



## Technical Data Sheet for AvK-Alternators

FM 7.3-5

Date:	25/09/13	Customer:	GENERIC DATASHEET only
Project No.:		AvK Reference:	DSG062L1_4_60_480

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

<b>Generator data:</b>					
Generator:	DSG 62 L1/4	Poles:	4	Standards: IEC 60034	
Rated power:	1080 kVA	864 kWe	911 kWm		
Power factor:	0.80				
Power at pf 1,0	876 kVA	876 kWe	911 kWm		
Rated voltage:	0.48 kV				
Speed:	1800 1/min				
Frequency:	60 Hz	Voltage range / frequency range:			
Rated current:	1299.0 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	Filter:			
Enclosure:	IP23				
Cooling:	IC 01 - Open-circuit ventilation				
Coolant:	Ambient Air	Temperature	40 ° C	Temperature Air inlet	40 ° C
		Coolant:		generator:	
		Cooling air vol.:	2.1 m³/s	Cooling water quantity:	n/a
Moment of inertia (I):	16.2 kgm²	Weight:	2450 Kg	Losses (environment):	47 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	94,57	94,83	94,84	94,18	91,02
Power factor 0.9	95,25	95,47	95,35	94,56	91,26
Power factor 1.0	95,92	96,11	95,86	94,94	91,49

<b>Reactances and time constants</b>											
	unsaturated		saturated			unsaturated		saturated			
X <sub>d</sub>	2.53	2.28	p.u.	X <sub>q</sub>	1.17	1.15	p.u.	T <sub>d0'</sub>	2.30155 s	T <sub>d0''</sub>	0.01612 s
X <sub>d'</sub>	0.202	0.202	p.u.	X <sub>q'</sub>	1.17	1.15	p.u.	T <sub>d'</sub>	0.19 s	T <sub>q0'</sub>	0.1676 s
X <sub>d''</sub>	0.116	0.105	p.u.	X <sub>q''</sub>	0.127	0.127	p.u.	T <sub>d''</sub>	0.00838 s	T <sub>q0''</sub>	0.1544 s
X <sub>2</sub>	0.127	0.115	p.u.	X <sub>0</sub>	0.048	0.044	p.u.	T <sub>a</sub>	0.01865 s	T <sub>q'</sub>	0.1676 s
X <sub>1s</sub>	n.a.	0.063	p.u.							T <sub>q''</sub>	0.01676 s
Short circuit ratio saturated:	0.44				Z <sub>n</sub>	0.213	Ohm				

