

**Technical Data Sheet for AvK-Alternators**

FM 7.3-5

Date:	25/09/13	Customer:	GENERIC DATASHEET only
Project No.:		AvK Reference:	DSG062L1_4_50_400

**Object data:**

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

**Generator data:**

Generator:	DSG 62 L1/4	Poles:	4	Standards:	IEC 60034
Rated power:	900 kVA	720 kWe	763 kWm		
Power factor:	0.80				
Power at pf 1,0	732 kVA	732 kWe	763 kWm		
Rated voltage:	0.4 kV				
Speed:	1500 1/min				
Frequency:	50 Hz			Voltage range / frequency range:	
Rated current:	1299.0 A			Zone A according IEC 60034-1 (dU = +/-5%, df = +/-2%)	

Winding pitch:	2/3
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Insulation class:	Stator: Class H	Rotor: Class H	Temperature rise:	H
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Ambient temperature:	40 ° C	Environment:	Standard environment
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Site altitude:	1000 m		
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Enclosure:	IP23	Filter:	
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Cooling:	IC 01 - Open-circuit ventilation
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Coolant:	Ambient Air	Temperature	40 ° C	Temperature Air inlet	40 ° C
		Coolant:		generator:	

Moment of inertia (I):	16.2 kgm <sup>2</sup>	Cooling air vol.:	1.8 m <sup>3</sup> /s	Cooling water quantity:	n/a
		Weight:	2450 Kg	Losses (environment):	43 KW
				Losses (cooling):	n/a

Wires:	4 terminals, starpoint connected in terminal box
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Operation mode:	Single mode
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Regulators:	
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Voltage regulator:	DECS 100
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**Electrical data: (acc. IEC)**

Efficiencies:	110%	100%	75%	50%	25%
Power factor 0.8	94,12	94,4	94,6	94,2	91,4
Power factor 0.9	94,91	95,15	95,2	94,65	91,7
Power factor 1.0	95,7	95,9	95,8	95,1	92

**Reactances and time constants**

	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>	2.302 s	T <sub>d0''</sub>	0.01539 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>	0.16 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>	0.008 s	T <sub>q0''</sub>	0.1474 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>	0.019 s	T <sub>q'</sub>	0.16 s
X <sub>1s</sub>	n.a.	0.063 p.u.						T <sub>q''</sub>	0.016 s

Short circuit ratio saturated: 0.44	Z <sub>n</sub> 0.178 Ohm
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**Short circuit data:**

