



Technical Data Sheet for AvK-Alternators

FM 7.3-5

Date:	09/01/14	Customer:	GENERIC DATASHEET only
Project No.:		AvK Reference:	dig150n_8_50_10500_A048N014

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

Generator data:					
Generator:	DIG 150 n/8	Poles:	8	Standards: IEC 60034	
Rated power:	4000 kVA	3200 kWe	3316 kWm		
Power factor:	0.80				
Power at pf 1,0	3233 kVA	3233 kWe	3316 kWm		
Rated voltage:	10.5 kV				
Speed:	750 1/min				
Frequency:	50 Hz	Voltage range / frequency range:			
Rated current:	219.9 A	Zone A according IEC 60034-1 (dU = +/-5%, df = +/-2%)			
Winding pitch:	ca. 5/6				
Insulation class:	Stator: Class F	Rotor: Class F	Temperature rise:	F	
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.:	3.8 m³/s	Cooling water quantity:	n/a
Moment of inertia (I):	560 kgm²	Weight:	14700 Kg	Losses (environment):	116 KW
				Losses (cooling):	n/a

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

Electrical data: (acc. IEC)					
Efficiencies:	110%	100%	75%	50%	25%
Power factor 0.8	96,33	96,5	96,5	96,2	94,3
Power factor 0.9	96,85	97	96,9	96,45	94,5
Power factor 1.0	97,38	97,5	97,3	96,7	94,7

Reactances and time constants											
	unsaturated		saturated			unsaturated		saturated			
X _d	1.65	1.49	p.u.	X _q	0.83	0.81	p.u.	T _{d0'}	2.65 s	T _{d0''}	0.03 s
X _{d'}	0.270	0.270	p.u.	X _{q'}	0.83	0.81	p.u.	T _{d'}	0.43 s	T _{q0'}	0.4 s
X _{d''}	0.198	0.180	p.u.	X _{q''}	0.198	0.198	p.u.	T _{d''}	0.02 s	T _{q0''}	0.16768 s
X ₂	0.208	0.189	p.u.	X ₀	0.059	0.054	p.u.	T _a	0.085 s	T _{q'}	0.4 s
X _{1s}	n.a.	0.108	p.u.							T _{q''}	0.04 s
Short circuit ratio saturated: 0.67					Z _n 27.563 Ohm						

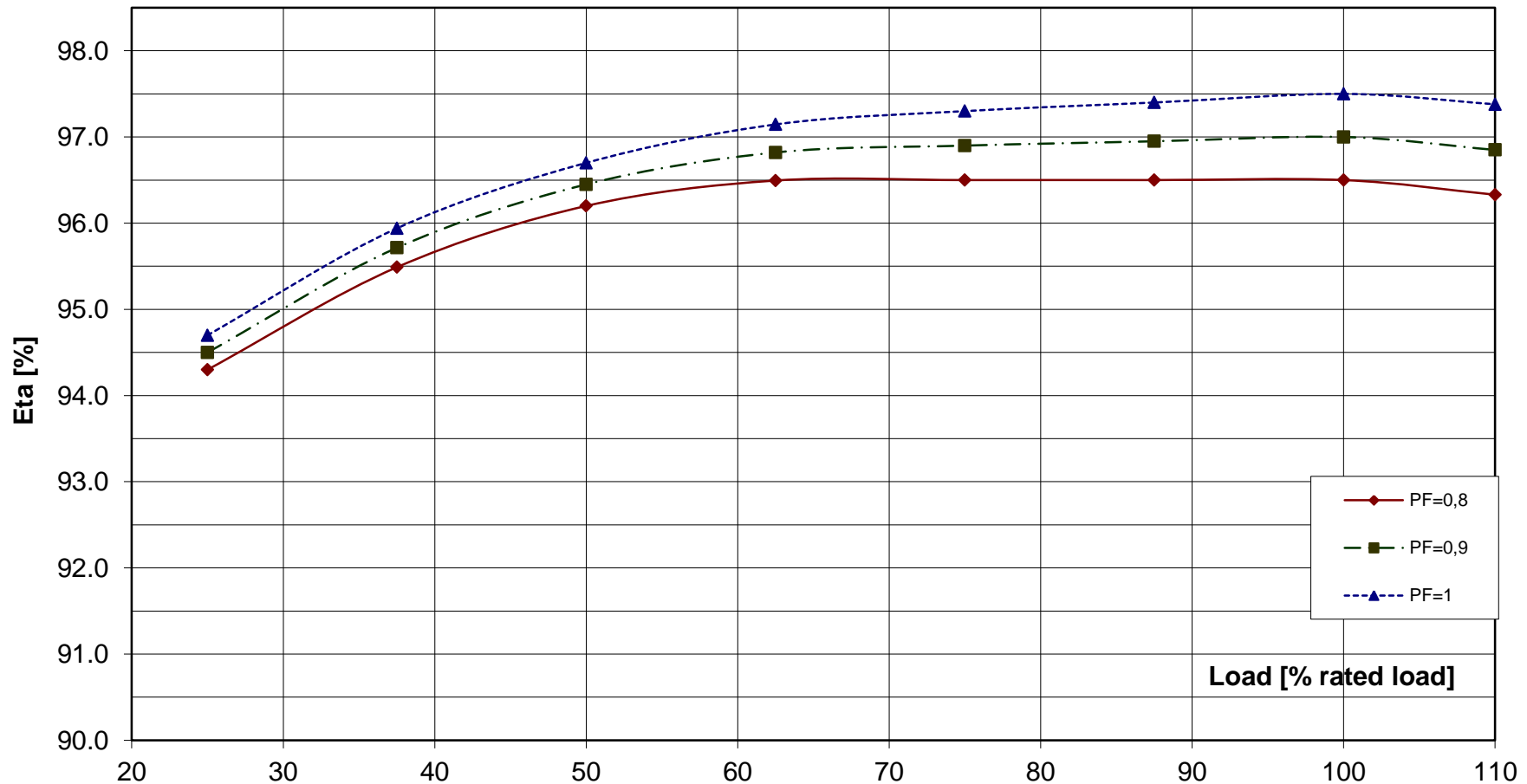
Short circuit data:		
Initial short circuit current (3-phase):	I _{k''}	1222 A
Max. peak current (3-phase):	I _s	3111 A
Sustained short circuit current:	I _k	660 A
Minimum 3 x rated current for max.10 s		
Initial short circuit torque:	M _{k2}	367.8 kNm
	M _{k3}	220.7 kNm
Max. faulty synchron moment:	M _f	790.8 kNm
Rated kVA torque:	M _{SN}	50.93 kNm
Rated torque	M _N	40.74 kNm
Shaft torque	M _{Sh}	42.22 kNm