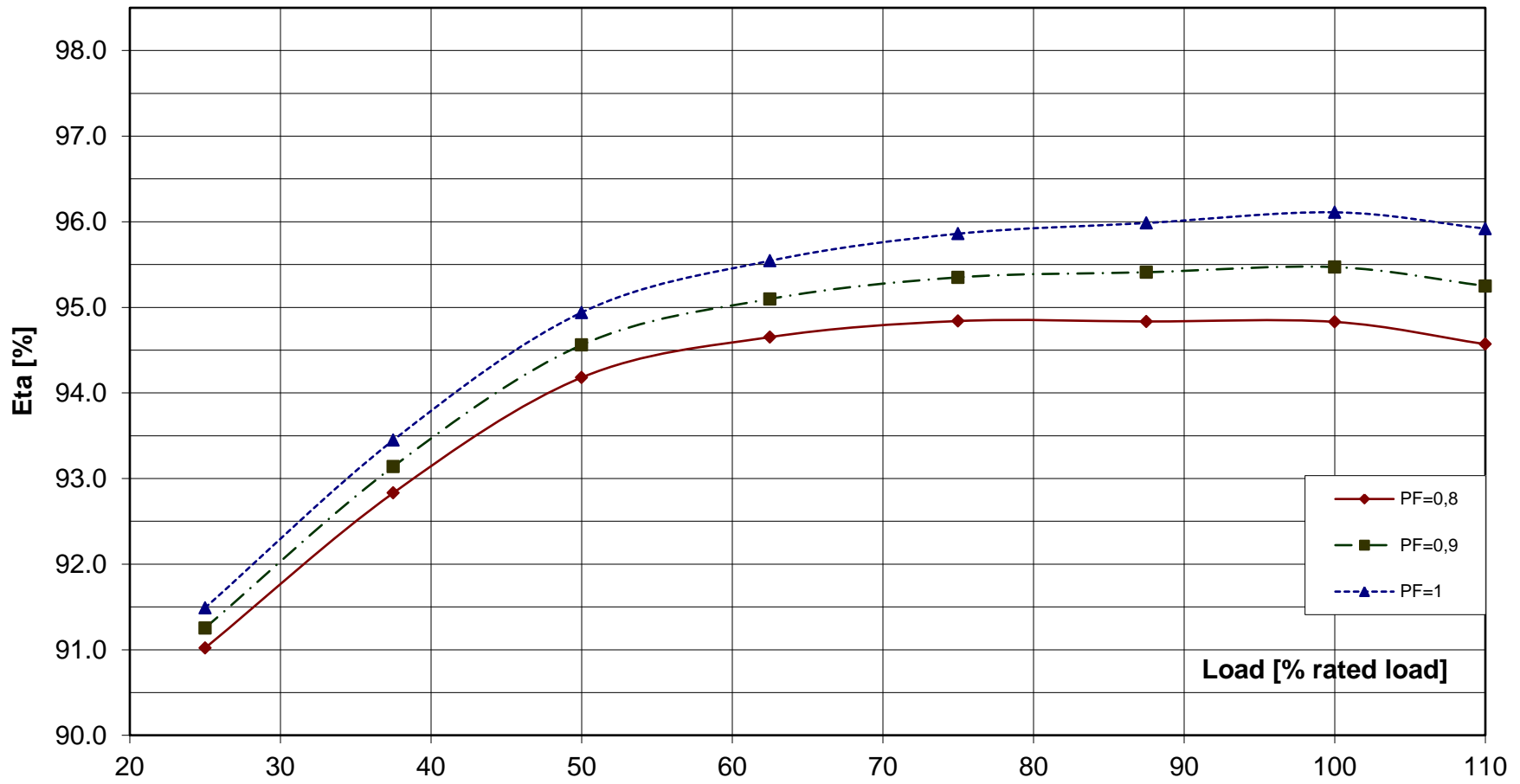
<b>Short circuit data:</b>			
Initial short circuit current (3-phase):	I <sub>k''</sub>	12372 A	
Max. peak current (3-phase):	I <sub>s</sub>	31494 A	
Sustained short circuit current:	I <sub>k</sub>	3897 A	Minimum 3 x rated current for max.10 s
Initial short circuit torque:	M <sub>k2</sub>	70.9 kNm	
	M <sub>k3</sub>	42.5 kNm	
Max. faulty synchron moment:	M <sub>f</sub>	152.4 kNm	
Rated kVA torque:	M <sub>SN</sub>	5.73 kNm	
Rated torque	M <sub>N</sub>	4.58 kNm	
Shaft torque	M <sub>Sh</sub>	4.83 kNm	

<b>Load application:</b>	
max. load application: 802 kVA (corresponds to 74,26 % from 1080 kVA) for Power factor 0.4 15% transient voltage drop	Power: 1080 kVA Power factor: 0.8 transient voltage drop: -16.8 %

**Remarks:**

<b>Alternator :</b>	<b>DSG 62 L1/4</b>		
Rated output [kVA]	1080	Rated power factor:	0.8
Rated frequency [Hz]	60	Rated speed [rpm]	1800
			Rated voltage [kV]: 0.48

### Wirkungsgrad-Kennlinie - Efficiency Curve



**Alternator : DSG 62 L1/4**

Rated output [kVA]

1080

Rated power factor:

0.8

Rated voltage [kV]: 0.48

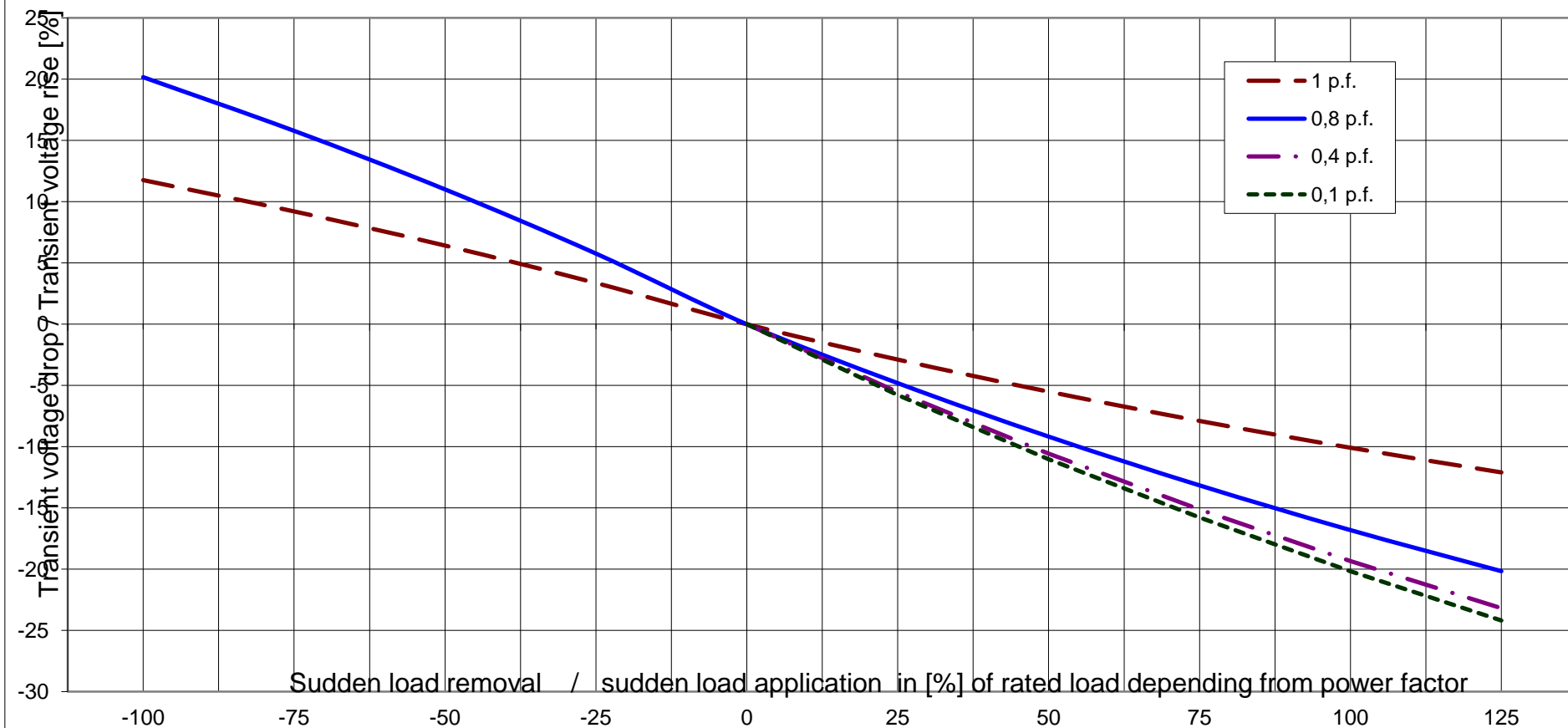
Rated frequency [Hz]

60

Rated speed [rpm]

1800

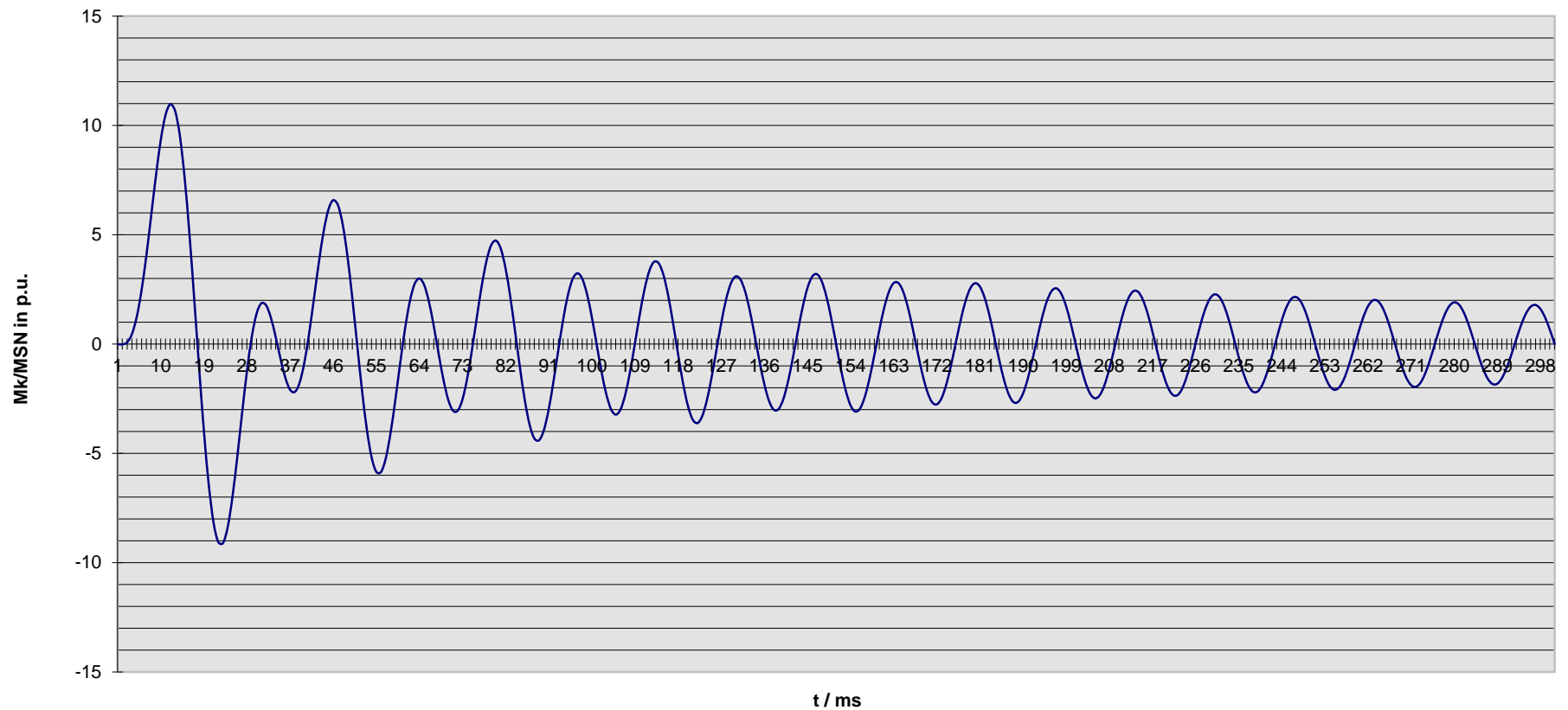
**Transient Voltage rise or drop for sudden load removal or application**