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>	4.85 kNm	

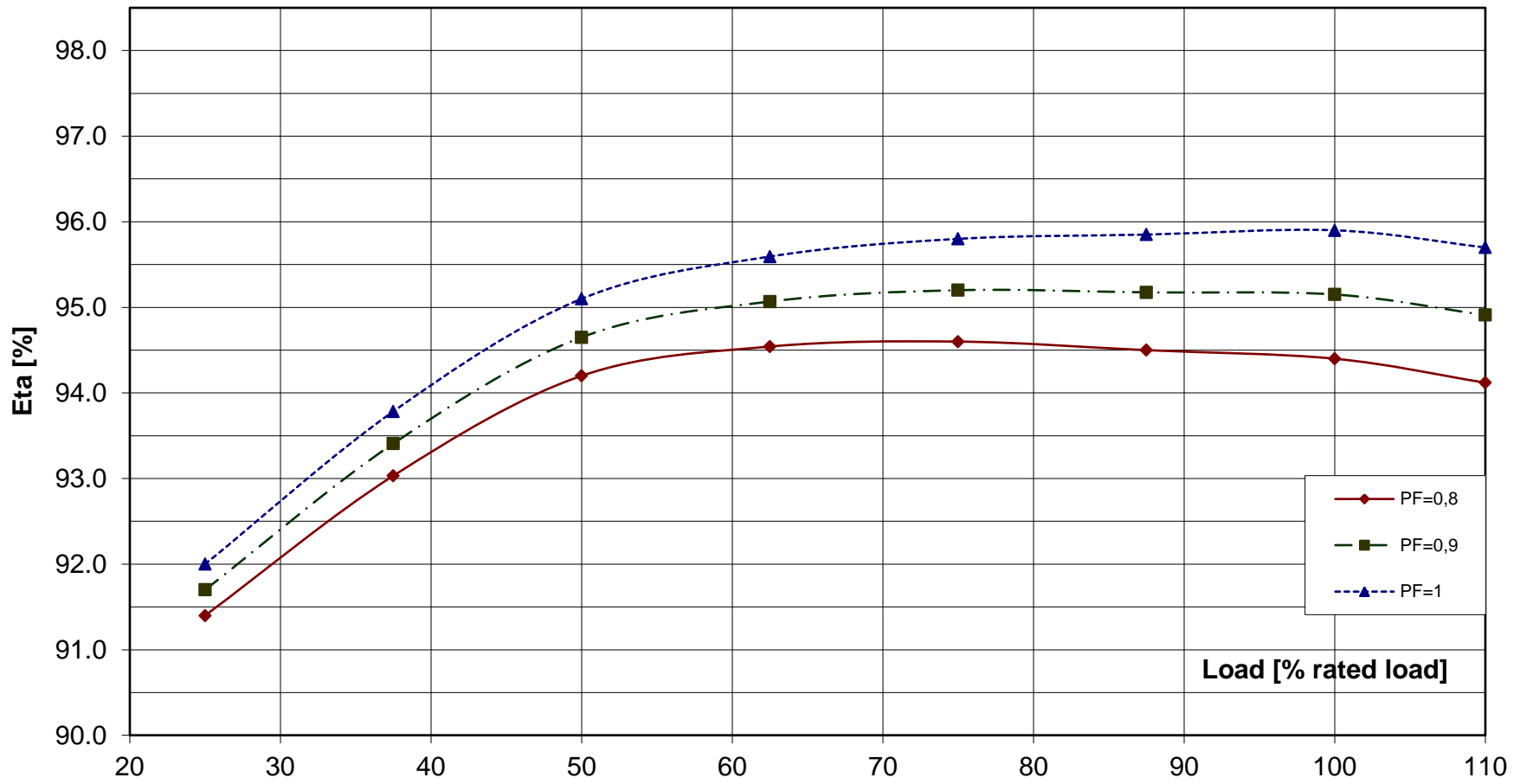
**Load application:**

max. load application: 668 kVA (corresponds to 74,26 % from 900 kVA) for Power factor 0.4 15% transient voltage drop	Power: 900 kVA Power factor: 0.8 transient voltage drop: -16.8 %
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**Remarks:**

<b>Alternator :</b>	<b>DSG 62 L1/4</b>			
Rated output [kVA]	900	Rated power factor:	0.8	Rated voltage [kV]: 0.4
Rated frequency [Hz]	50	Rated speed [rpm]	1500	

