

**Technical Data Sheet for AvK-Alternators**

FM 7.3-5

Date:	09/01/14	Customer:	GENERIC DATASHEET only
Project No.:		AvK Reference:	dig110g_4_50_6300_A048M997

Object data:

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

Generator data:

Generator:	DIG 110 g/4	Poles:	4	Standards:	IEC 60034
Rated power:	750 kVA	600 kWe	637 kWm		
Power factor:	0.80				
Power at pf 1,0	608 kVA	608 kWe	637 kWm		
Rated voltage:	6.3 kV				
Speed:	1500 1/min				
Frequency:	50 Hz			Voltage range / frequency range:	
Rated current:	68.7 A			Zone A according IEC 60034-1 (dU = +/-5%, df = +/-2%)	

Winding pitch:	ca. 5/6
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Insulation class:	Stator: Class F	Rotor: Class F	Temperature rise:	F
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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.:	1.3 m³/s	Cooling water quantity:	n/a
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Moment of inertia (I):	20 kgm²	Weight:	3100 Kg	Losses (environment):	37 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	93,91	94,2	94,2	93,4	90
Power factor 0.9	94,6	94,85	94,7	93,8	90,25
Power factor 1.0	95,28	95,5	95,2	94,2	90,5

Reactances and time constants

	unsaturated	saturated		unsaturated	saturated				
X_d	2.30	2.07 p.u.	X_q	1.15	1.13 p.u.	$T_{d0'}$	2 s	$T_{d0''}$	0.0217 s
X_d'	0.310	0.310 p.u.	X_q'	1.15	1.13 p.u.	$T_{d'}$	0.27 s	$T_{q0'}$	0.28 s
X_d''	0.220	0.200 p.u.	X_q''	0.220	0.220 p.u.	$T_{d''}$	0.014 s	$T_{q0''}$	0.14636 s
X_2	0.231	0.210 p.u.	X_0	0.066	0.060 p.u.	T_a	0.036 s	$T_{q'}$	0.28 s
X_{1s}	n.a.	0.120 p.u.						$T_{q''}$	0.028 s

Short circuit ratio saturated:	0.48	Z_n	52.920 Ohm
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Short circuit data:

Initial short circuit current (3-phase):	I_k''	344 A	
Max. peak current (3-phase):	I_s	876 A	
Sustained short circuit current:	I_k	206 A	Minimum 3 x rated current for max.10 s

Initial short circuit torque:	M_{k2}	31.0 kNm
	M_{k3}	18.6 kNm

Max. faulty synchron moment:	M_f	66.6 kNm
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Rated kVA torque:	M_{SN}	4.78 kNm
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Rated torque	M_N	3.82 kNm
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Shaft torque	M_{Sh}	4.06 kNm
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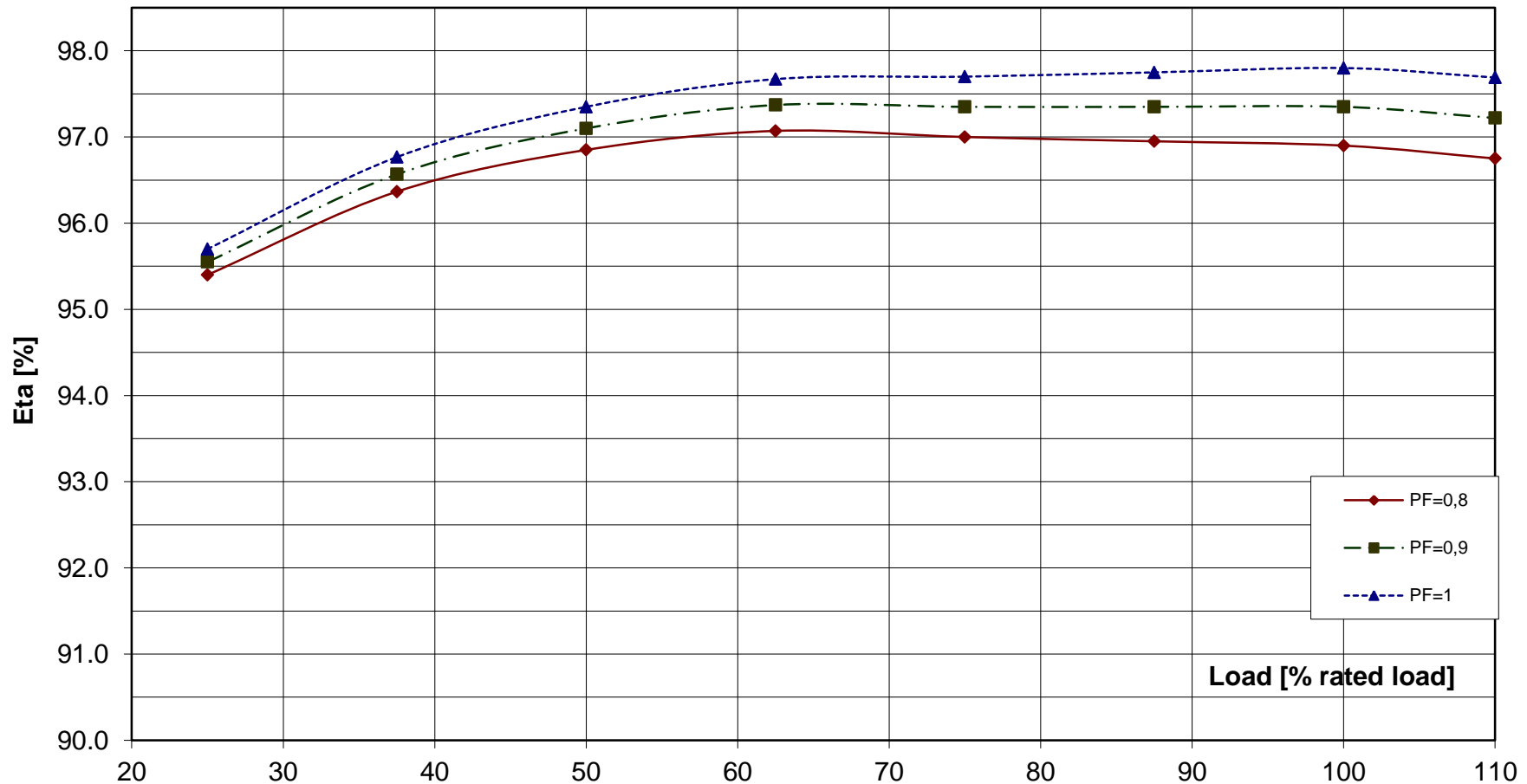
Load application:

max. load application: 363 kVA (corresponds to 48,39 % from 750 kVA) for Power factor 0.4 15% transient voltage drop	Power: 750 kVA Power factor: 0.8 transient voltage drop: -23.7 %
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Remarks:

Alternator :	DSG 114 L1/6			
Rated output [kVA]	5000	Rated power factor:	0.8	Rated voltage [kV]: 0.69
Rated frequency [Hz]	50	Rated speed [rpm]	1000	

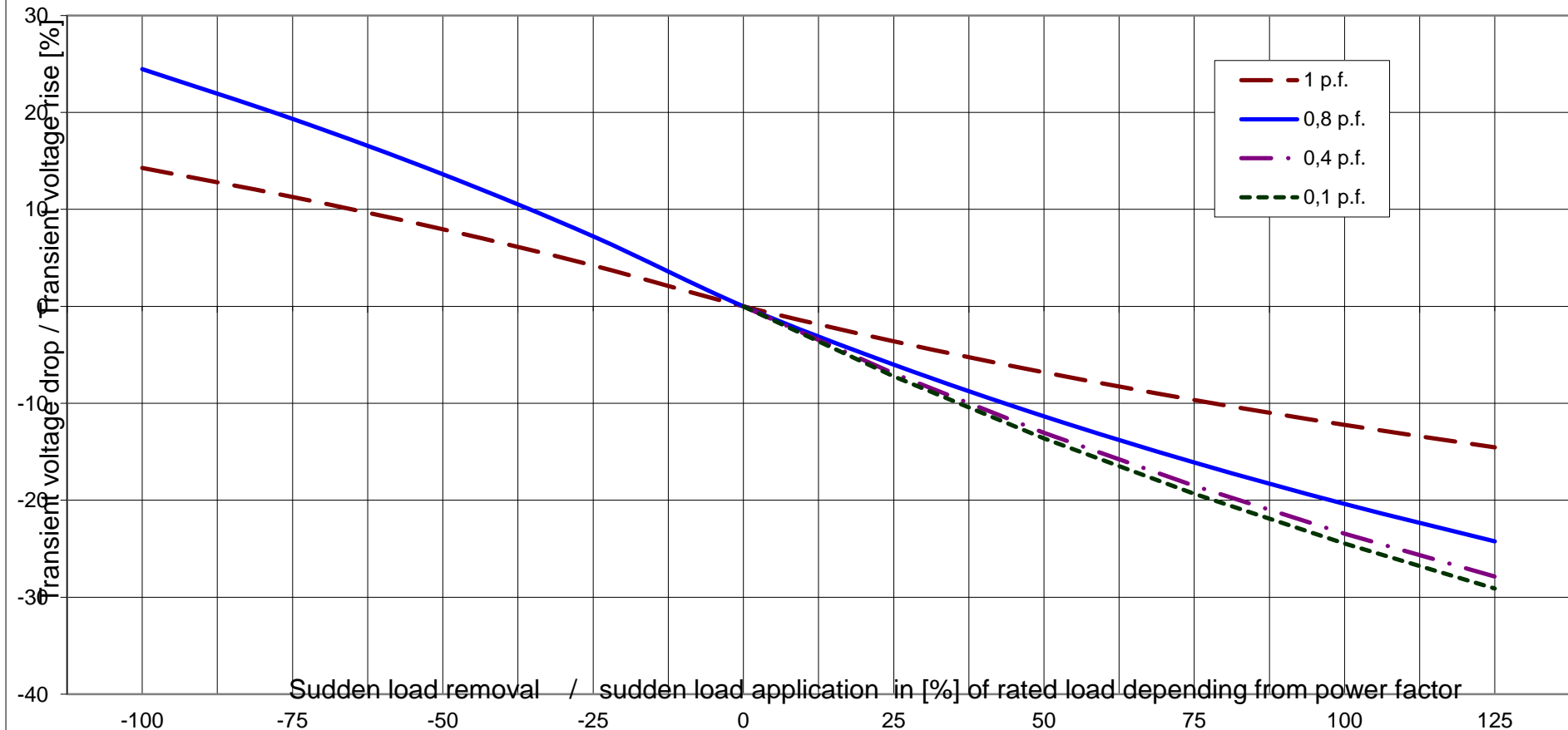
Wirkungsgrad-Kennlinie - Efficiency Curve