**Alternator : DSG 62 L1/4**

Rated output [kVA]	1080	Rated power factor:	0.8	Rated voltage [kV]:	0.48
Rated frequency [Hz]	60	Rated speed [rpm]	1800	MSN related to kVA:	5.73 KNm

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





Technisches Datenblatt - Diagramme  
Technical data sheet - Diagrams

ING-FCD-0112

Nennenden / nominal data

DSG 62 L1/4

Leistung  $S_N$ : **1080** kVA

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

Rating

p.f.

Spannung  $U_N$ : **0.48** kV

Strom  $I_N$ : **1299** A

Voltage

Current

Frequenz f: **60** Hz

Drehzahl n: **1,800** min<sup>-1</sup>

Frequency

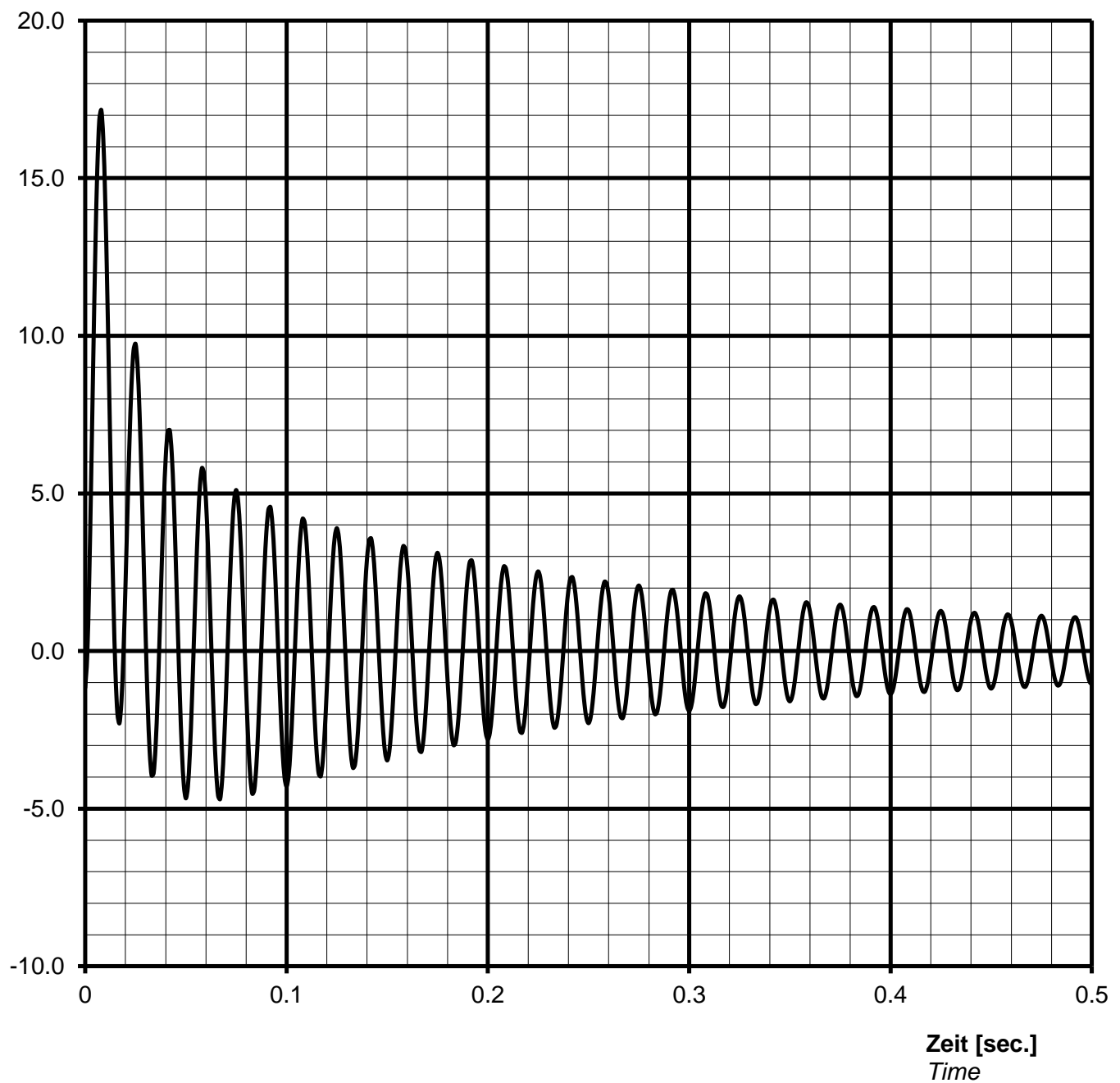
Speed

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  $I_{\text{peak}} =$  **22293 A** or **17.16 p.u.**



Technisches Datenblatt - Diagramme  
Technical data sheet - Diagrams

ING-FCD-0112

Nennwerten / nominal data

DSG 62 L1/4

Leistung  $S_N$ : **1080** kVA

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

Rating

p.f.