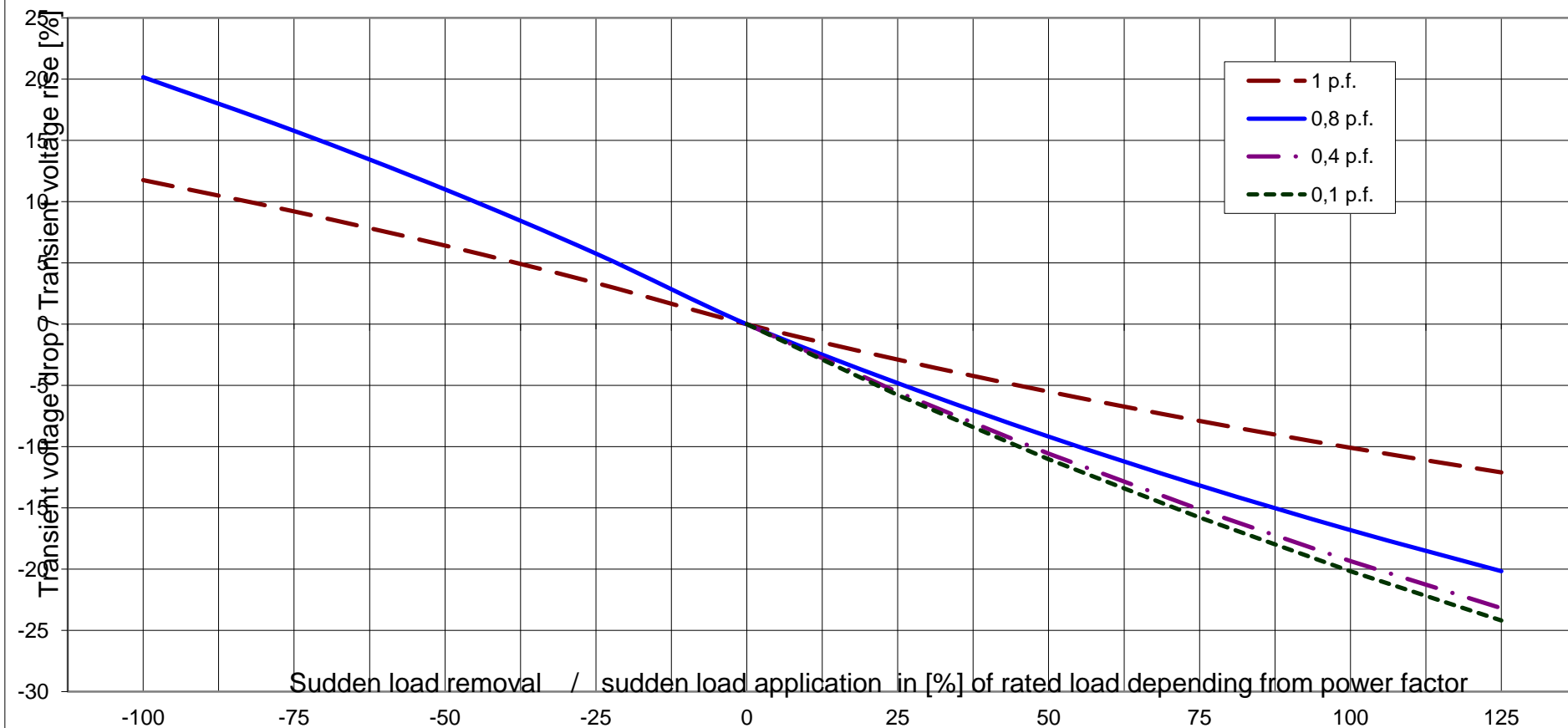
### Wirkungsgrad-Kennlinie - Efficiency Curve