Alternator : DSG 114 L1/6

Rated output [kVA]	5000	Rated power factor:	0.8	Rated voltage [kV]:	0.69
Rated frequency [Hz]	50	Rated speed [rpm]	1000		

Transient Voltage rise or drop for sudden load removal or application



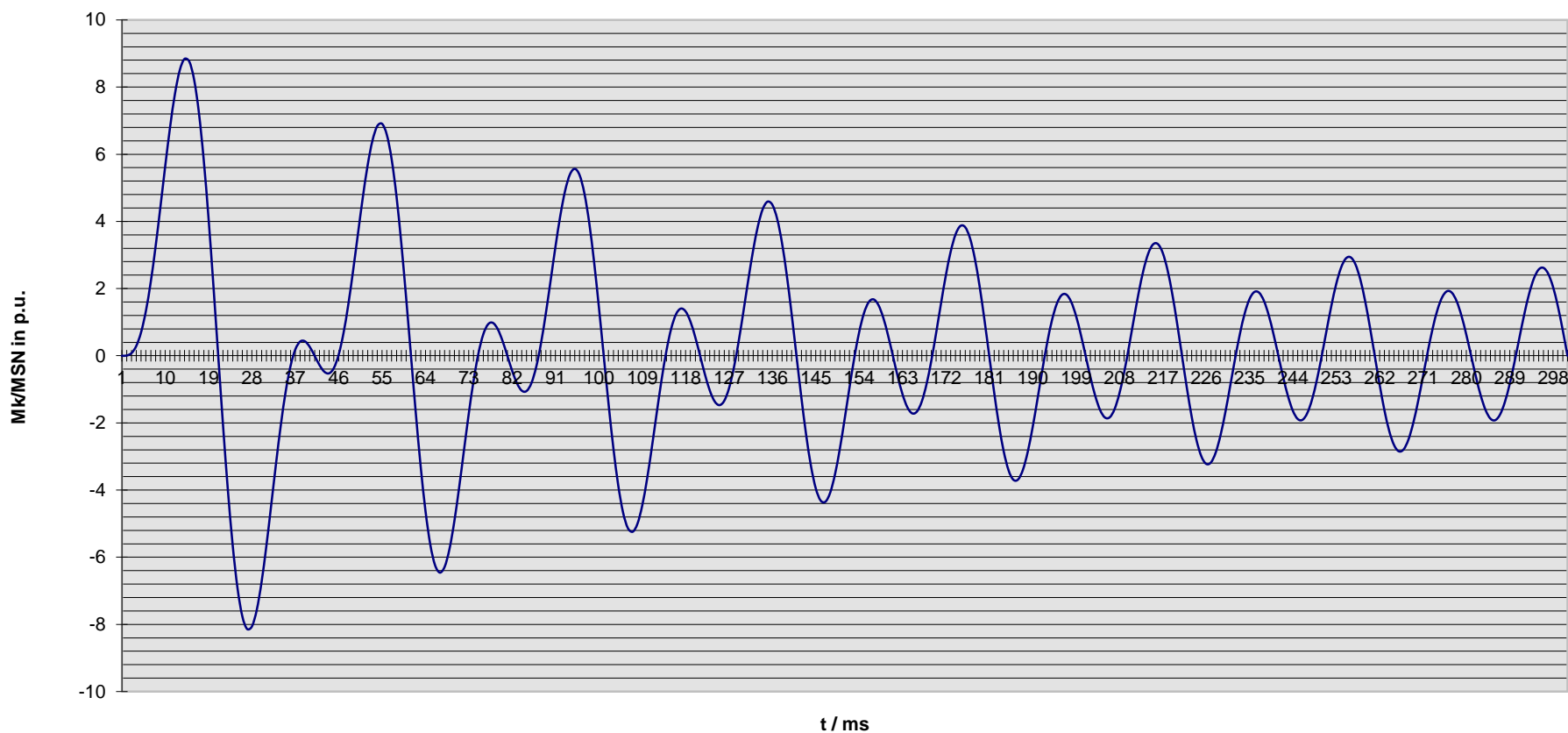


Technisches Datenblatt - Diagramme
Technical data sheet - Diagrams

ING-FCD-0112

Alternator :	DSG 114 L1/6			
Rated output [kVA]	5000	Rated power factor:	0.8	Rated voltage [kV]: 0.69
Rated frequency [Hz]	50	Rated speed [rpm]	1000	MSN related to kVA: 47.75 KNm

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



Nenndaten / nominal data

DSG 114 L1/6

Leistung S_N : **5000** kVA

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

Rating

p.f.