Spannung  $U_N$ : **0.48** kV

Strom  $I_N$ : **1299** A

Voltage

Current

Frequenz  $f$ : **60** Hz

Drehzahl  $n$ : **1800** min<sup>-1</sup>

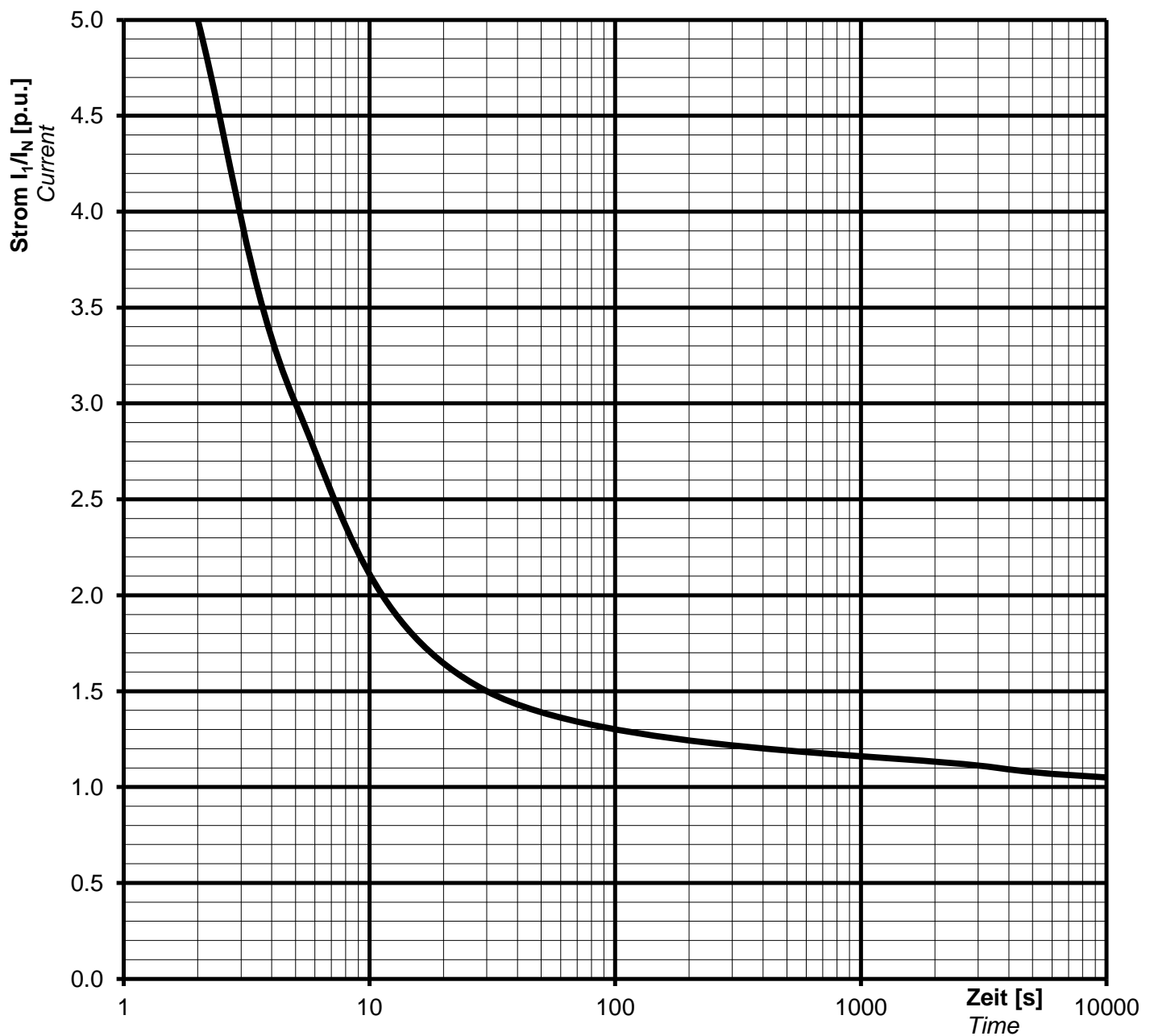
Frequency

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

#### Nenn Daten / nominal data

**DSG 62 L1/4**

Rating  $S_N$ : **1080 kVA**

*Bemessungsleistung*

Nominal voltage  $U_N$ : **0.48 kV**

*Bemessungsspannung*

Frequency  $f_N$ : **60 Hz**

*Frequenz*

Protection: **IP23**

*Schutzart*

*p.f.* **0.80**

Leistungsfaktor  $\cos \varphi$ :