Load application:	
max. load application: 2222 kVA (corresponds to 55,56 % from 4000 kVA) for Power factor 0.4 15% transient voltage drop	Power: 4000 kVA Power factor: 0.8 transient voltage drop: -21.3 %

Remarks:

Alternator :	DIG 150 n/8			
Rated output [kVA]	4000	Rated power factor:	0.8	Rated voltage [kV]: 10.5
Rated frequency [Hz]	50	Rated speed [rpm]	750	

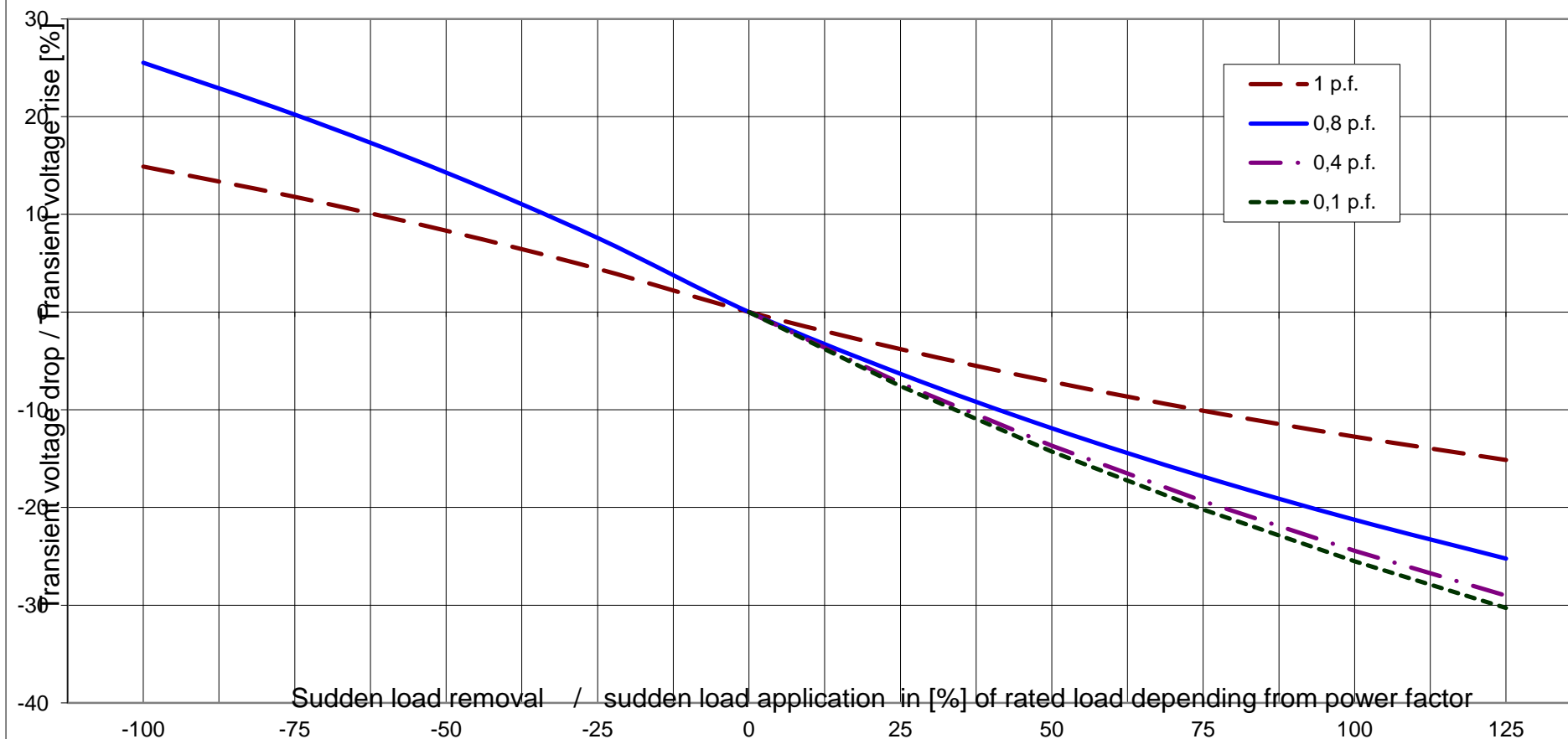
Wirkungsgrad-Kennlinie - Efficiency Curve



Alternator : DIG 150 n/8

Rated output [kVA]	4000	Rated power factor:	0.8	Rated voltage [kV]:	10.5
Rated frequency [Hz]	50	Rated speed [rpm]	750		