Spannung U_N : **0.69** kV

Strom I_N : **4184** A

Voltage

Current

Frequenz f : **50** Hz

Drehzahl n : **1,000** min⁻¹

Frequency

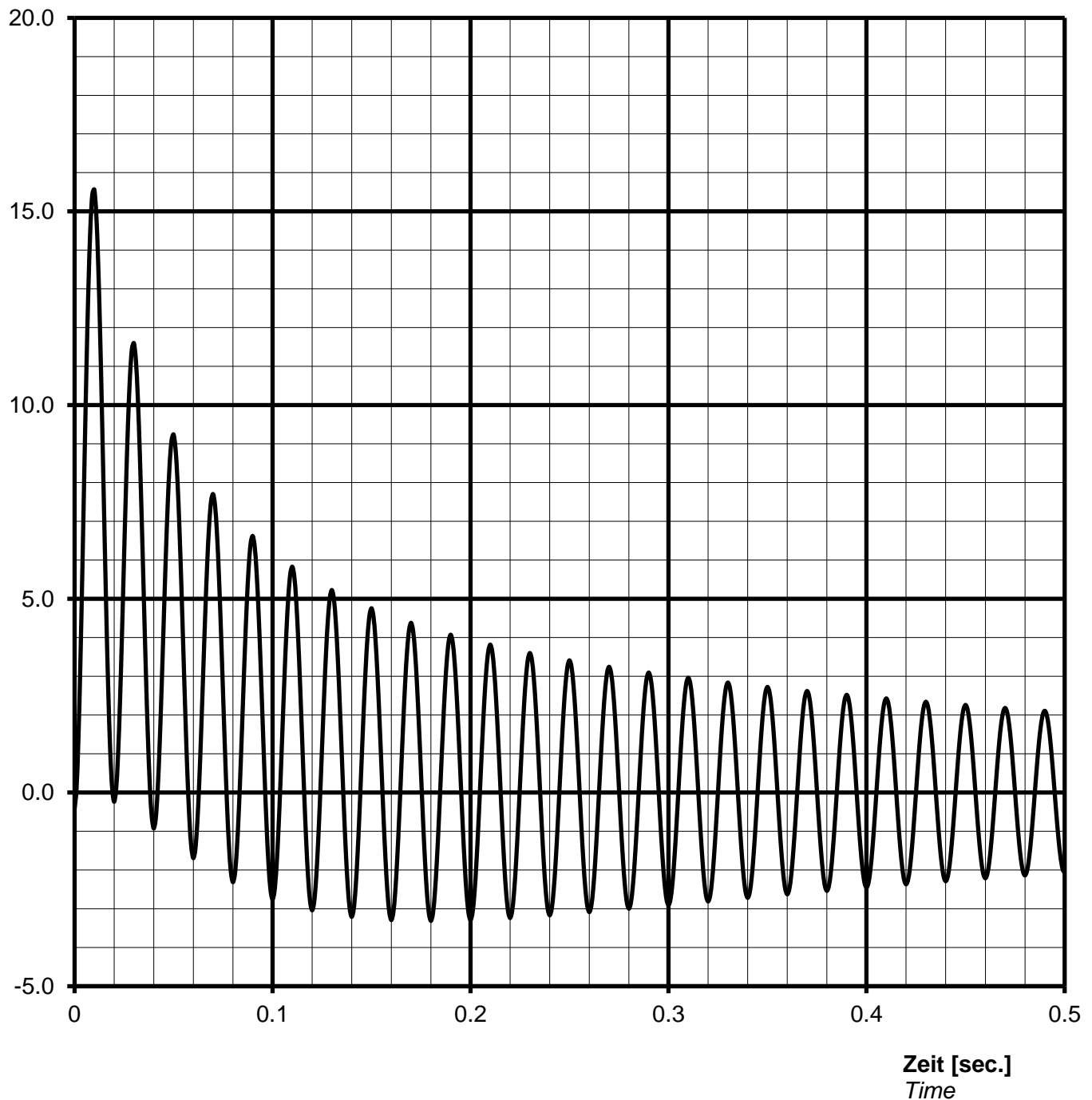
Speed

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 $I_{\text{speak}} =$ **65122 A** or **15.77 p.u.**

Nennwerten / nominal data

DSG 114 L1/6

Leistung S_N : **5000** kVA

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

Rating

p.f.

