVA

$\cos \varphi$ : 0.80

Rating

p.f.

Spannung  $U_N$ : 0.40 kV

Strom  $I_N$ : 1588 A

Voltage

Current

Frequenz  $f$ : 50 Hz

Drehzahl  $n$ : 1500  $\text{min}^{-1}$

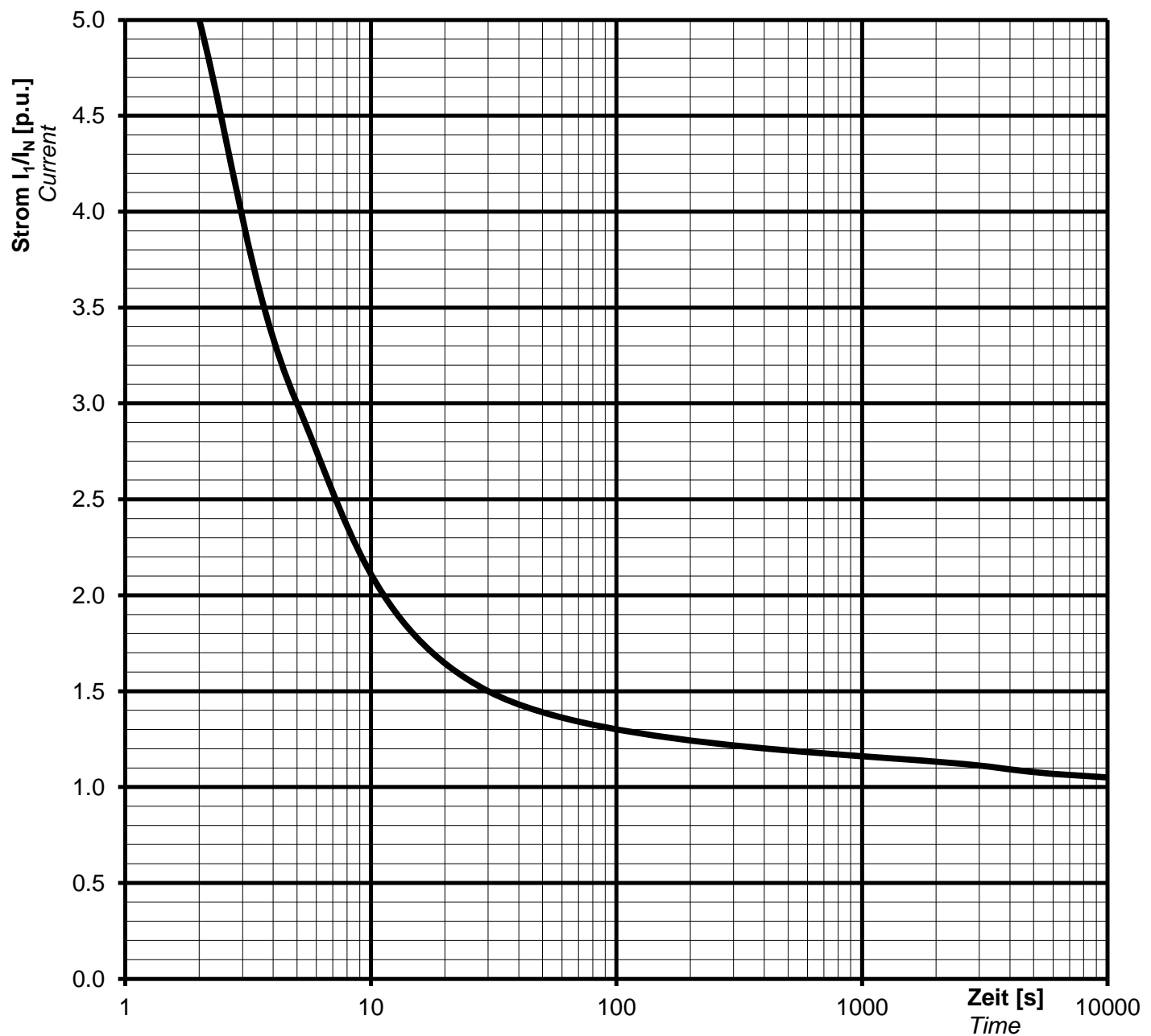
Frequency

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