**Alternator : DSG 62 L1/4**

Rated output [kVA]	900	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**



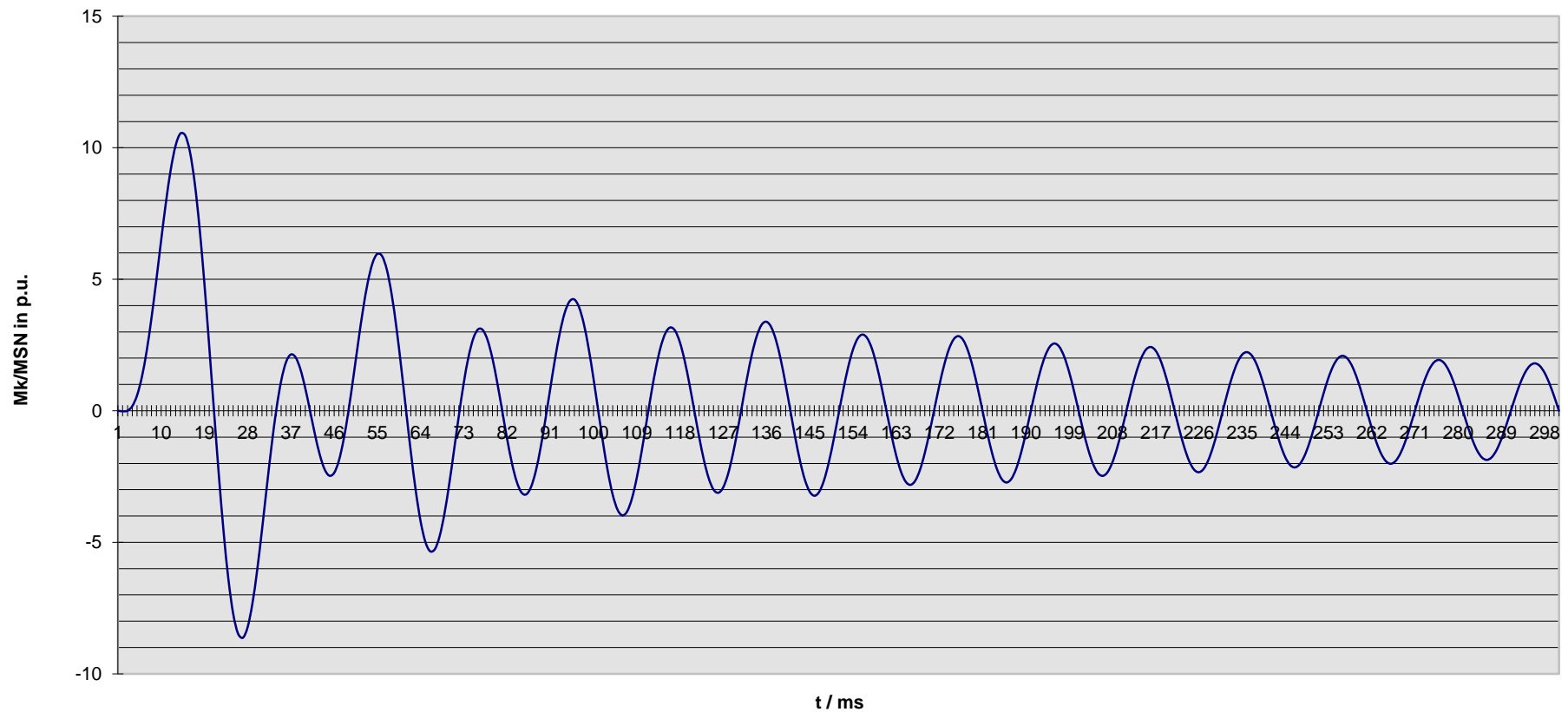


Technisches Datenblatt - Diagramme  
Technical data sheet - Diagrams

**ING-FCD-0112**

<b>Alternator :</b>	<b>DSG 62 L1/4</b>			
Rated output [kVA]	900	Rated power factor:	0.8	Rated voltage [kV]: 0.4
Rated frequency [Hz]	50	Rated speed [rpm]	1500	MSN related to kVA: 5.73 KNm