Spannung U_N : **0.69** kV

Strom I_N : **4184** A

Voltage

Current

Frequenz f: **50** Hz

Drehzahl n: **1000** min⁻¹

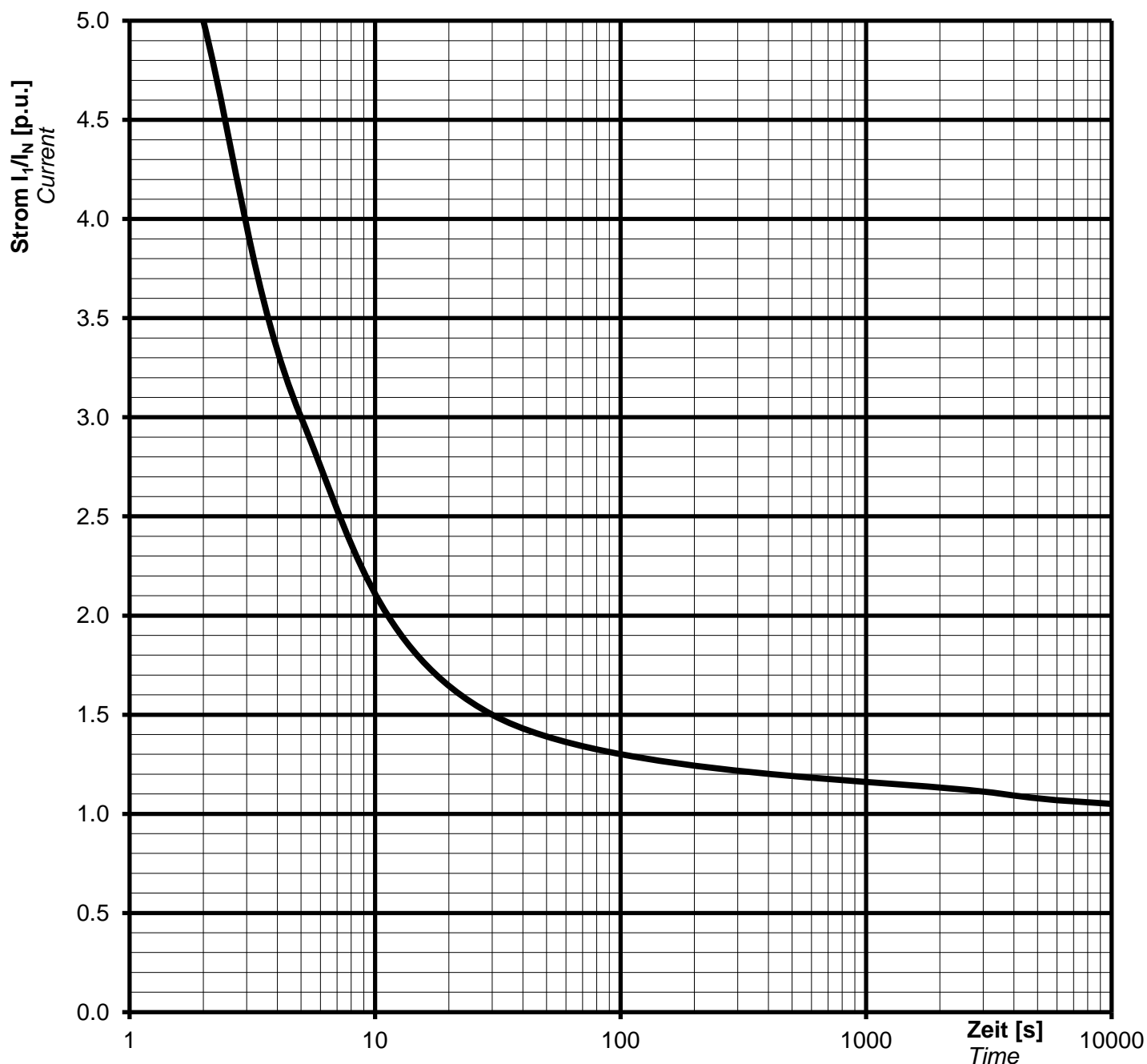
Frequency

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

Nennenden / nominal data

