



Technical Data Sheet for AvK-Alternators

FM 7.3-5

Date:	09/10/13	Customer:	GENERIC DATASHEET only
Project No.:		AvK Reference:	dig130k_4_50_11000

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

Generator data:					
Generator:	DIG 130 k/4	Poles:	4	Standards: IEC 60034	
Rated power:	2800 kVA	2240 kWe	2324 kWm		
Power factor:	0.80				
Power at pf 1,0	2261 kVA	2261 kWe	2324 kWm		
Rated voltage:	11 kV				
Speed:	1500 1/min				
Frequency:	50 Hz	Voltage range / frequency range:			
Rated current:	147.0 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				
Enclosure:	IP23	Filter:			
Cooling:	IC 01 - Open-circuit ventilation				
Coolant:	Ambient Air	Temperature	40 ° C	Temperature Air inlet	40 ° C
		Coolant:		generator:	
		Cooling air vol.:	3.0 m³/s	Cooling water quantity:	n/a
Moment of inertia (I):	110 kgm²	Weight:	7500 Kg	Losses (environment):	84 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	96,22	96,4	96,4	96	94
Power factor 0.9	96,7	96,85	96,75	96,25	94,2
Power factor 1.0	97,17	97,3	97,1	96,5	94,4

Reactances and time constants											
	unsaturated		saturated			unsaturated		saturated			
X_d	2.35	2.12	p.u.	X_q	1.18	1.16	p.u.	$T_{d0'}$	3.2 s	$T_{d0''}$	0.02432 s
X_d'	0.287	0.287	p.u.	X_q'	1.18	1.16	p.u.	$T_{d'}$	0.39 s	$T_{q0'}$	0.3 s
X_d''	0.195	0.177	p.u.	X_q''	0.195	0.195	p.u.	$T_{d''}$	0.015 s	$T_{q0''}$	0.18154 s
X_2	0.205	0.186	p.u.	X_0	0.058	0.053	p.u.	T_a	0.07 s	$T_{q'}$	0.3 s
X_{1s}	n.a.	0.106	p.u.							$T_{q''}$	0.03 s
Short circuit ratio saturated: 0.47					Z_n 43.214 Ohm						

