

**Technical Data Sheet for AvK-Alternators**

FM 7.3-5

Date:	30/09/13	Customer:	GENERIC DATASHEET only
Project No.:		AvK Reference:	DSG074L1_4_50_400A

Object data:

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

Generator data:

Generator:	DSG 74 L1/4	Poles:	4	Standards:	IEC 60034
Rated power:	1750 kVA	1400 kWe	1468 kWm		
Power factor:	0.80				
Power at pf 1,0	1420 kVA	1420 kWe	1468 kWm		
Rated voltage:	0.4 kV				
Speed:	1500 1/min				
Frequency:	50 Hz			Voltage range / frequency range:	
Rated current:	2525.9 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
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		Coolant:		generator:	
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		Cooling air vol.:	2.4 m ³ /s	Cooling water quantity:	n/a
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Moment of inertia (I):	44.7 kgm ²	Weight:	3800 Kg	Losses (environment):	68 KW
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		Losses (cooling):	n/a		
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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	95,17	95,4	95,7	95,5	93,6
Power factor 0.9	95,86	96,05	96,2	95,85	93,8
Power factor 1.0	96,54	96,7	96,7	96,2	94

Reactances and time constants

	unsaturated	saturated		unsaturated	saturated				
X _d	2.78	2.50 p.u.	X _q	1.30	1.27 p.u.	T _{d0'}	3.5 s	T _{d0''}	0.02 s
X _{d'}	0.220	0.220 p.u.	X _{q'}	1.30	1.27 p.u.	T _{d'}	0.28 s	T _{q0'}	0.2 s
X _{d''}	0.121	0.110 p.u.	X _{q''}	0.130	0.130 p.u.	T _{d''}	0.01 s	T _{q0''}	0.2 s
X ₂	0.132	0.120 p.u.	X ₀	0.044	0.040 p.u.	T _a	0.024 s	T _{q'}	0.2 s
X _{1s}	n.a.	0.066 p.u.						T _{q''}	0.02 s

Short circuit ratio saturated:	0.4	Z _n	0.091 Ohm
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Short circuit data:

Initial short circuit current (3-phase):	I _{k''}	22963 A	
Max. peak current (3-phase):	I _s	58454 A	
Sustained short circuit current:	I _k	7578 A	Minimum 3 x rated current for max.10 s

Initial short circuit torque:	M _{k2}	131.7 kNm
	M _{k3}	79.0 kNm

Max. faulty synchron moment:	M _f	283.2 kNm
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Rated kVA torque:	M _{SN}	11.14 kNm
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Rated torque	M _N	8.91 kNm
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Shaft torque	M _{Sh}	9.34 kNm
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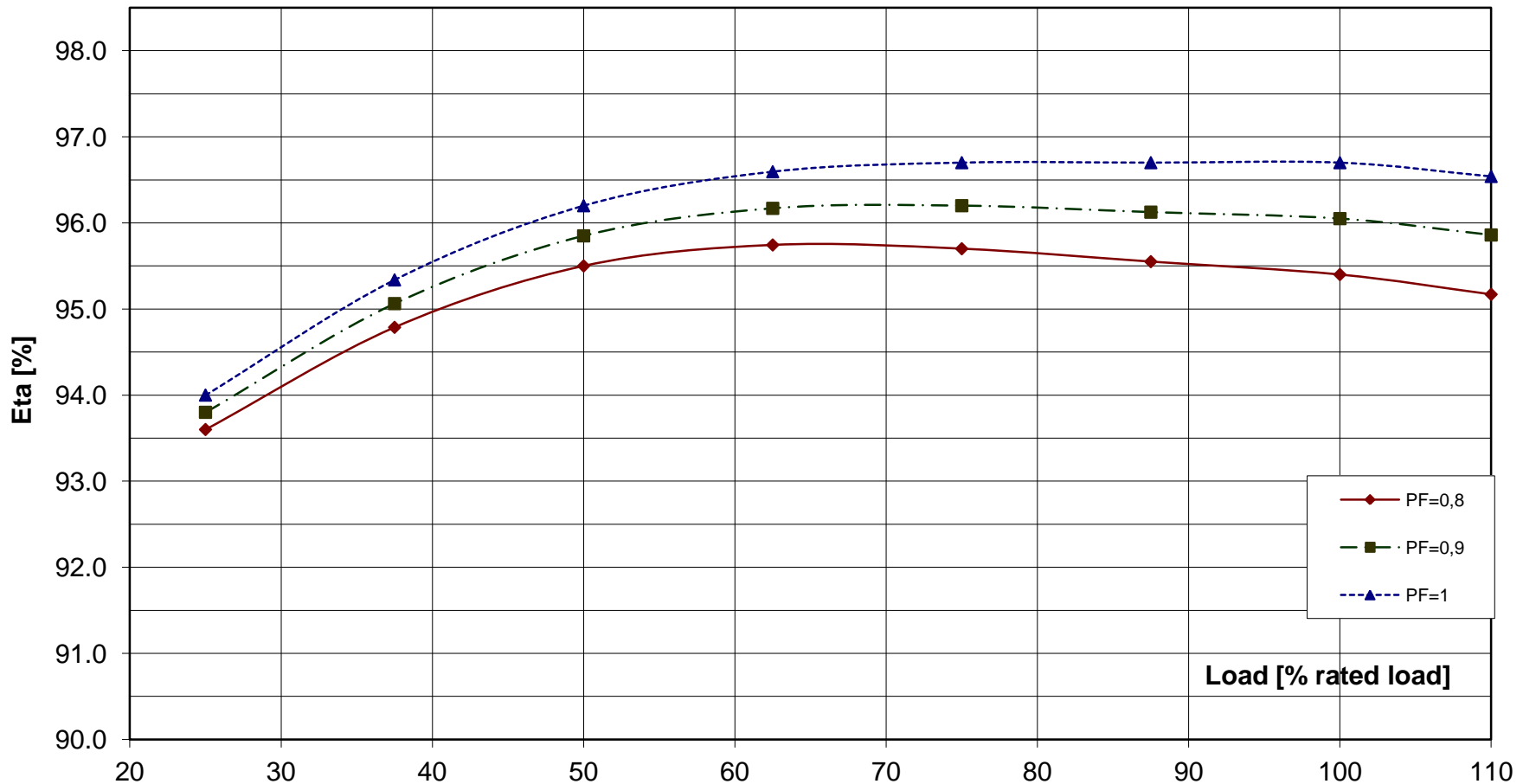
Load application:

max. load application: 1193 kVA (corresponds to 68,18 % from 1750 kVA) for Power factor 0.4 15% transient voltage drop	Power: 1750 kVA Power factor: 0.8 transient voltage drop: -18.0 %
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Remarks:

Alternator :	DSG 74 L1/4			
Rated output [kVA]	1750	Rated power factor:	0.8	Rated voltage [kV]: 0.4
Rated frequency [Hz]	50	Rated speed [rpm]	1500	

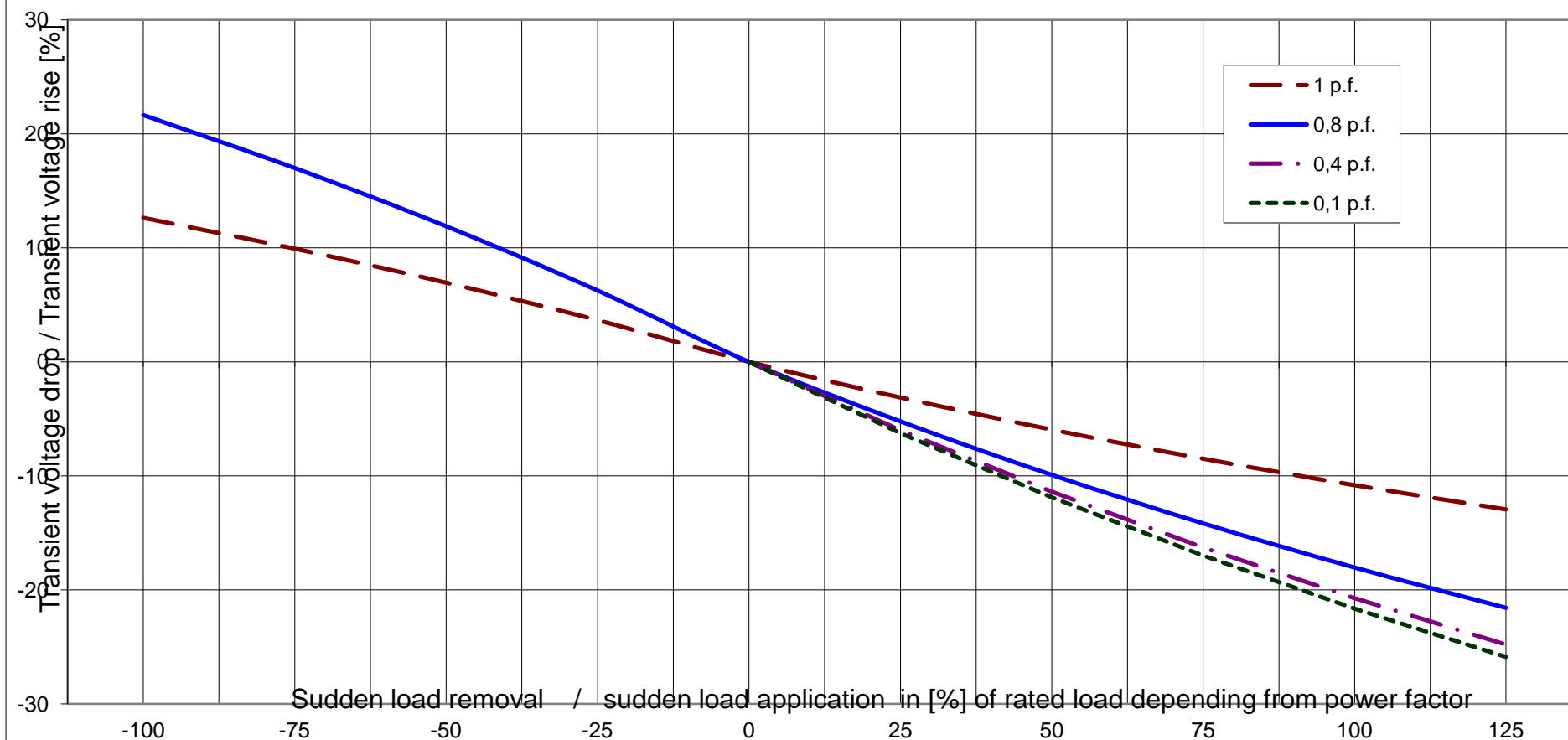
Wirkungsgrad-Kennlinie - Efficiency Curve