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



#### Nenn Daten / nominal data

DSG 62 L1/4

Leistung  $S_N$ : **900 kVA**

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

*Rating*

*p.f.*

Spannung  $U_N$ : **0.40 kV**

Strom  $I_N$ : **1299 A**

*Voltage*

*Current*

Frequenz  $f$ : **50 Hz**

Drehzahl  $n$ : **1,500 min<sup>-1</sup>**

*Frequency*

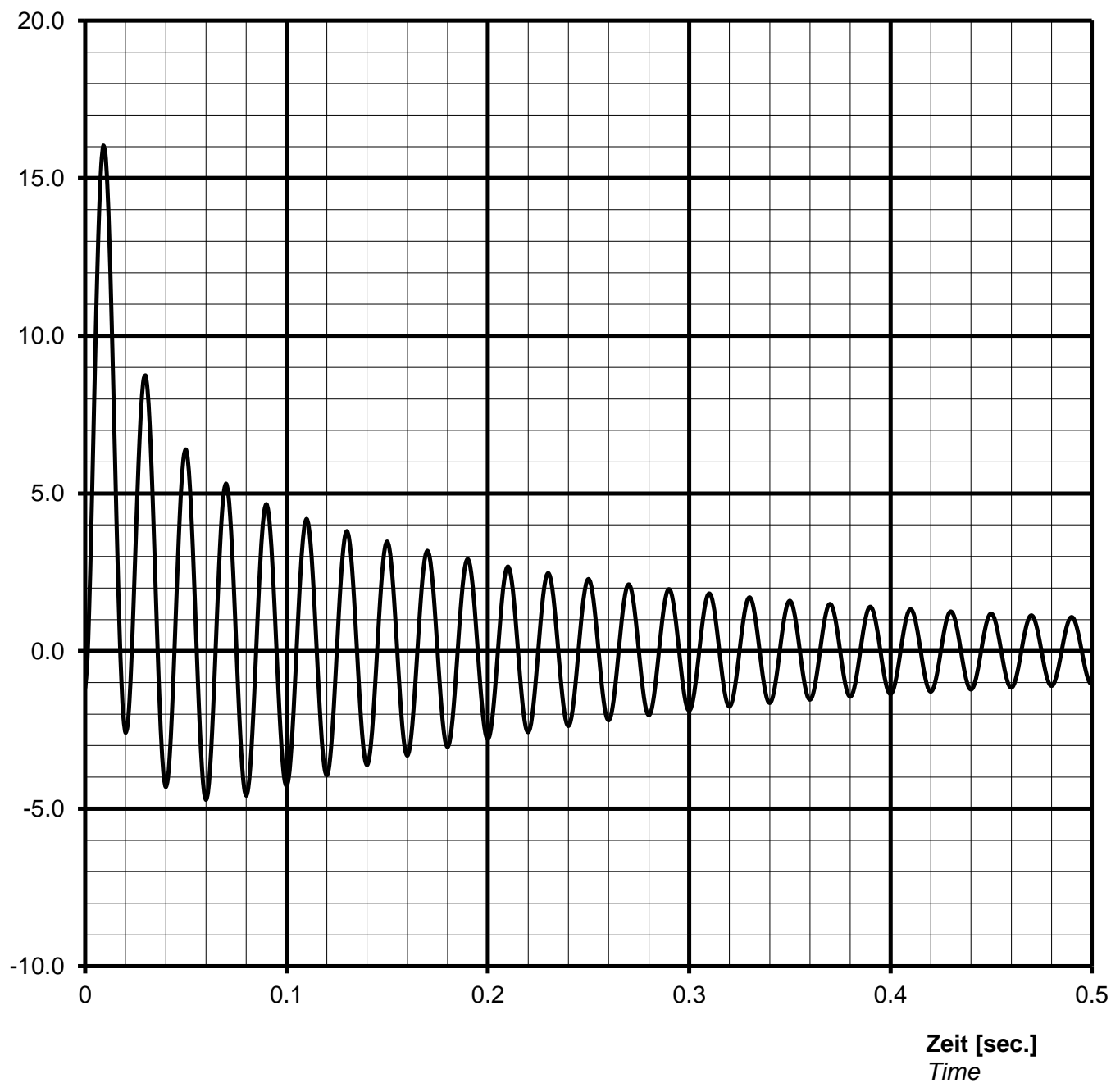
*Speed*

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  $I_{\text{peak}} =$  **20823 A** or **16.03 p.u.**



Technisches Datenblatt - Diagramme  
Technical data sheet - Diagrams

ING-FCD-0112

Nenn Daten / nominal data

DSG 62 L1/4

Leistung  $S_N$ : 900 kVA

$\cos \varphi$ : 0.80

Rating

p.f.