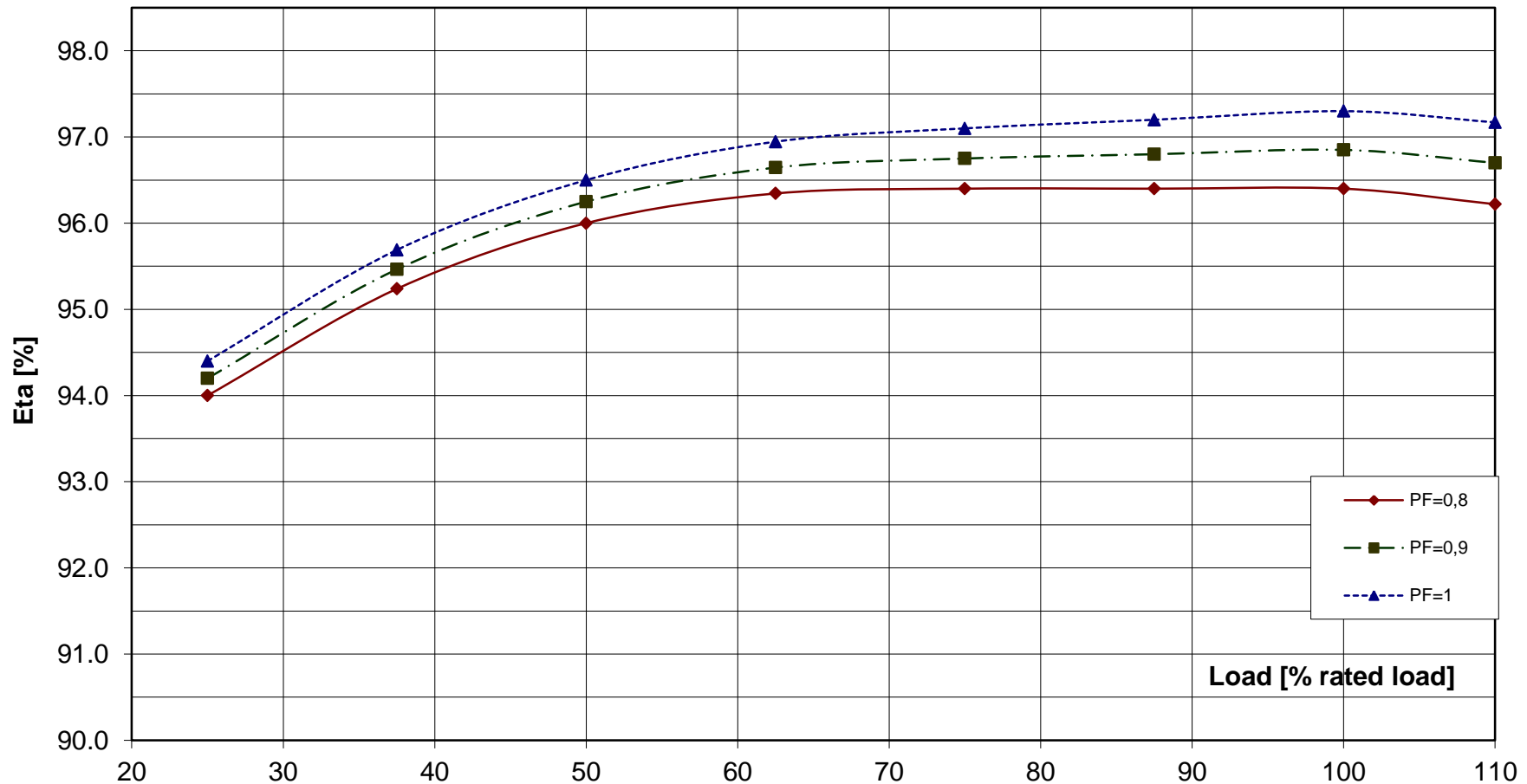
Short circuit data:		
Initial short circuit current (3-phase):	I_k''	830 A
Max. peak current (3-phase):	I_s	2113 A
Sustained short circuit current:	I_k	441 A
		Minimum 3 x rated current for max.10 s
Initial short circuit torque:	M_{k2}	130.9 kNm
	M_{k3}	78.5 kNm
Max. faulty synchron moment:	M_f	281.4 kNm
Rated kVA torque:	M_{SN}	17.83 kNm
Rated torque	M_N	14.26 kNm
Shaft torque	M_{Sh}	14.79 kNm

Load application:	
max. load application: 1463 kVA (corresponds to 52,26 % from 2800 kVA) for Power factor 0.4 15% transient voltage drop	Power: 2800 kVA Power factor: 0.8 transient voltage drop: -22.3 %

Remarks:

Alternator :	DIG 130 k/4			
Rated output [kVA]	2800	Rated power factor:	0.8	Rated voltage [kV]: 11
Rated frequency [Hz]	50	Rated speed [rpm]	1500	