Alle Angaben gemäß VDE 0530, IEC600 34

All data according VDE 0530, IEC600 34

**Nenndaten / nominal data**

**DSG 62 L2/4**

Rating  $S_N$ : **1100 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 φ:*

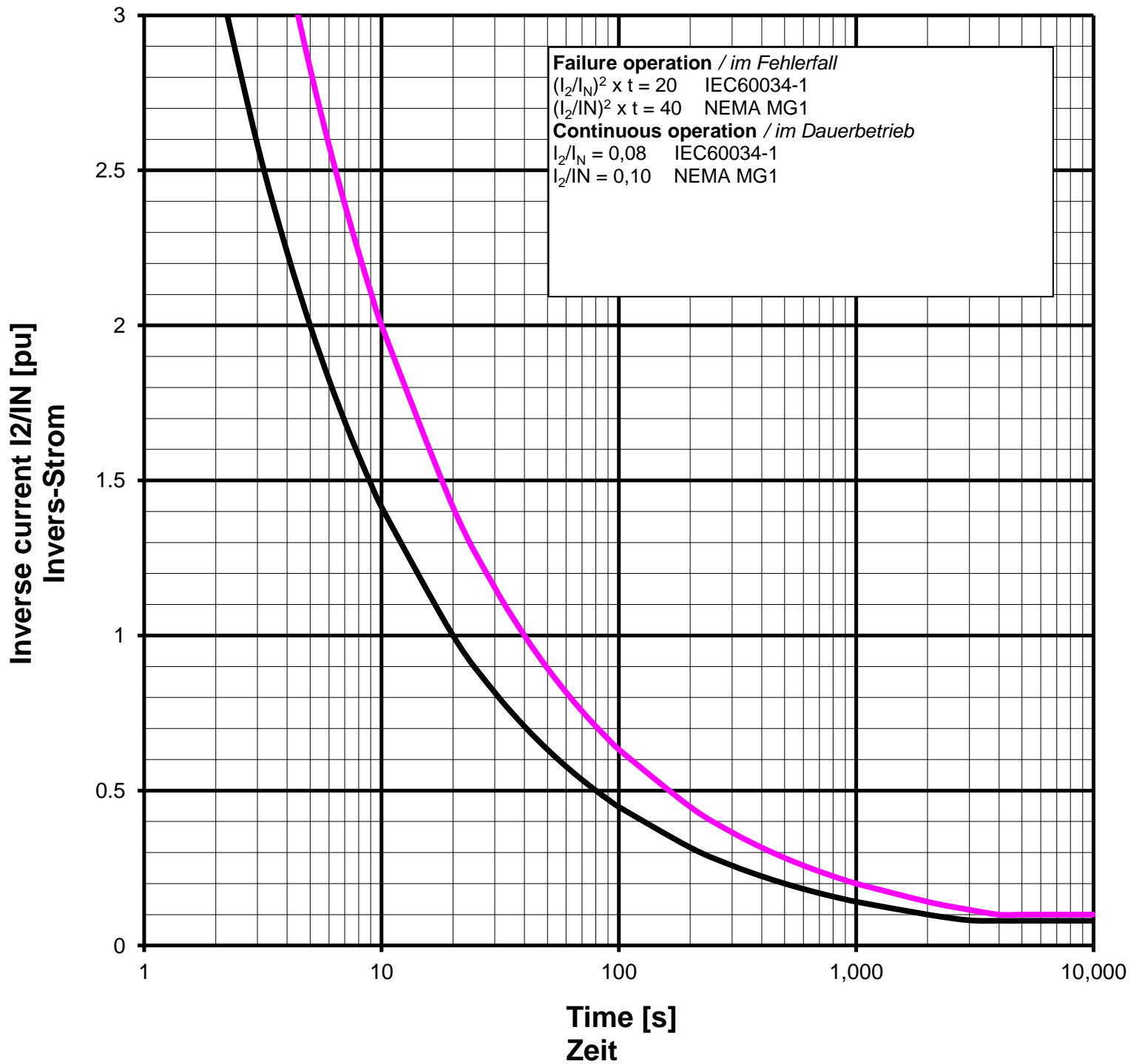
Nominal current  $I_N$ : **1588 A**