Alternator : DSG 74 L1/4

Rated output [kVA]	1750	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

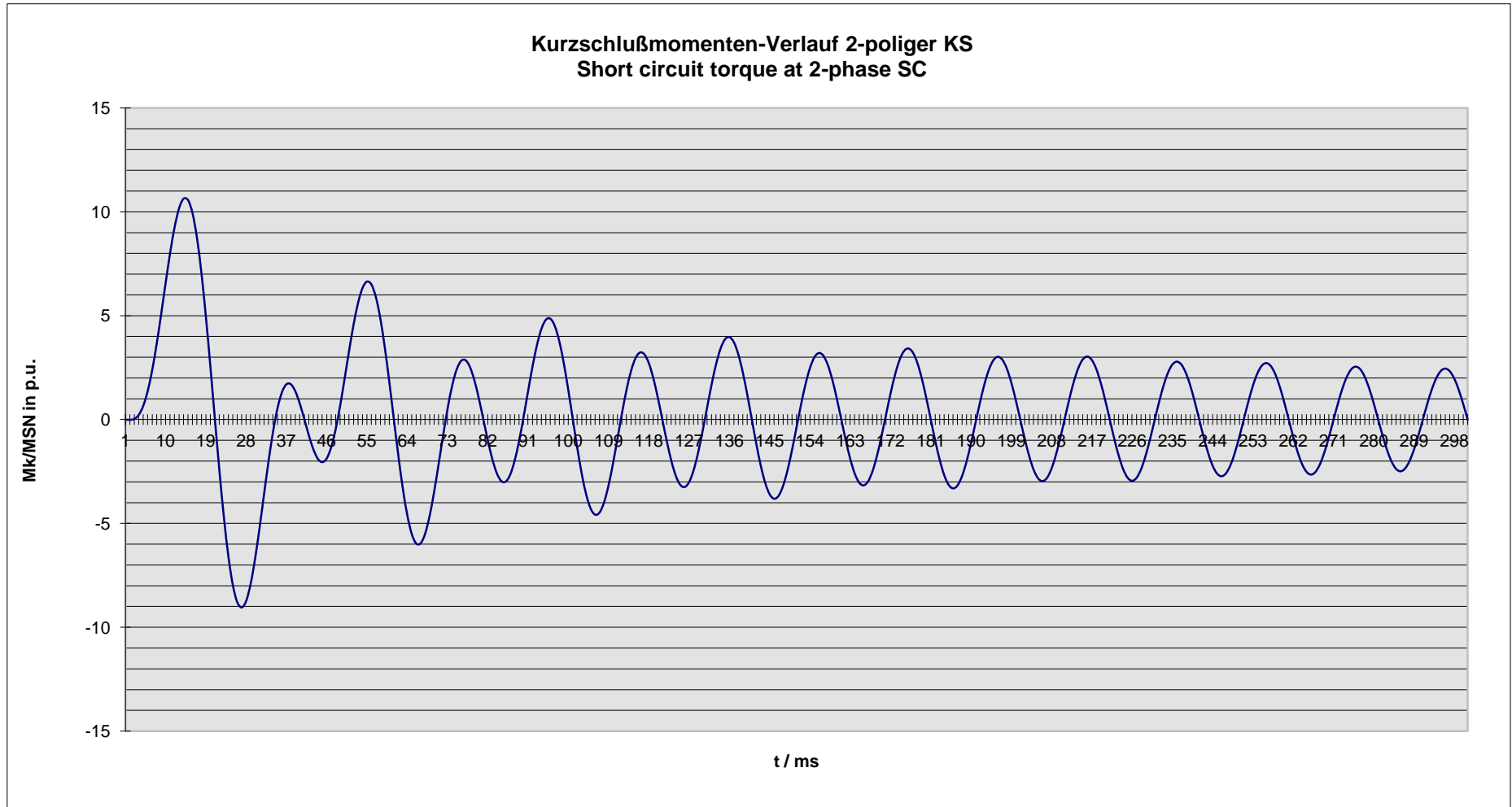




Technisches Datenblatt - Diagramme
Technical data sheet - Diagrams

ING-FCD-0112

Alternator :	DSG 74 L1/4			
Rated output [kVA]	1750	Rated power factor:	0.8	Rated voltage [kV]: 0.4
Rated frequency [Hz]	50	Rated speed [rpm]	1500	MSN related to kVA: 11.14 KNm



Nenndaten / nominal data

DSG 74 L1/4

Leistung S_N : **1750 kVA**

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

Rating

p.f.