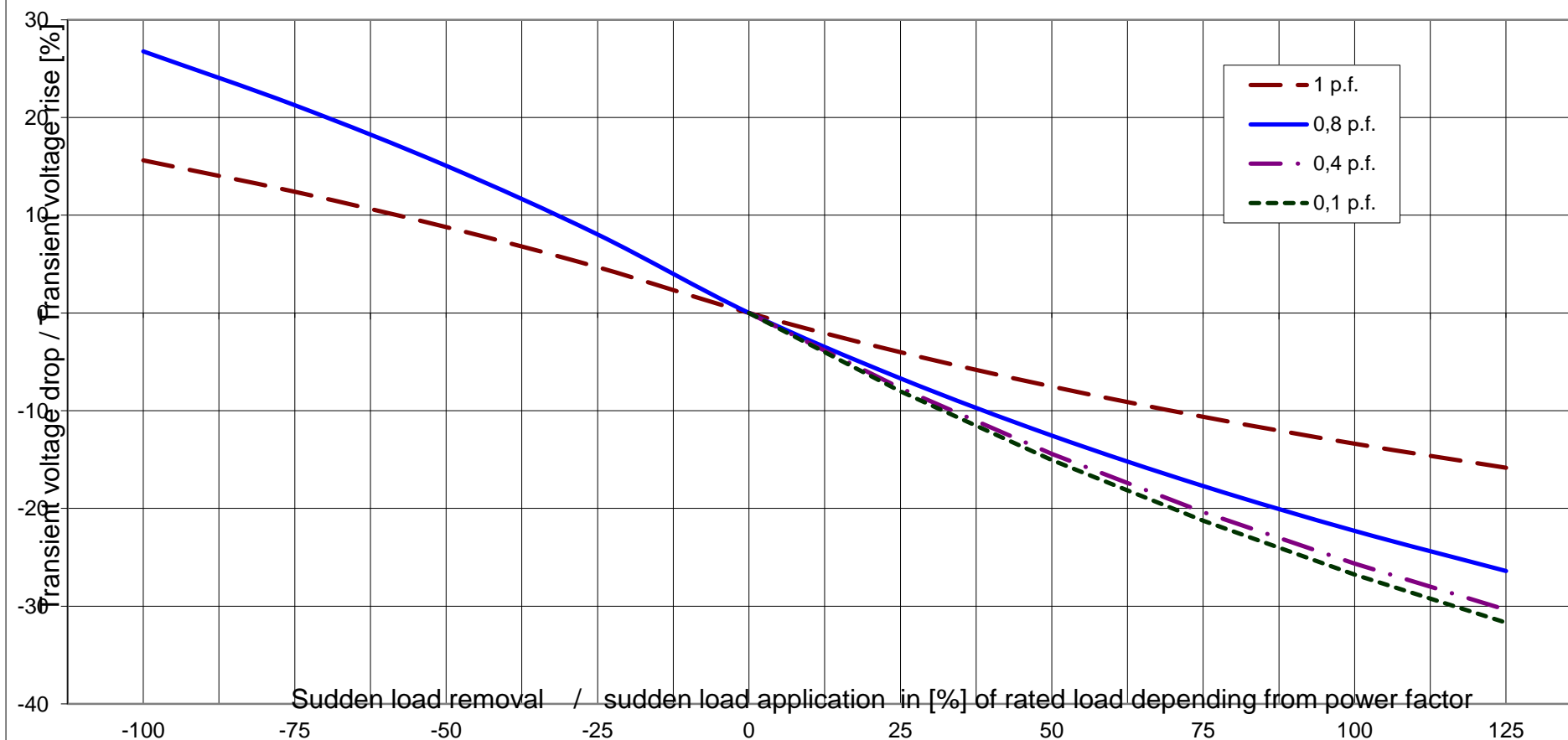
Wirkungsgrad-Kennlinie - Efficiency Curve



Alternator : DIG 130 k/4

Rated output [kVA]	2800	Rated power factor:	0.8	Rated voltage [kV]:	11
Rated frequency [Hz]	50	Rated speed [rpm]	1500		