*Bemessungsstrom*

Speed n: **1500 min<sup>-1</sup>**

*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

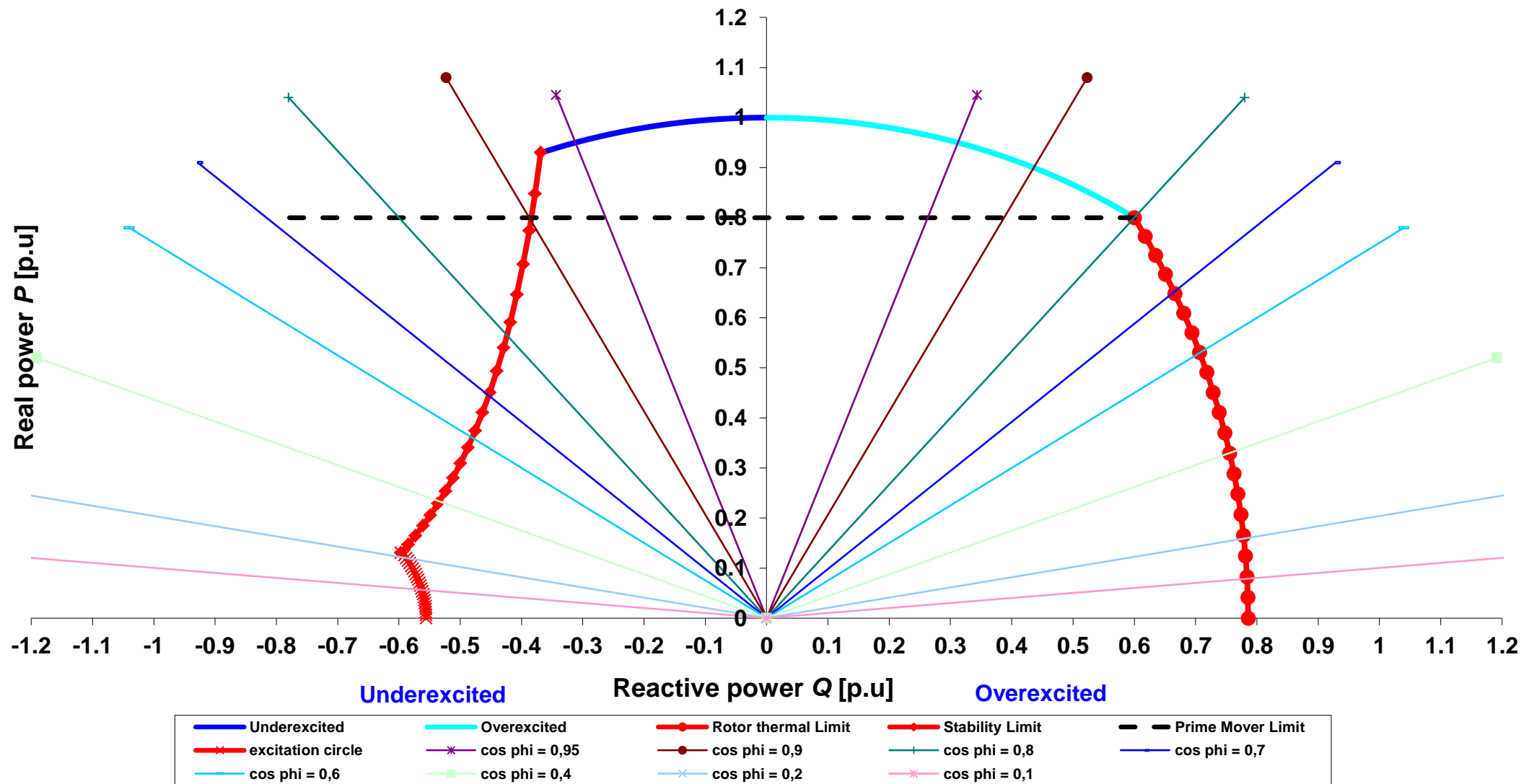
TYPE

DSG 62 L2/4

Projekt:

Order Nr.:

Capability (P-Q) Diagram



Cummins Generator Technologies

Datum / date:

25/09/2013

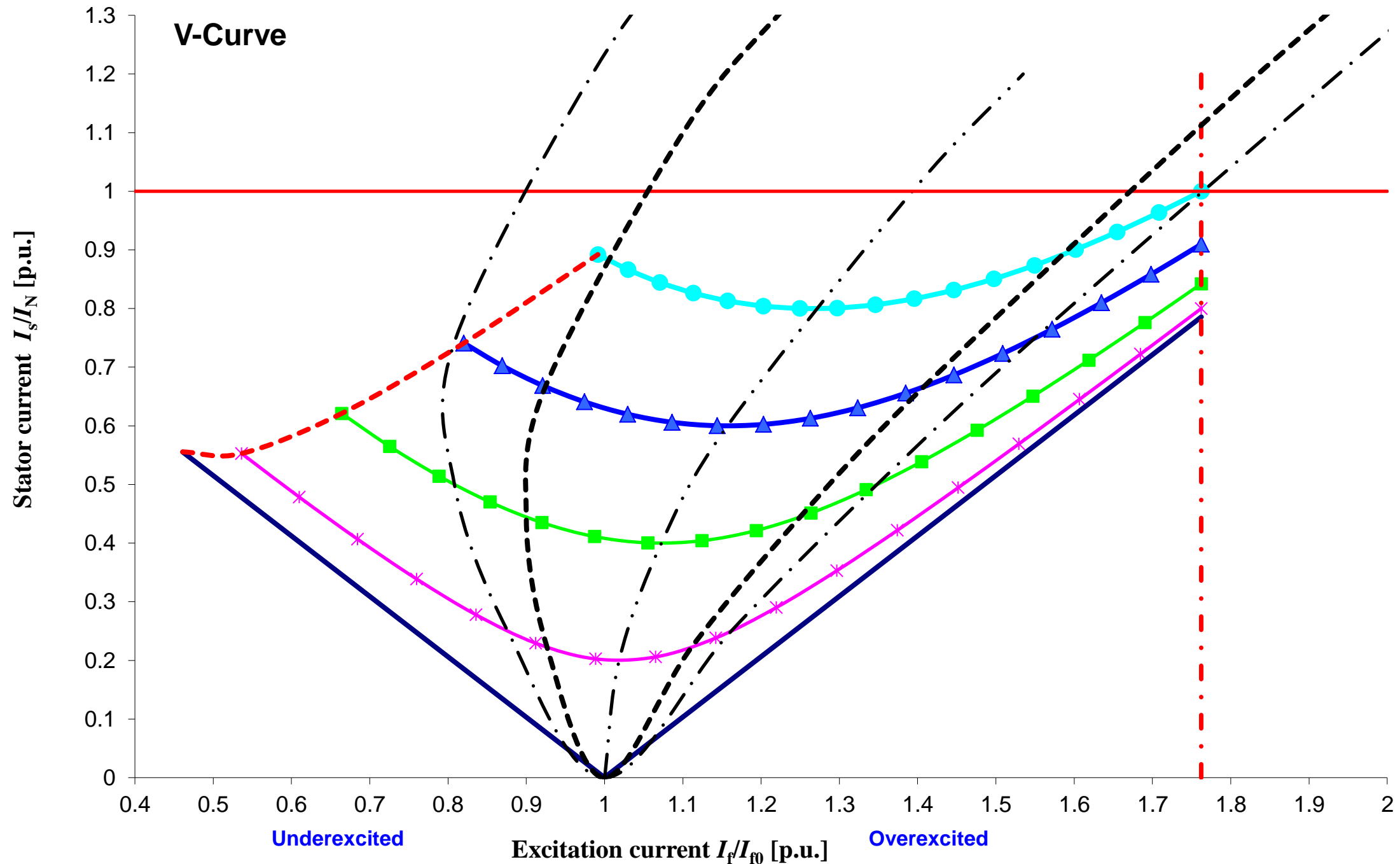




Technische Daten selbstregelnden Drehstrom-Synchrongenerator  
technical data for self regulating three phase alternator

ING-FCD-0112

TYPE	DSG 62 L2/4	Projekt:		Order Nr.:	
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—○— Pn	—▲— 0,75 Pn	—■— 0,5 Pn	—×— 0,25 Pn
— cos phi =0	—•— cos phi =1	— Stator winding thermal Limit	—•— Stable Limit
—•— Excitation winding thermal Limit	—•— cos phi =0,8	—•— cos phi =0,9	

Cummins Generator Technologies	Datum / date:
	25/09/2013