Spannung  $U_N$ : 0.40 kV

Strom  $I_N$ : 1299 A

Voltage

Current

Frequenz  $f$ : 50 Hz

Drehzahl  $n$ : 1500 min<sup>-1</sup>

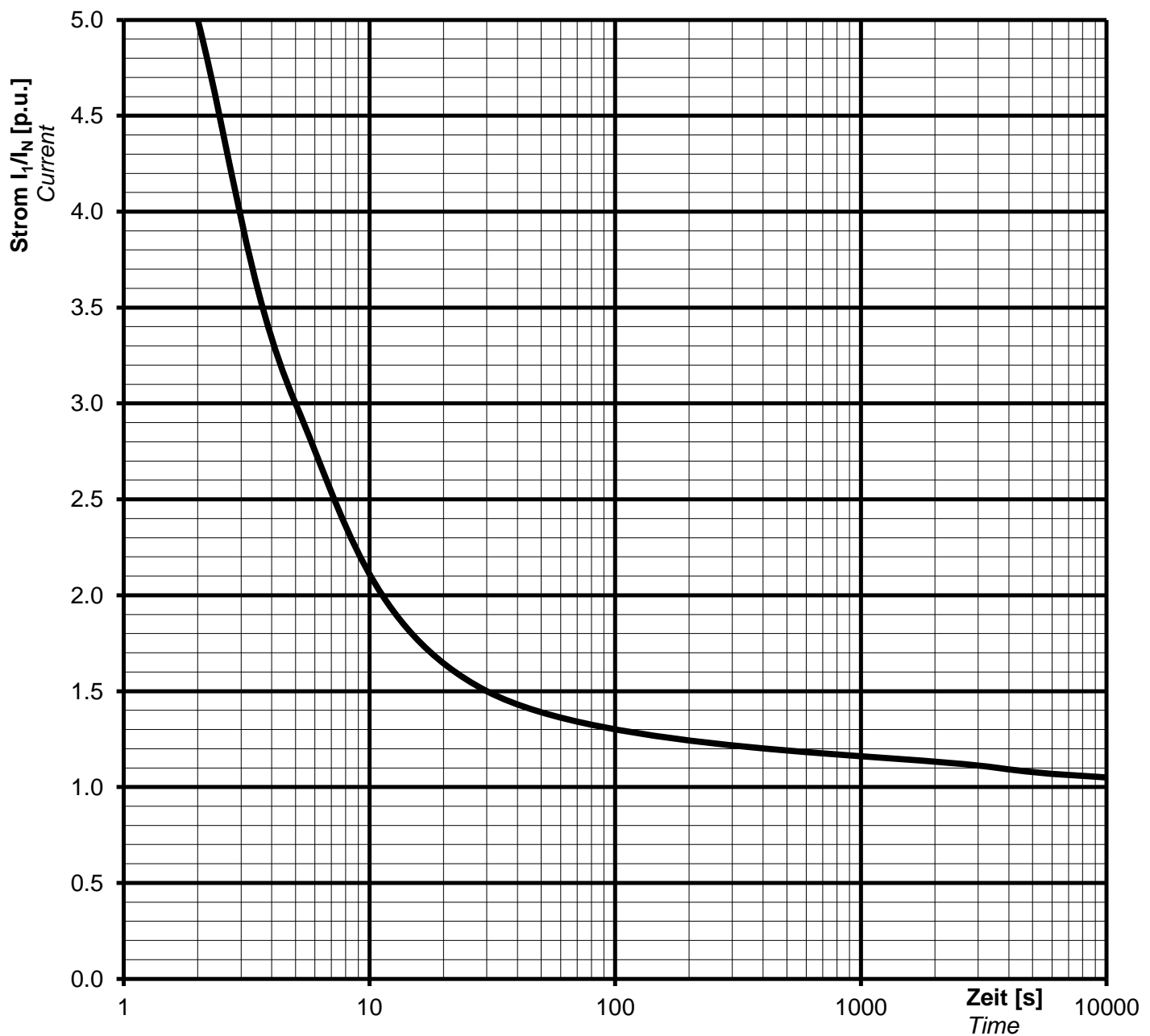
Frequency

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  $S_N$ : **900 kVA**

*Bemessungsleistung*

Nominal voltage  $U_N$ : **0.40 kV**

*Bemessungsspannung*

Frequency  $f_N$ : **50 Hz**

*Frequenz*

Protection: **IP23**

*Schutzart*

*p.f.* **0.80**

Leistungsfaktor  $\cos \varphi$ :