Spannung U_N : **0.40 kV**

Strom I_N : **2526 A**

Voltage

Current

Frequenz f : **50 Hz**

Drehzahl n : **1,500 min⁻¹**

Frequency

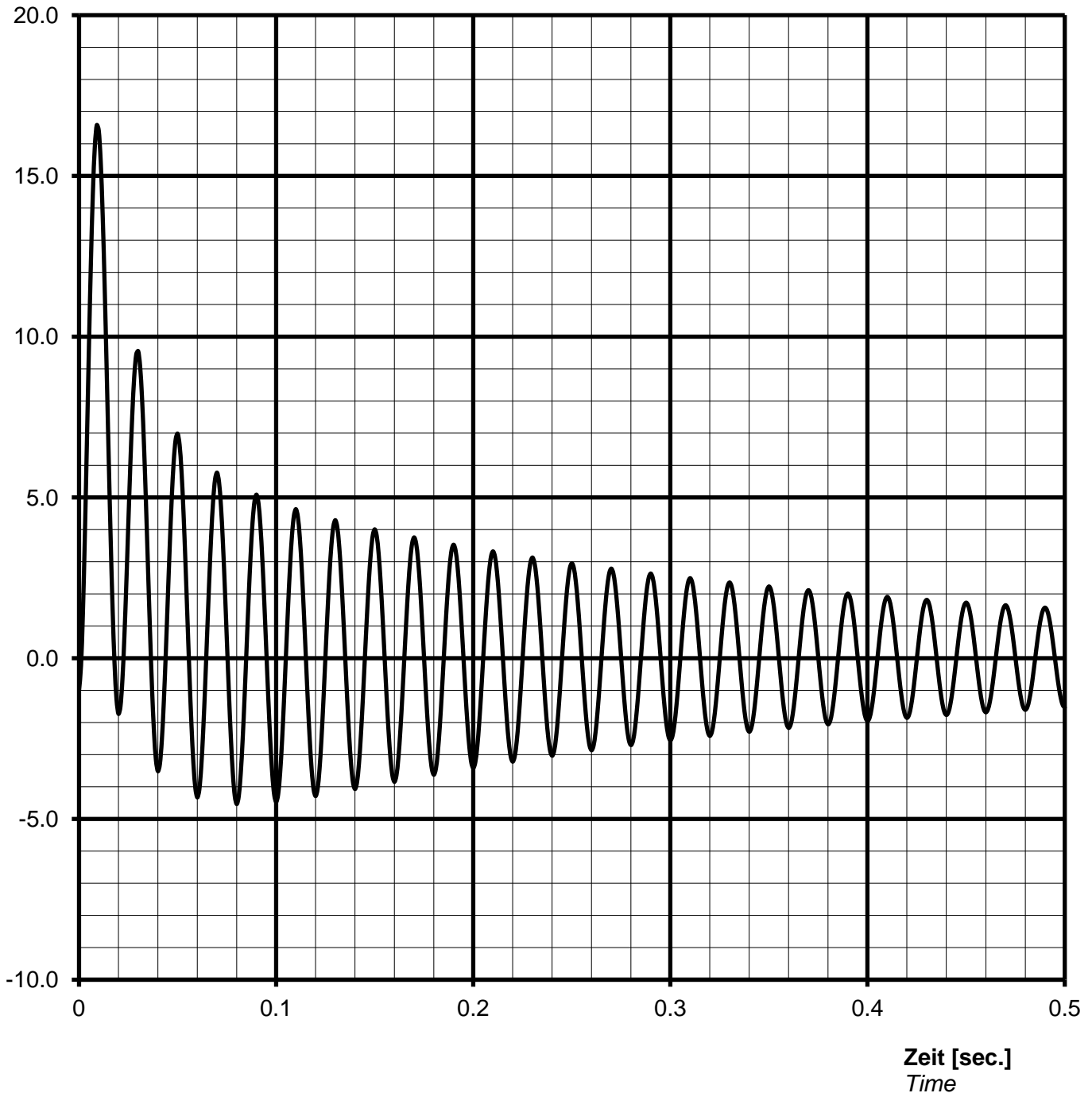
Speed

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

$I_{\text{speak}} =$ **41875 A** or **16.58 p.u.**

Nennwerten / nominal data

DSG 74 L1/4

Leistung S_N : **1750 kVA**

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

Rating

p.f.