DSG 114 L1/6

Rating S_N : **5000 kVA**

p.f. **0.80**

Bemessungsleistung
Nominal voltage U_N : **0.69 kV**
Bemessungsspannung

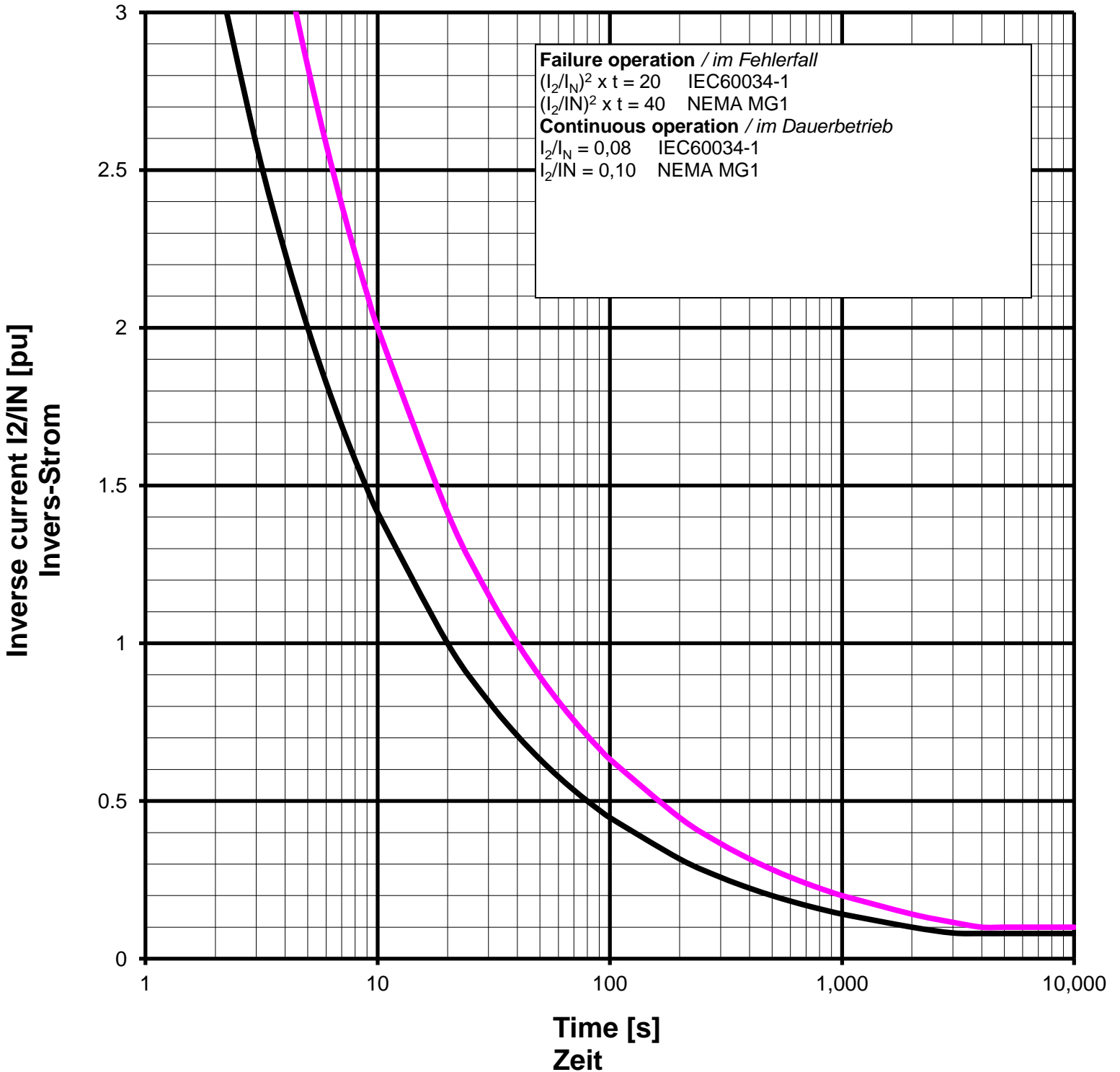
Leistungsfaktor $\cos \varphi$:
Nominal current I_N : **4184 A**
Bemessungsstrom