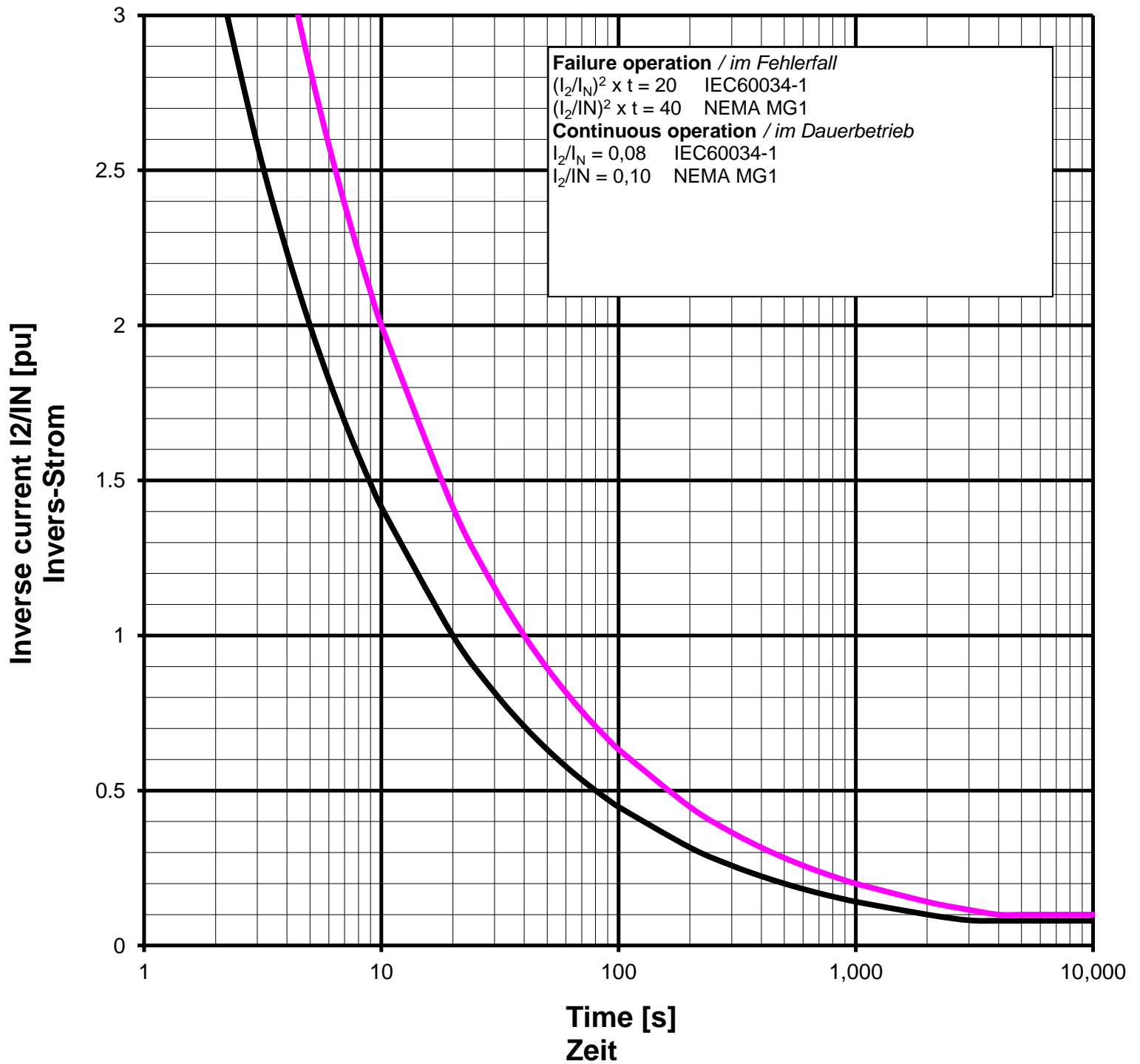
Nominal current  $I_N$ : **1299 A**

*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