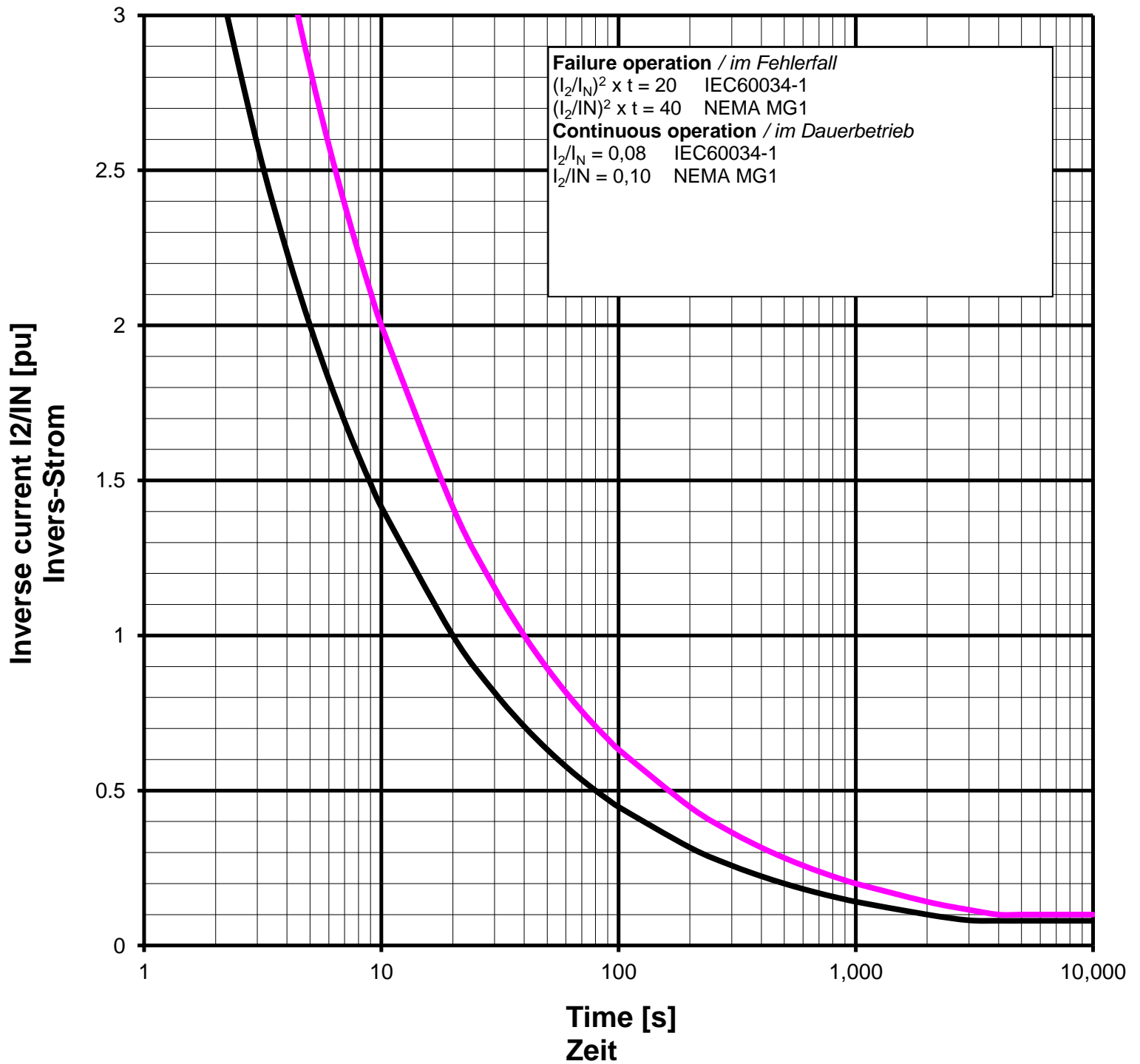
Nominal current  $I_N$ : **1299 A**

*Bemessungsstrom*

Speed n: **1800 