Frequency f_N : **50 Hz**
Frequenz

Speed n : **1000 min⁻¹**
Drehzahl

Protection: **IP23**
Schutzart

Inverse current or unbalanced negative sequence current



Remarks / Notizen:

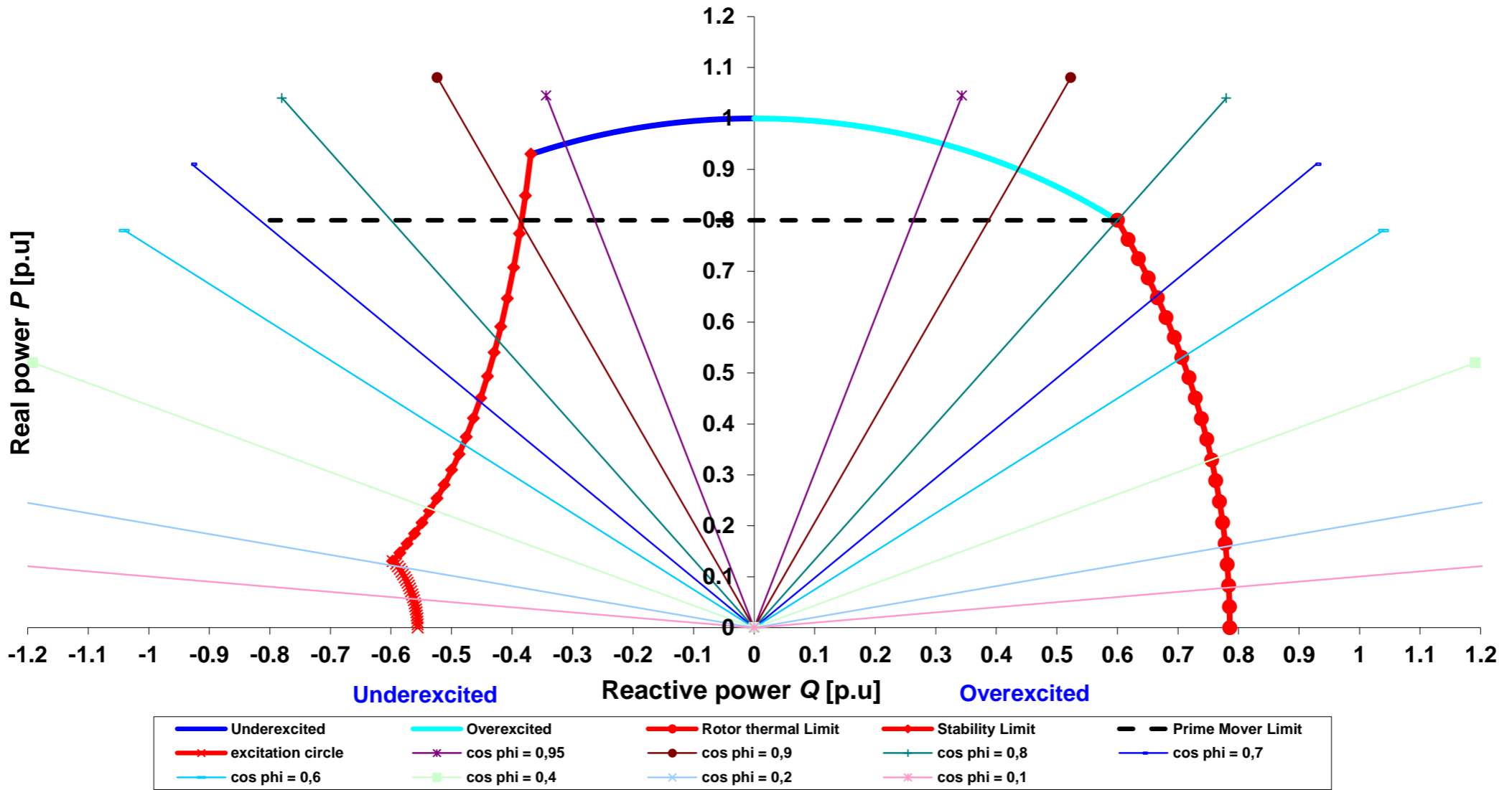
TYPE

DSG 114 L1/6