Transient Voltage rise or drop for sudden load removal or application





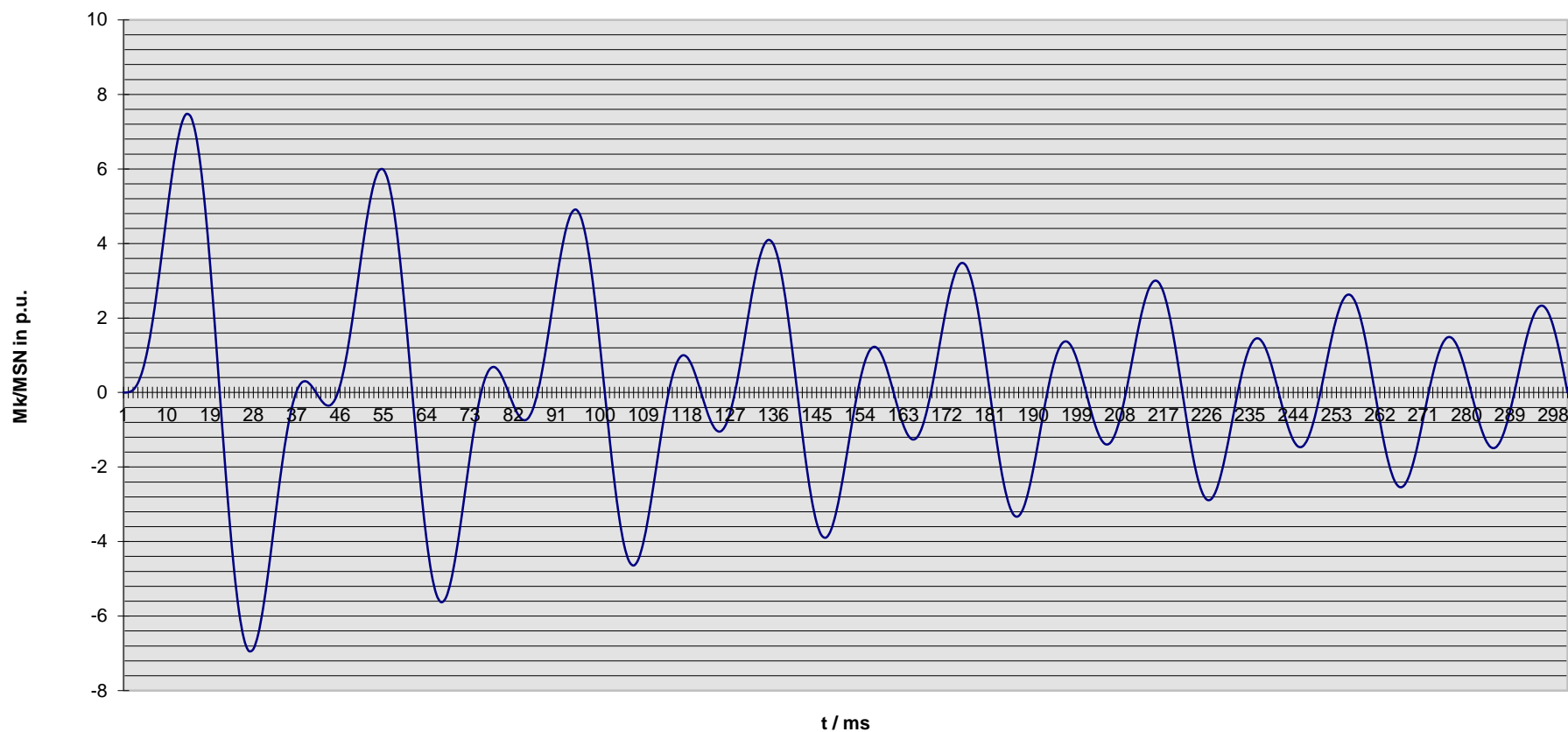
Technisches Datenblatt - Diagramme
Technical data sheet - Diagrams

ING-FCD-0112

Alternator : **DIG 130 k/4**

Rated output [kVA]	2800	Rated power factor:	0.8	Rated voltage [kV]:	11
Rated frequency [Hz]	50	Rated speed [rpm]	1500	MSN related to kVA:	17.83 KNm

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



Nenndaten / nominal data

DIG 130 k/4

Leistung S_N : **2800 kVA**

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

Rating

p.f.