Transient Voltage rise or drop for sudden load removal or application

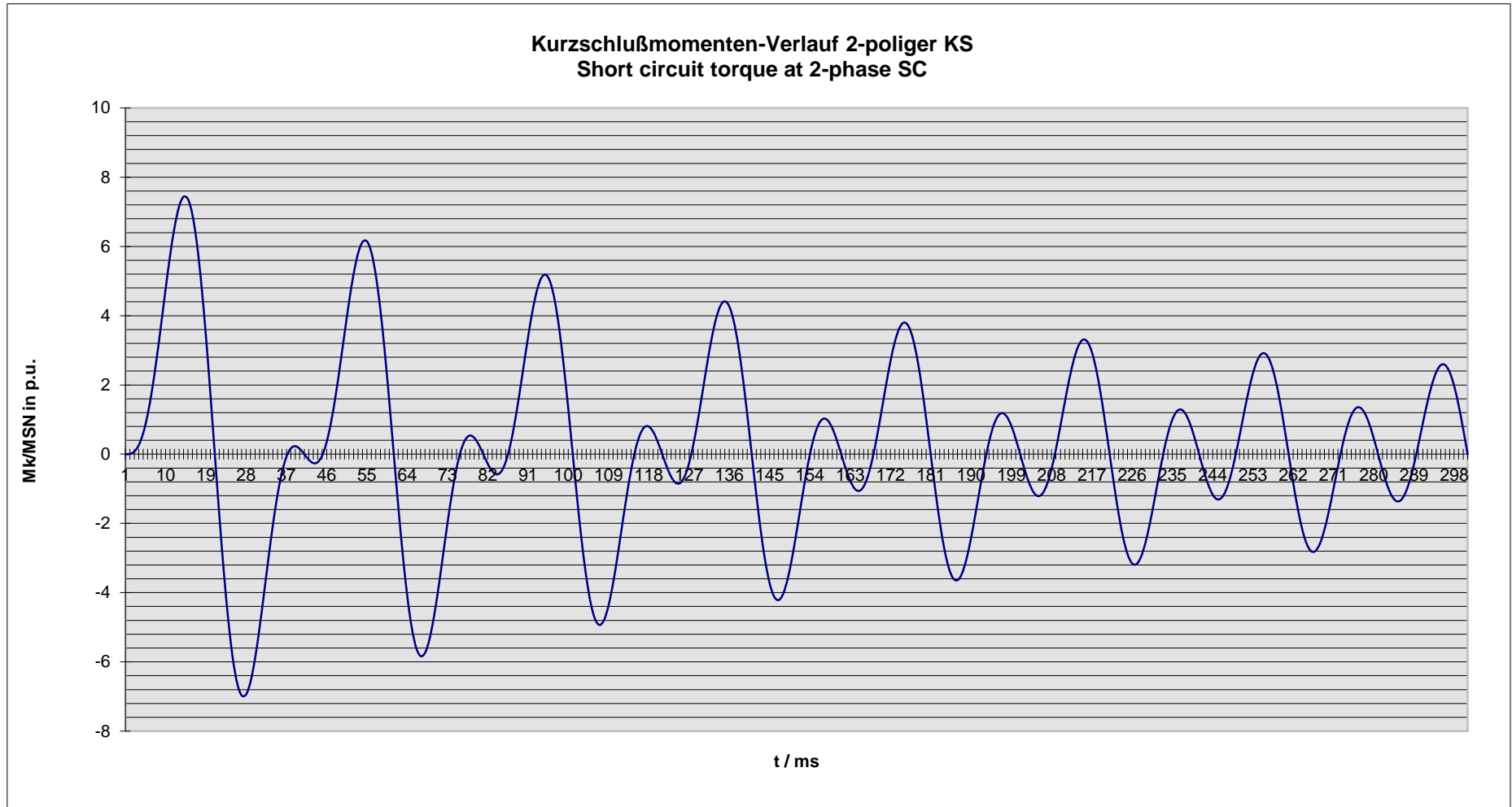




Technisches Datenblatt - Diagramme
Technical data sheet - Diagrams

ING-FCD-0112

Alternator :	DIG 150 n/8			
Rated output [kVA]	4000	Rated power factor:	0.8	Rated voltage [kV]: 10.5
Rated frequency [Hz]	50	Rated speed [rpm]	750	MSN related to kVA: 50.93 KNm



Nenndaten / nominal data

DIG 150 n/8

Leistung S_N : **4000 kVA**

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

Rating

p.f.