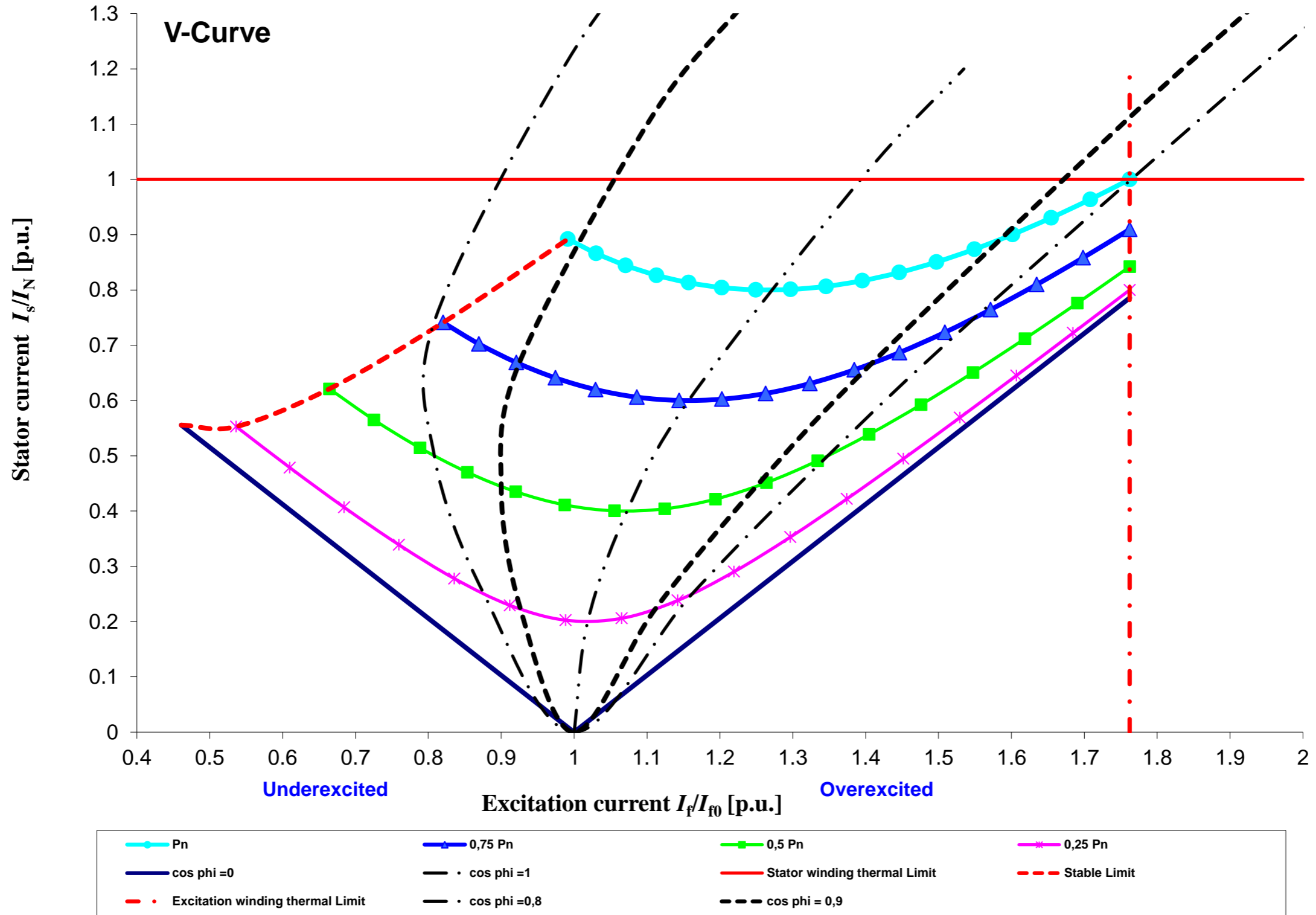
Projekt:

Order Nr.:

Capability (P-Q) Diagram



TYPE	DSG 114 L1/6	Projekt:		Order Nr.:	
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Cummins Generator Technologies	Datum / date:	
	21/01/2014	