Spannung U_N : **11.00 kV**

Strom I_N : **147 A**

Voltage

Current

Frequenz f : **50 Hz**

Drehzahl n : **1,500 min⁻¹**

Frequency

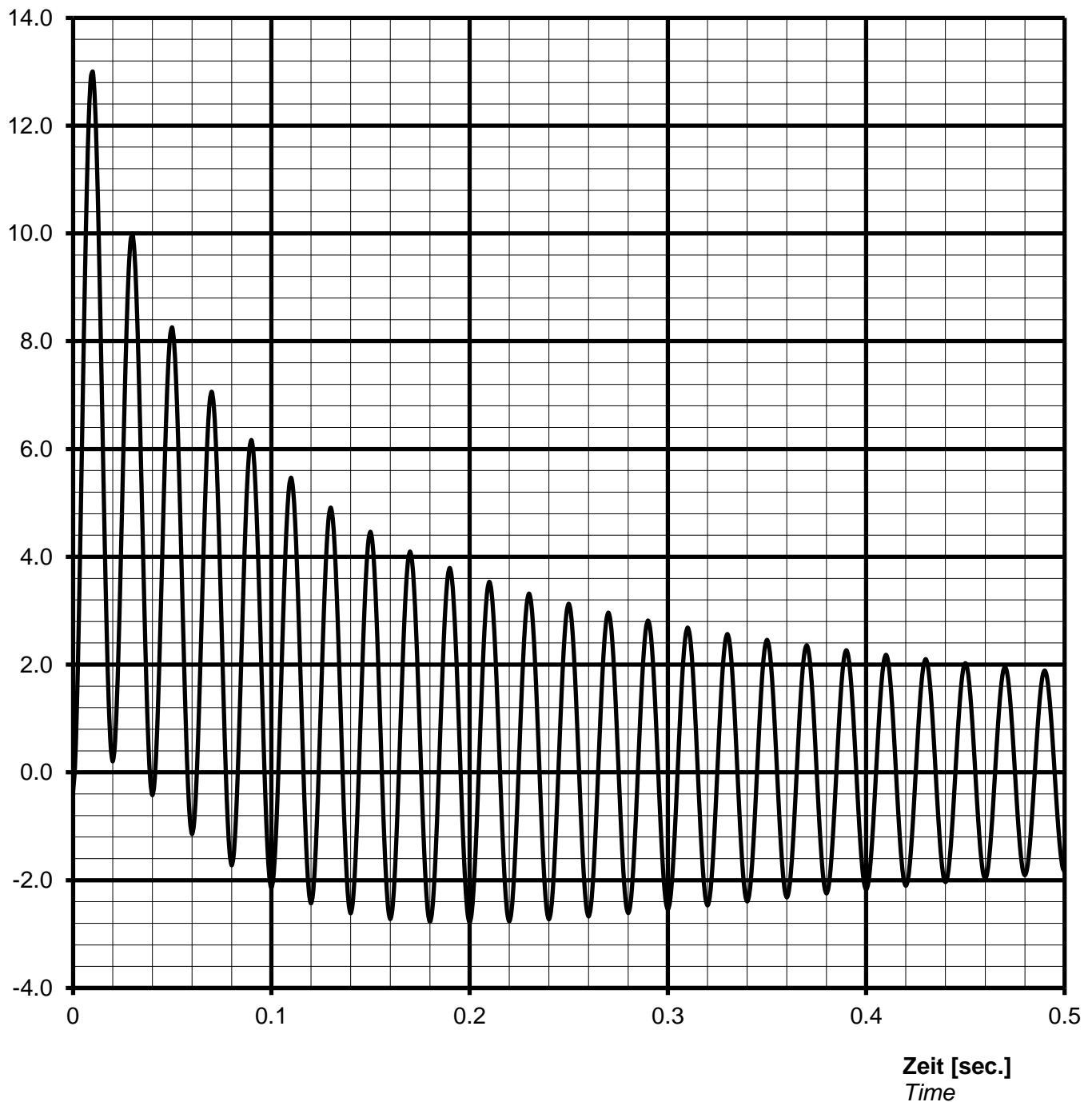
Speed

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 $I_{\text{speak}} = 1910 \text{ A}$ or 13.00 p.u.

Nennwerten / nominal data

DIG 130 k/4

Leistung S_N : **2800** kVA

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

Rating

p.f.