Spannung U_N : **10.50 kV**

Strom I_N : **220 A**

Voltage

Current

Frequenz f : **50 Hz**

Drehzahl n : **750 min⁻¹**

Frequency

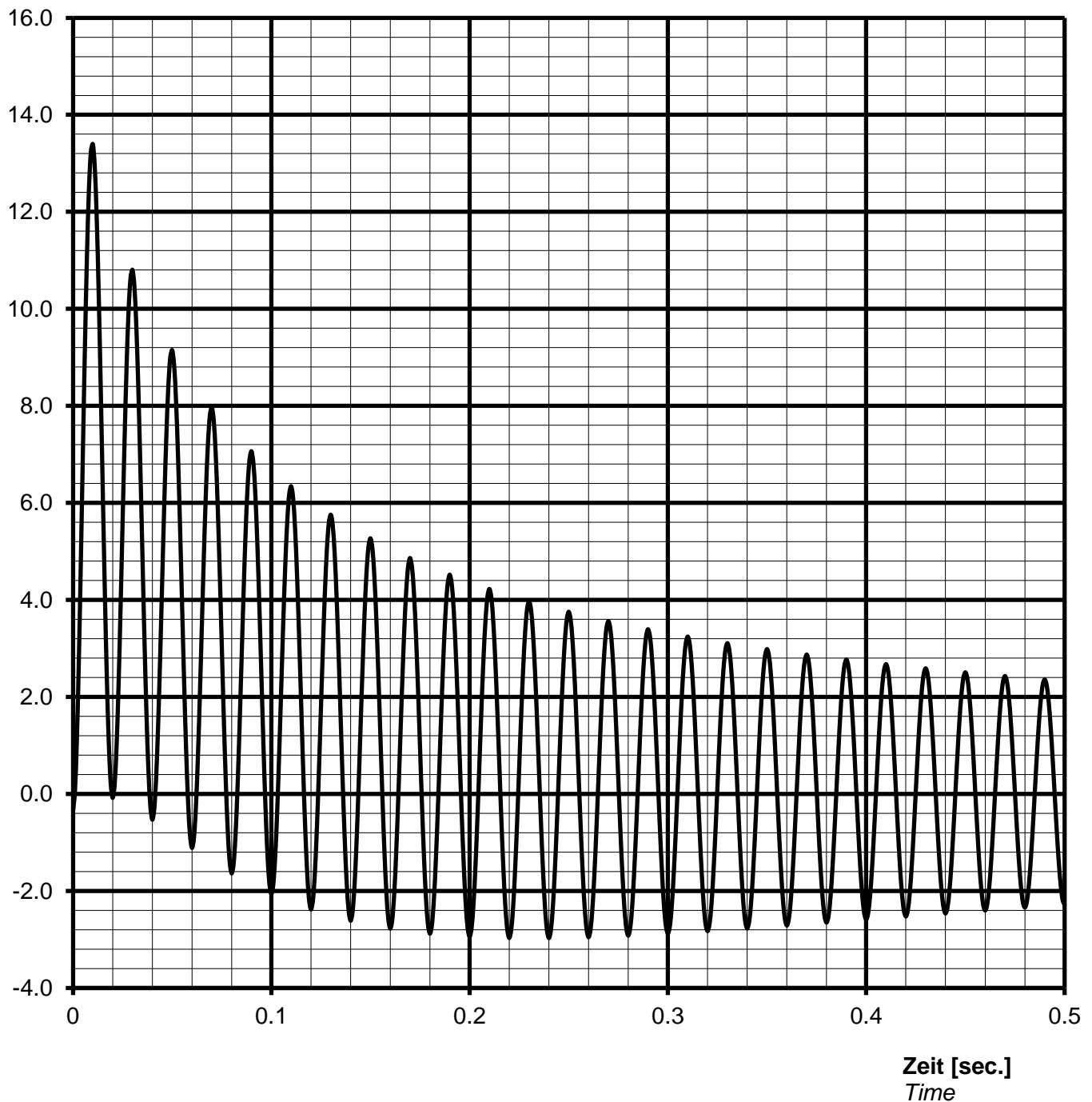
Speed

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 $I_{\text{peak}} =$ **2946 A** or **13.40 p.u.**

Nenn Daten / nominal data

DIG 150 n/8

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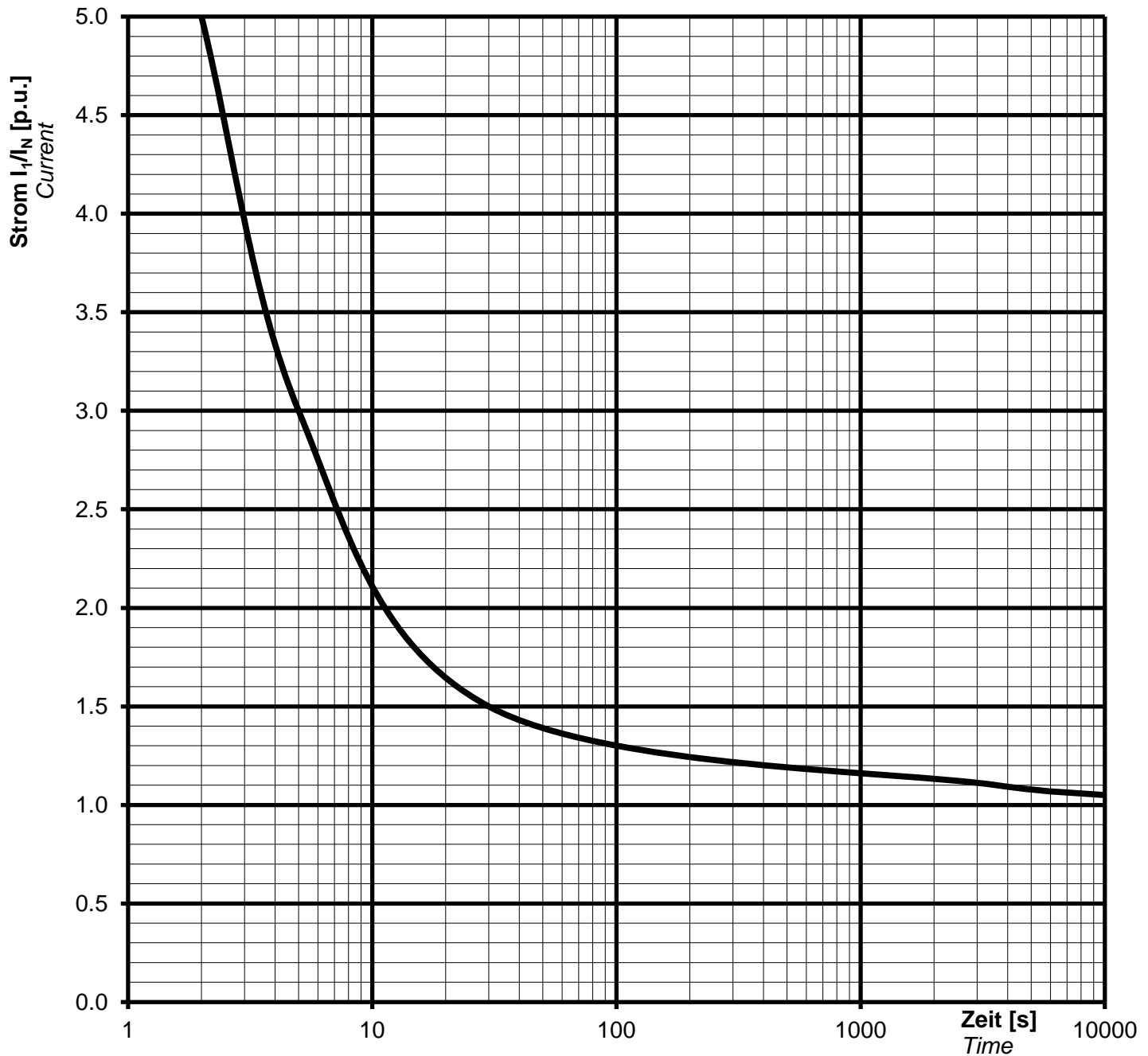
Frequency