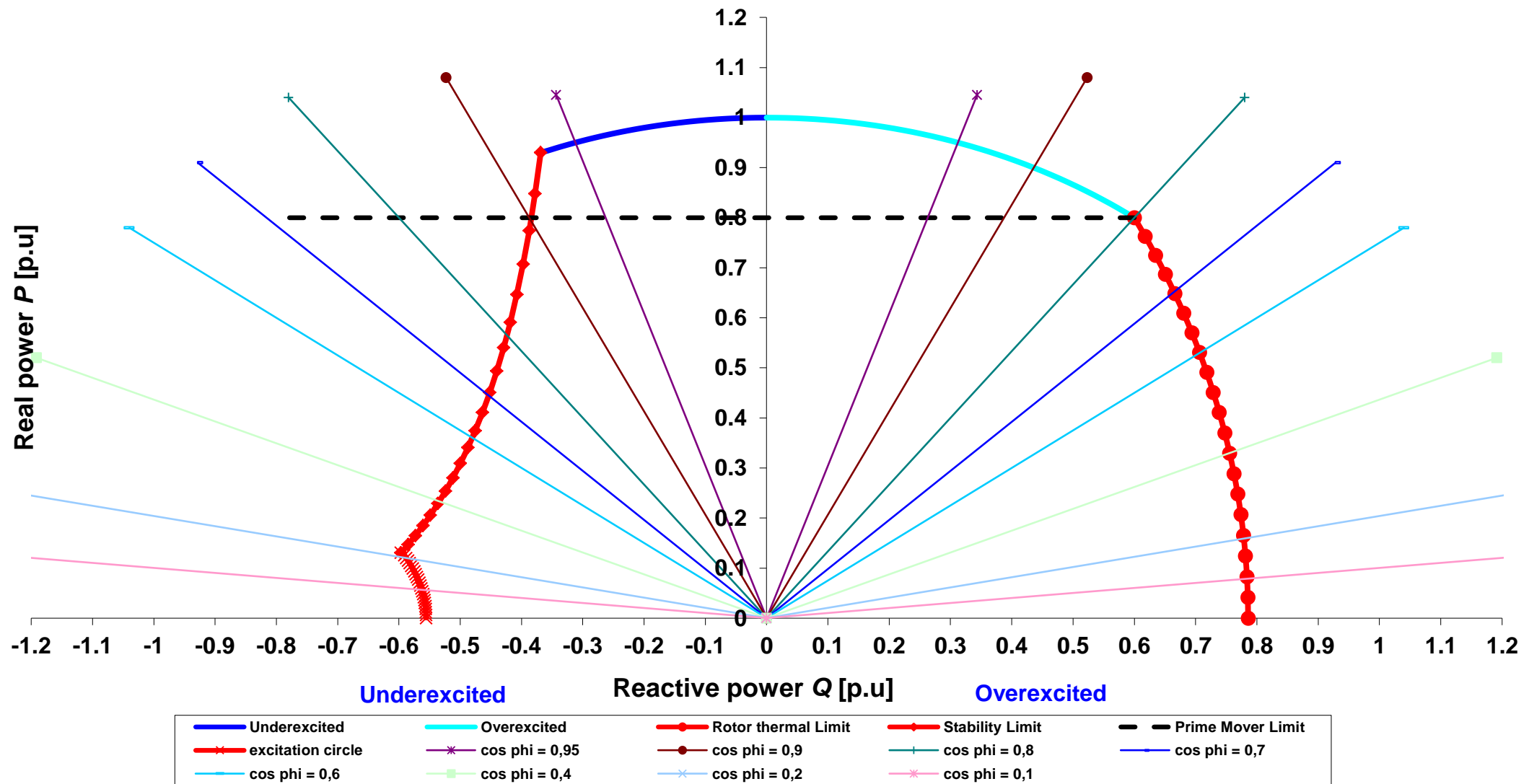
TYPE

DSG 62 L1/4

Projekt:

Order Nr.:

Capability (P-Q) Diagram



Cummins Generator Technologies

Datum / date:

25/09/2013