Spannung U_N : **11.00** kV

Strom I_N : **147** 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

Nennenden / nominal data

DIG 130 k/4

Rating S_N : **2800 kVA**

p.f. **0.80**

Bemessungsleistung

Leistungsfaktor $\cos \varphi$:

Nominal voltage U_N : **11.00 kV**

Nominal current I_N : **147 A**

Bemessungsspannung

Bemessungsstrom

Frequency f_N : **50 Hz**

Speed n : **1500 min⁻¹**

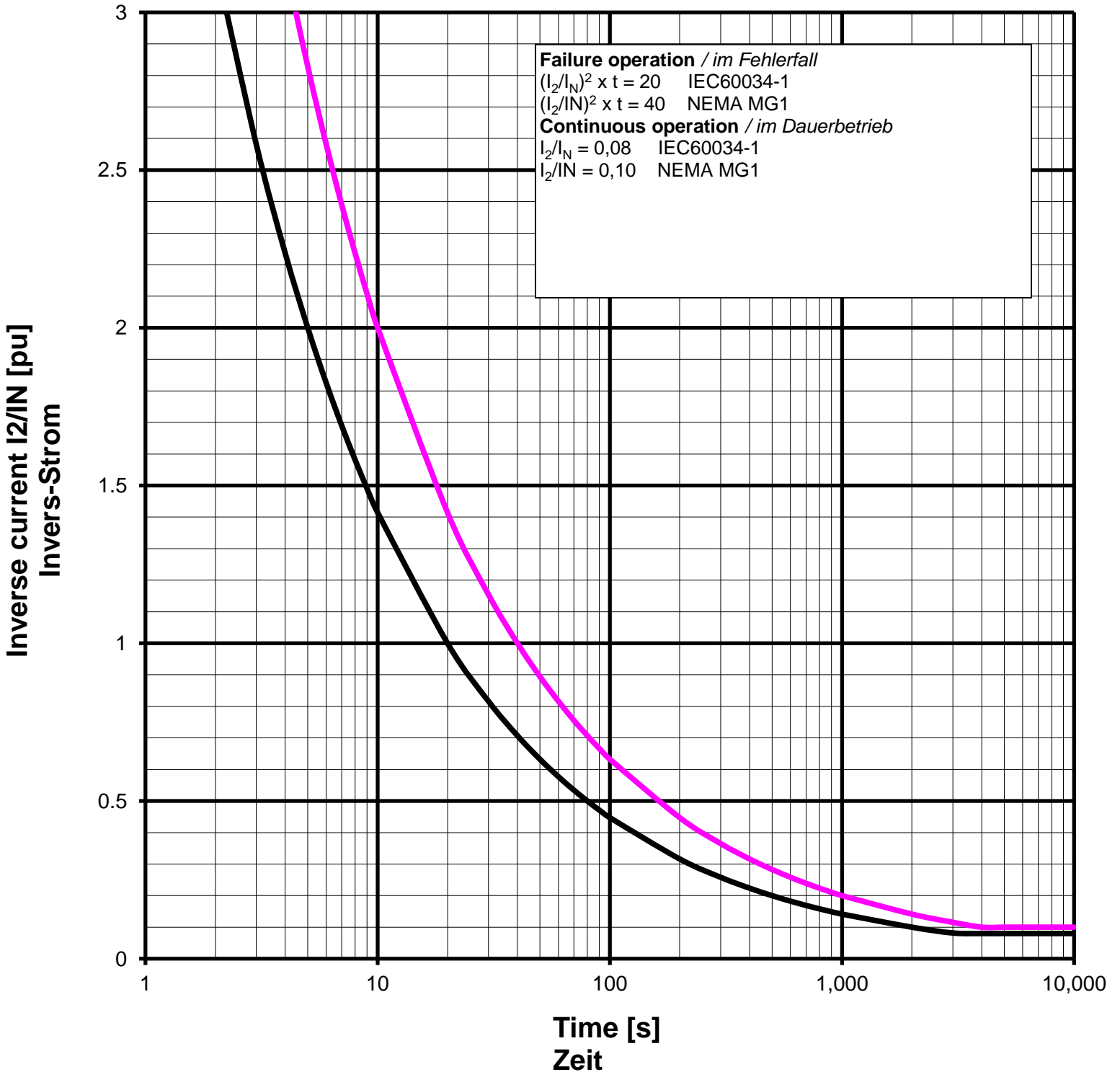
Frequenz

Drehzahl

Protection: **IP23**

Schutzart

Inverse current or unbalanced negative sequence current



Remarks / Notizen:



Technische Daten selbstregelnden Drehstrom-Synchrongenerator
technical data for self regulating three phase alternator