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

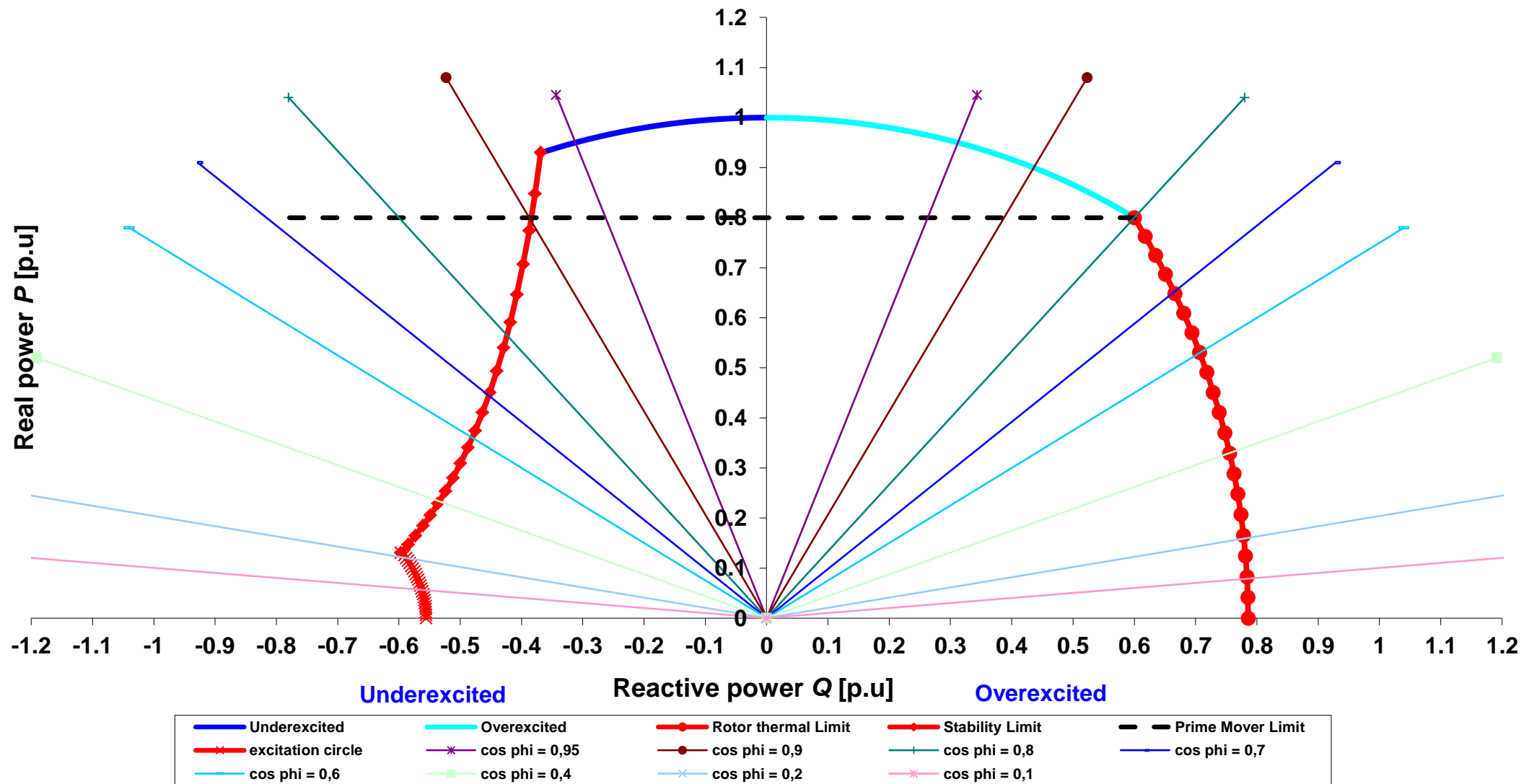
TYPE

DSG 62 L1/4

Projekt:

Order Nr.:

Capability (P-Q) Diagram



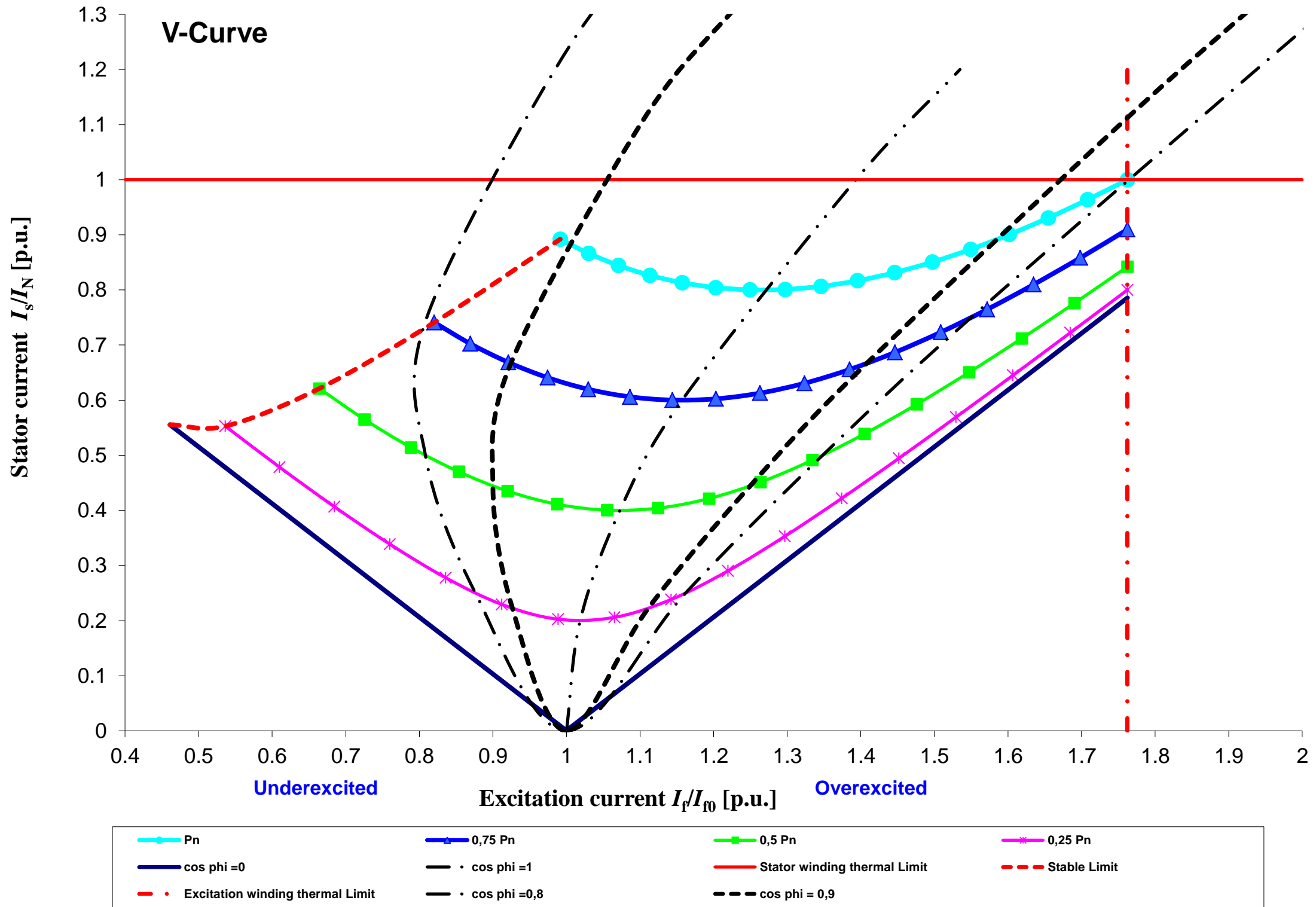
Cummins Generator Technologies

Datum / date:

25/09/2013



TYPE	DSG 62 L1/4	Projekt:		Order Nr.:	
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Cummins Generator Technologies	Datum / date:	
	25/09/2013	