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

Nennwerten / nominal data

DIG 150 n/8

Rating S_N : **4000 kVA**

p.f. **0.80**

Bemessungsleistung

Leistungsfaktor $\cos \varphi$:

Nominal voltage U_N : **10.50 kV**

Nominal current I_N : **220 A**

Bemessungsspannung

Bemessungsstrom

Frequency f_N : **50 Hz**

Speed n : **750 min⁻¹**

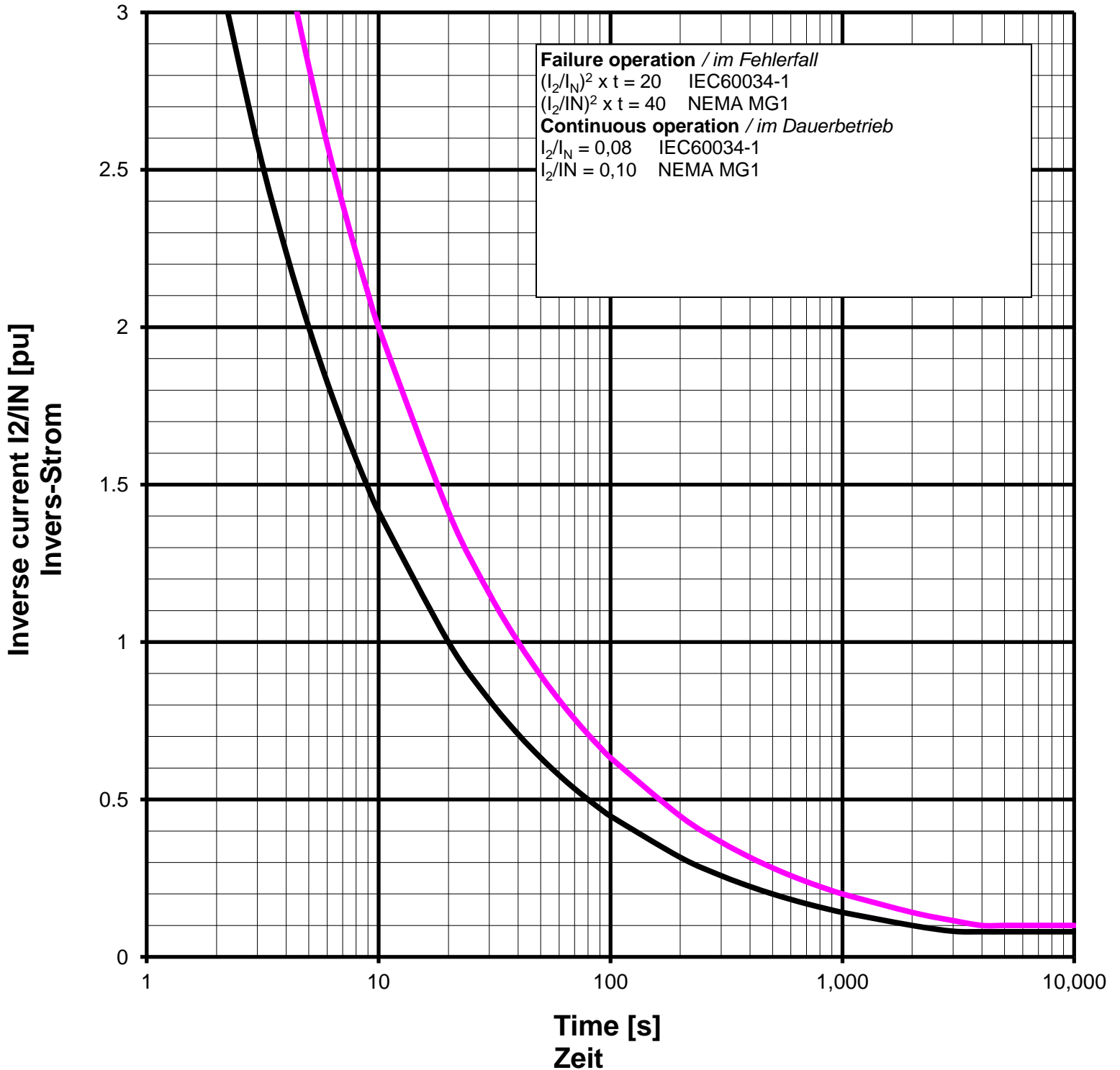
Frequenz

Drehzahl

Protection: **IP23**

Schutzart

Inverse current or unbalanced negative sequence current



Remarks / Notizen:

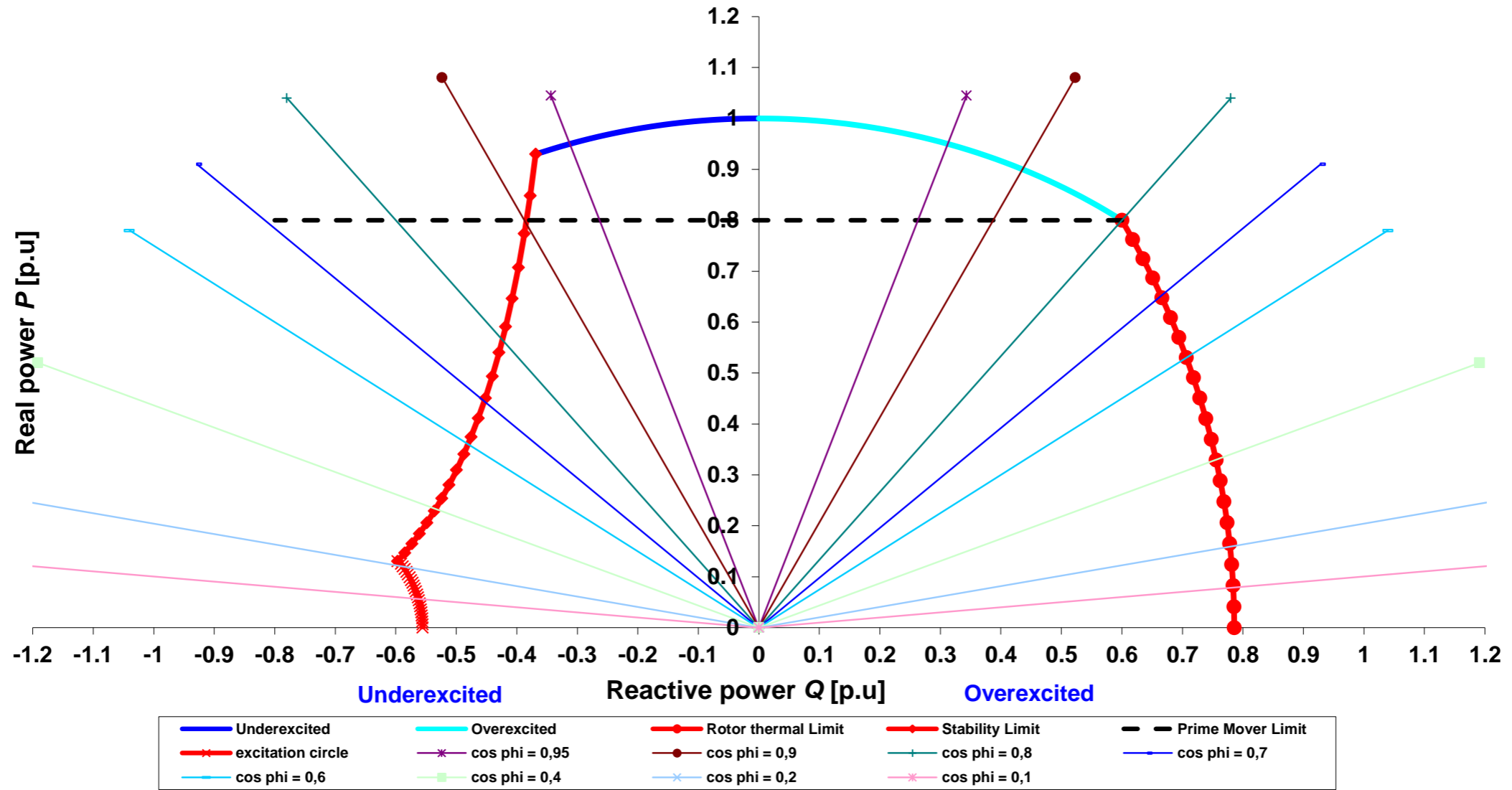
TYPE

DIG 150 n/8

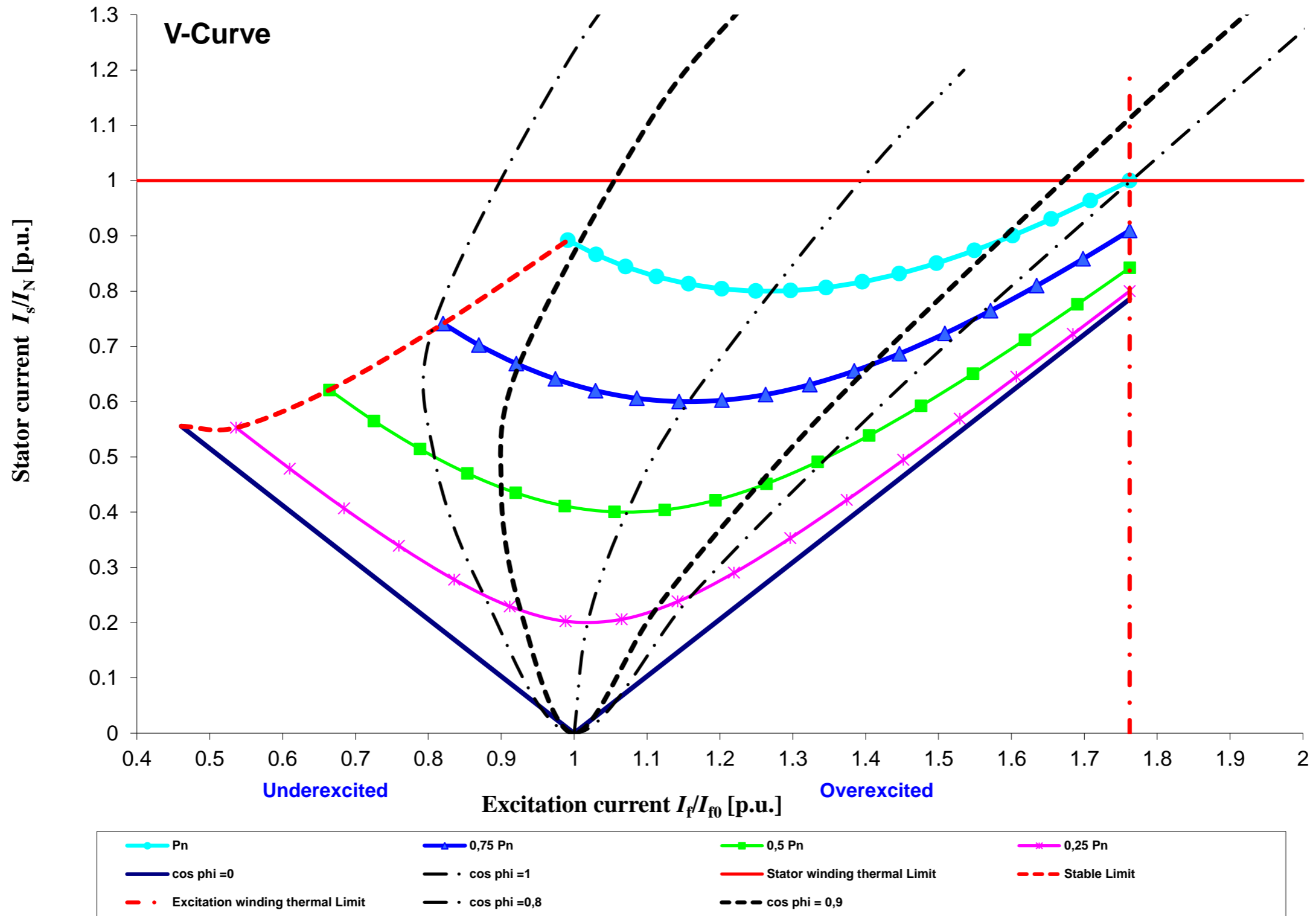
Projekt:

Order Nr.:

Capability (P-Q) Diagram



TYPE	DIG 150 n/8	Projekt:		Order Nr.:	
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Cummins Generator Technologies	Datum / date:	
	21/01/2014	