Spannung U_N : **0.40 kV**

Strom I_N : **2526 A**

Voltage

Current

Frequenz f: **50 Hz**

Drehzahl n: **1500 min⁻¹**

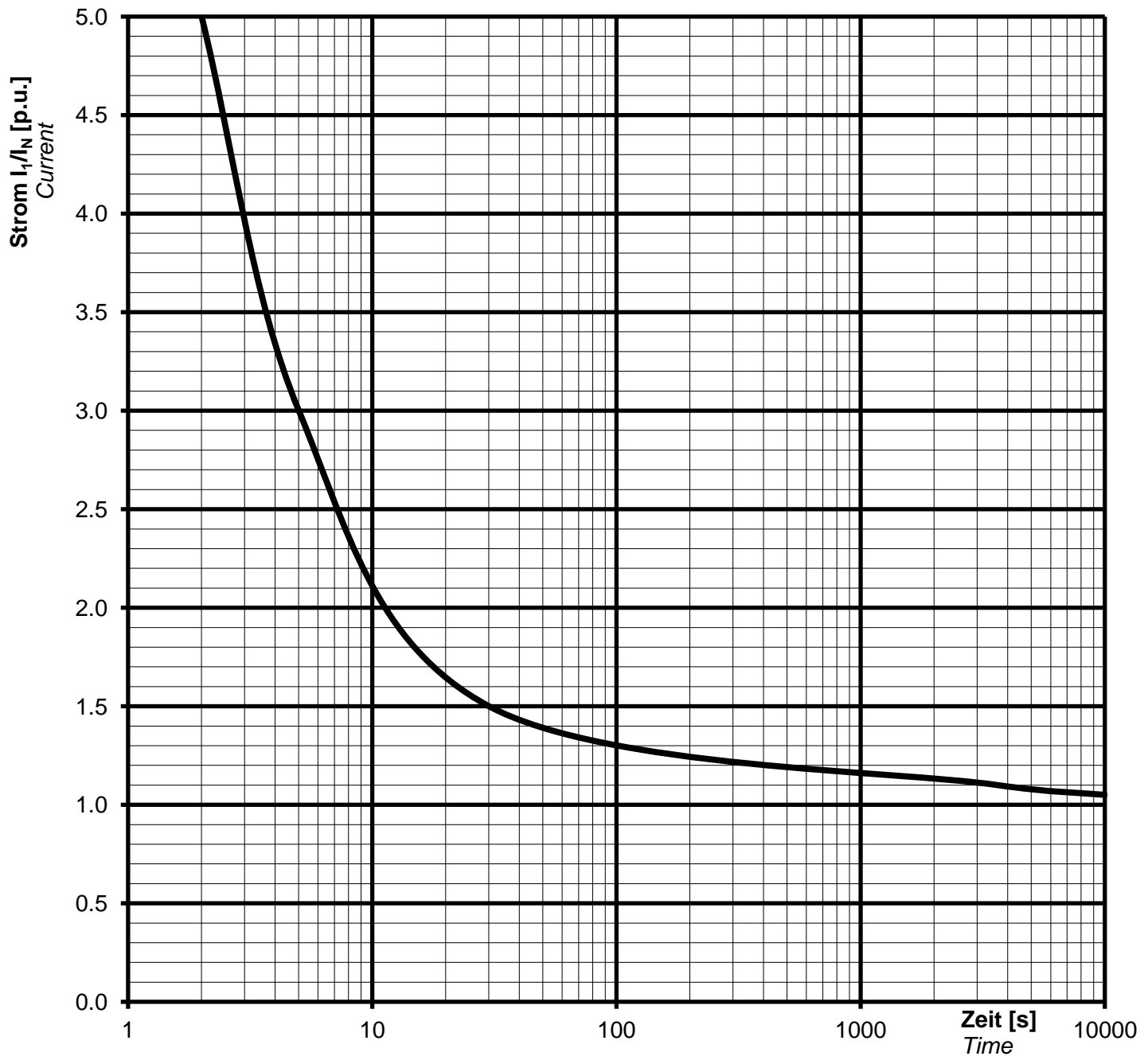
Frequency

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

Nenndaten / nominal data

DSG 74 L1/4

Rating S_N : **1750 kVA**

p.f. **0.80**

Bemessungsleistung

Leistungsfaktor $\cos \varphi$:

Nominal voltage U_N : **0.40 kV**

Nominal current I_N : **2526 A**

Bemessungsspannung

Bemessungsstrom

Frequency f_N : **50 Hz**

Speed n : **1500 min⁻¹**

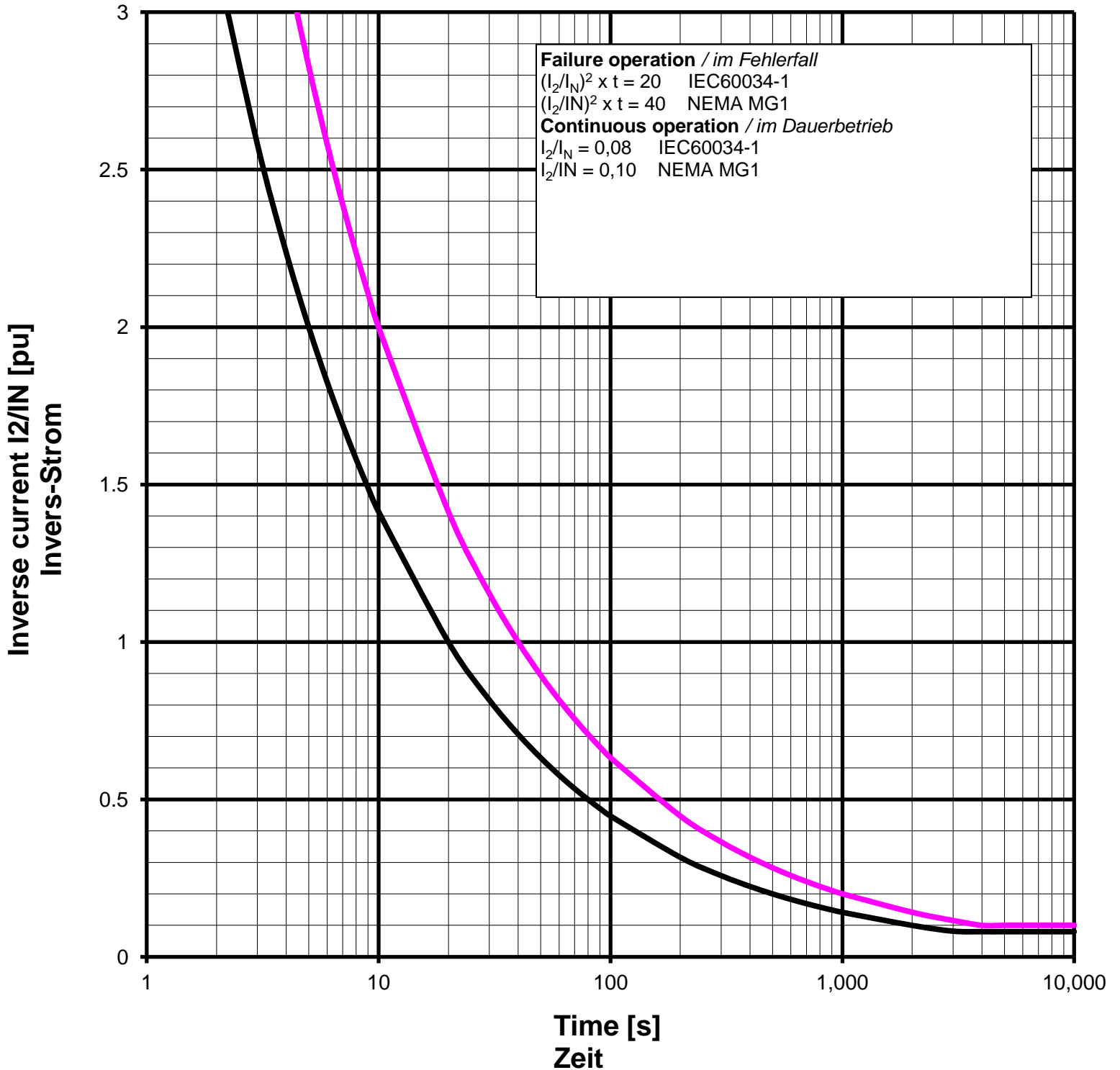
Frequenz

Drehzahl

Protection: **IP23**

Schutzart

Inverse current or unbalanced negative sequence current



Remarks / Notizen:



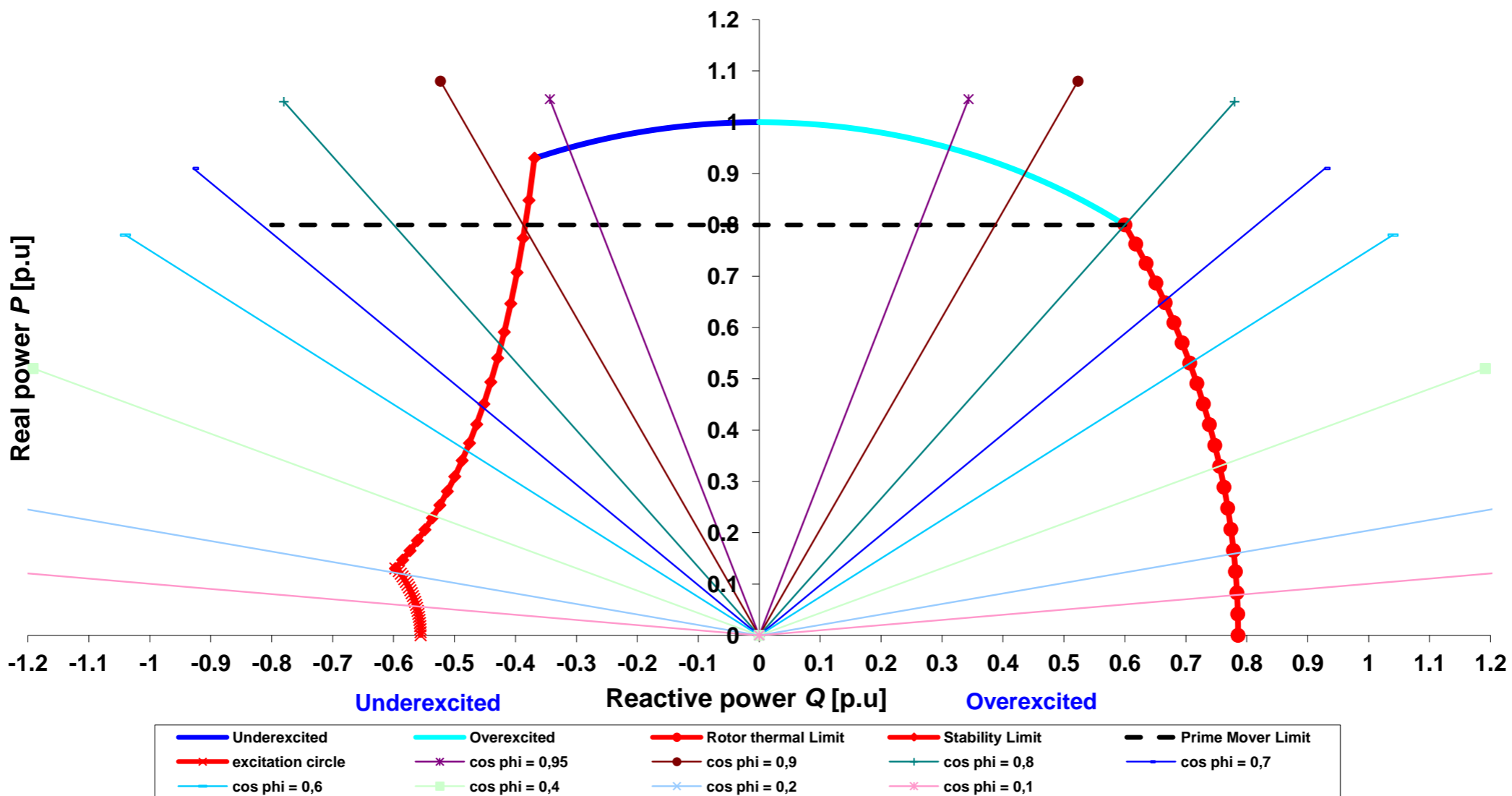
TYPE

DSG 74 L1/4

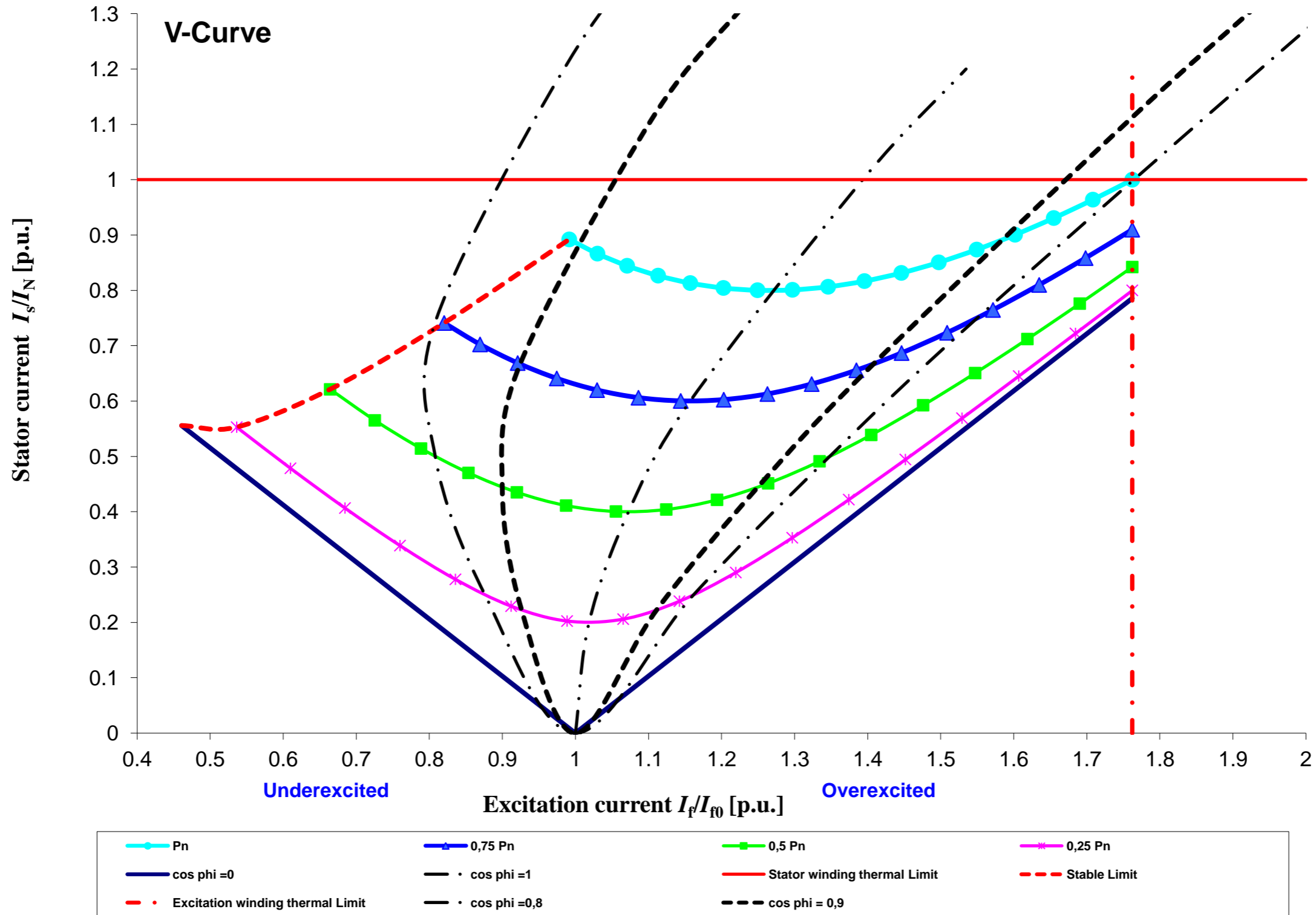
Projekt:

Order Nr.:

Capability (P-Q) Diagram



TYPE	DSG 74 L1/4	Projekt:		Order Nr.:	
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Cummins Generator Technologies	Datum / date:	
	30/09/2013	