ING-FCD-0112

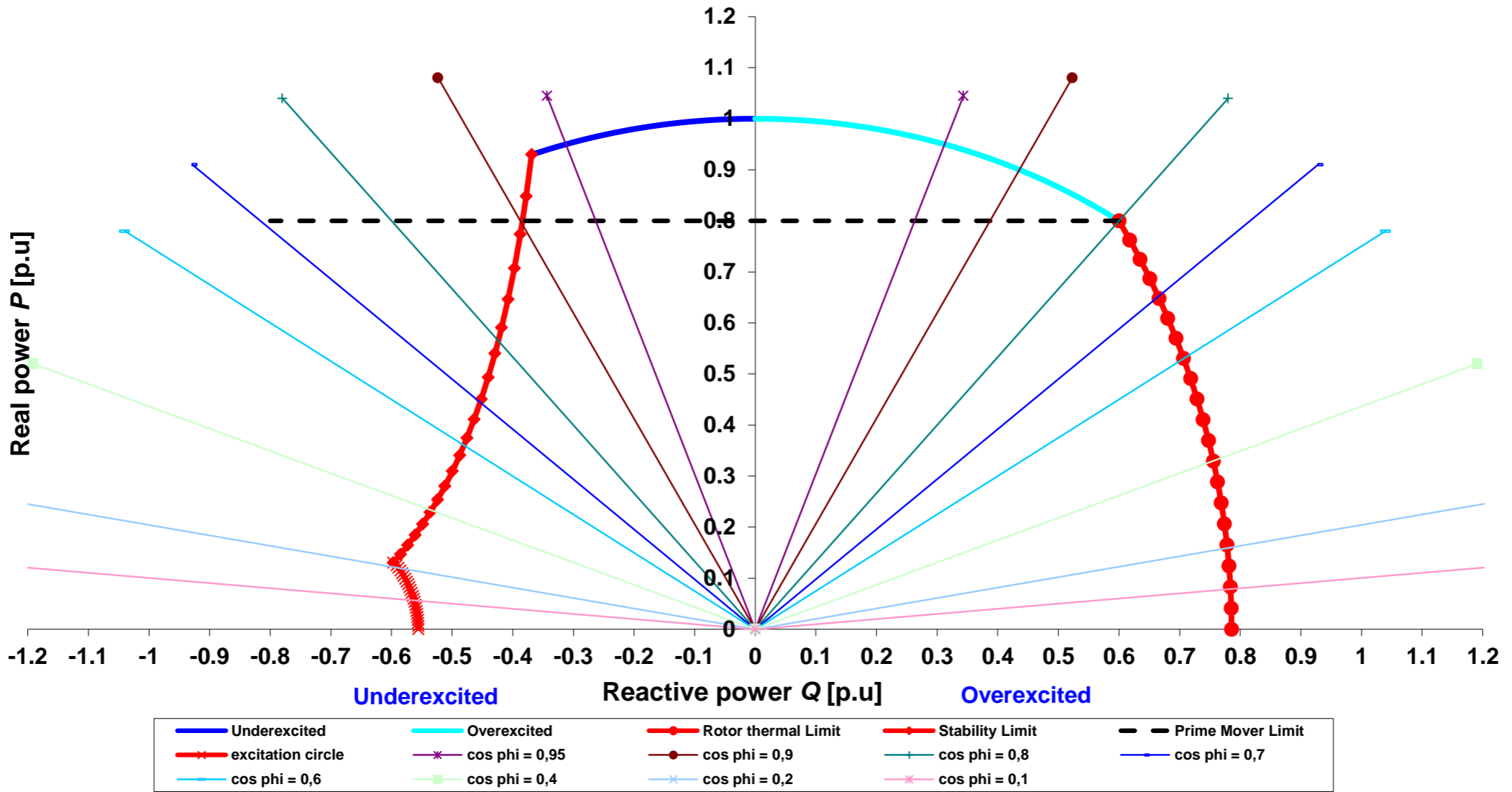
TYPE

DIG 130 k/4

Projekt:

Order Nr.:

Capability (P-Q) Diagram

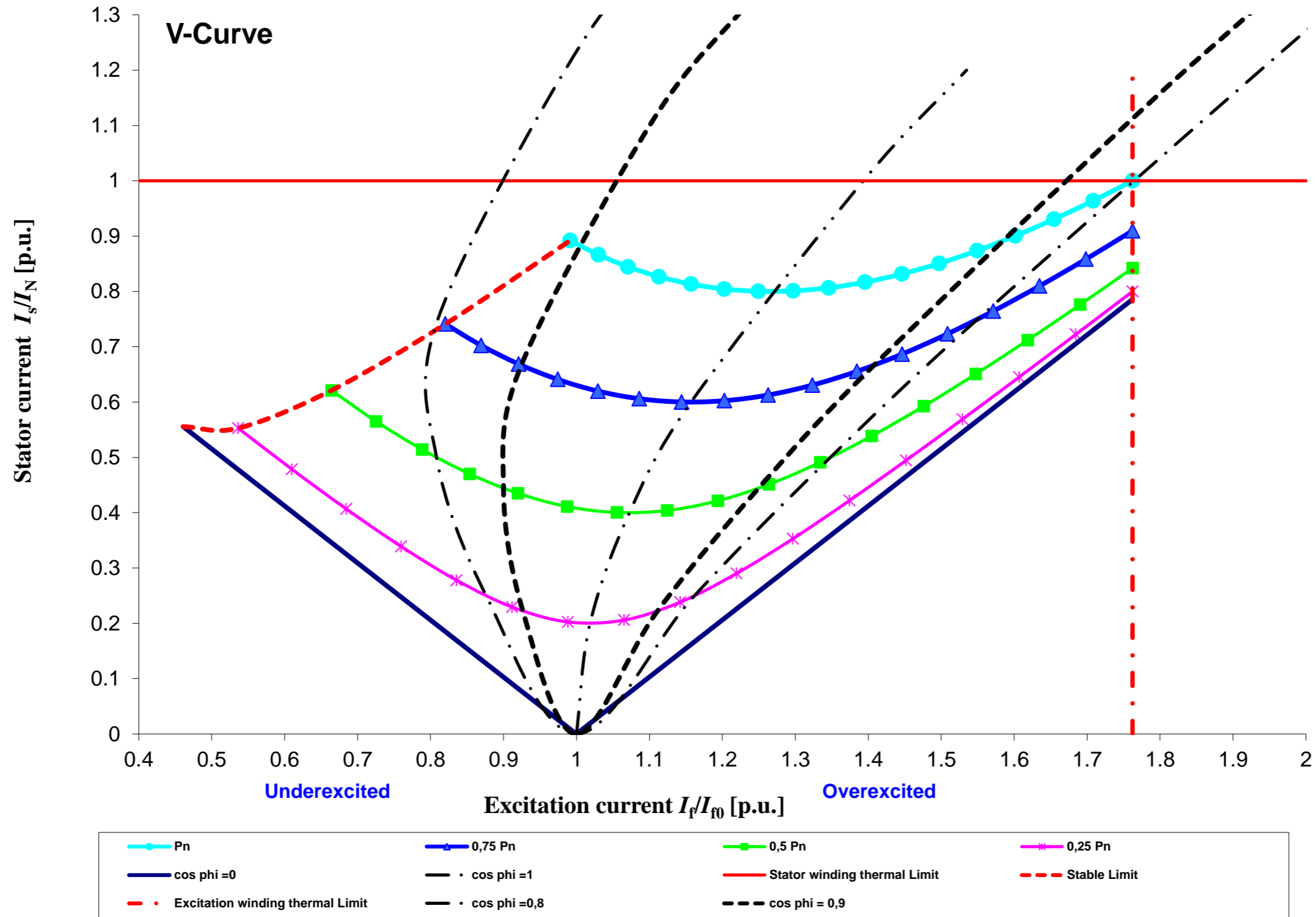


Cummins Generator Technologies

Datum / date:

11/10/2013

TYPE	DIG 130 k/4	Projekt:		Order Nr.:	
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Cummins Generator Technologies	Datum / date:	
	11/10/2013	