



Technical Data Sheet for AvK-Alternators

FM 7.3-5

Date:	09/10/13	Customer:	GENERIC DATASHEET only
Project No.:		AvK Reference:	dig130k_4_60_6600

Object data:

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

Generator data:

Generator:	DIG 130 k/4	Poles:	4	Standards:	IEC 60034
Rated power:	3450 kVA	2760 kWe	2857 kWm		
Power factor:	0.80				
Power at pf 1,0	2783 kVA	2783 kWe	2857 kWm		
Rated voltage:	6.6 kV				
Speed:	1800 1/min				
Frequency:	60 Hz			Voltage range / frequency range:	
Rated current:	301.8 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.:	3.6 m³/s	Cooling water quantity:	n/a
Moment of inertia (I):	110 kgm²	Weight:	7500 Kg	Losses (environment):	97 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	96,43	96,6	96,4	95,7	93,2
Power factor 0.9	96,85	97	96,7	95,9	93,3
Power factor 1.0	97,27	97,4	97	96,1	93,4

Reactances and time constants

	unsaturated	saturated		unsaturated	saturated				
X_d	2.40	2.16 p.u.	X_q	1.20	1.18 p.u.	$T_{d0'}$	3.2 s	$T_{d0''}$	0.0246 s
X_d'	0.287	0.287 p.u.	X_q'	1.20	1.18 p.u.	$T_{d'}$	0.40 s	$T_{q0'}$	0.3 s
X_d''	0.193	0.175 p.u.	X_q''	0.193	0.193 p.u.	$T_{d''}$	0.015 s	$T_{q0''}$	0.18653 s
X_2	0.202	0.184 p.u.	X_0	0.058	0.053 p.u.	T_a	0.08 s	$T_{q'}$	0.3 s
X_{1s}	n.a.	0.105 p.u.						$T_{q''}$	0.03 s
Short circuit ratio saturated:	0.46		Z_n	12.626	Ohm				

Short circuit data:

Initial short circuit current (3-phase):	I_k''	1725 A	
Max. peak current (3-phase):	I_s	4391 A	
Sustained short circuit current:	I_k	905 A	Minimum 3 x rated current for max.10 s
Initial short circuit torque:	M_{k2}	136.0 kNm	
	M_{k3}	81.6 kNm	
Max. faulty synchron moment:	M_f	292.4 kNm	
Rated kVA torque:	M_{SN}	18.30 kNm	
Rated torque	M_N	14.64 kNm	
Shaft torque	M_{Sh}	15.16 kNm	

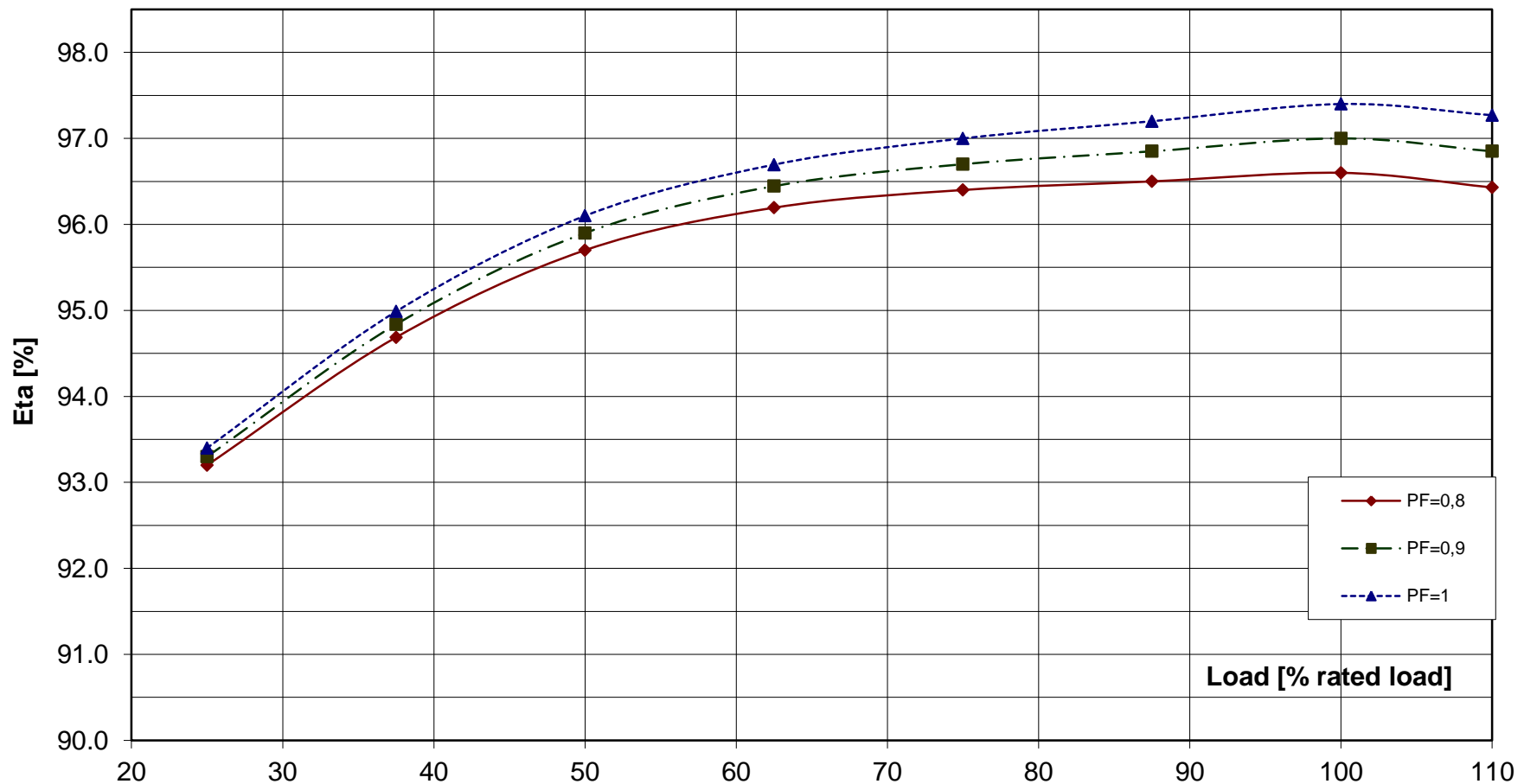
Load application:

max. load application: 1803 kVA (corresponds to 52,26 % from 3450 kVA) for Power factor 0.4 15% transient voltage drop	Power: 3450 kVA Power factor: 0.8 transient voltage drop: -22.3 %
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Remarks:

Alternator :	DIG 130 k/4			
Rated output [kVA]	3450	Rated power factor:	0.8	Rated voltage [kV]: 6.6
Rated frequency [Hz]	60	Rated speed [rpm]	1800	

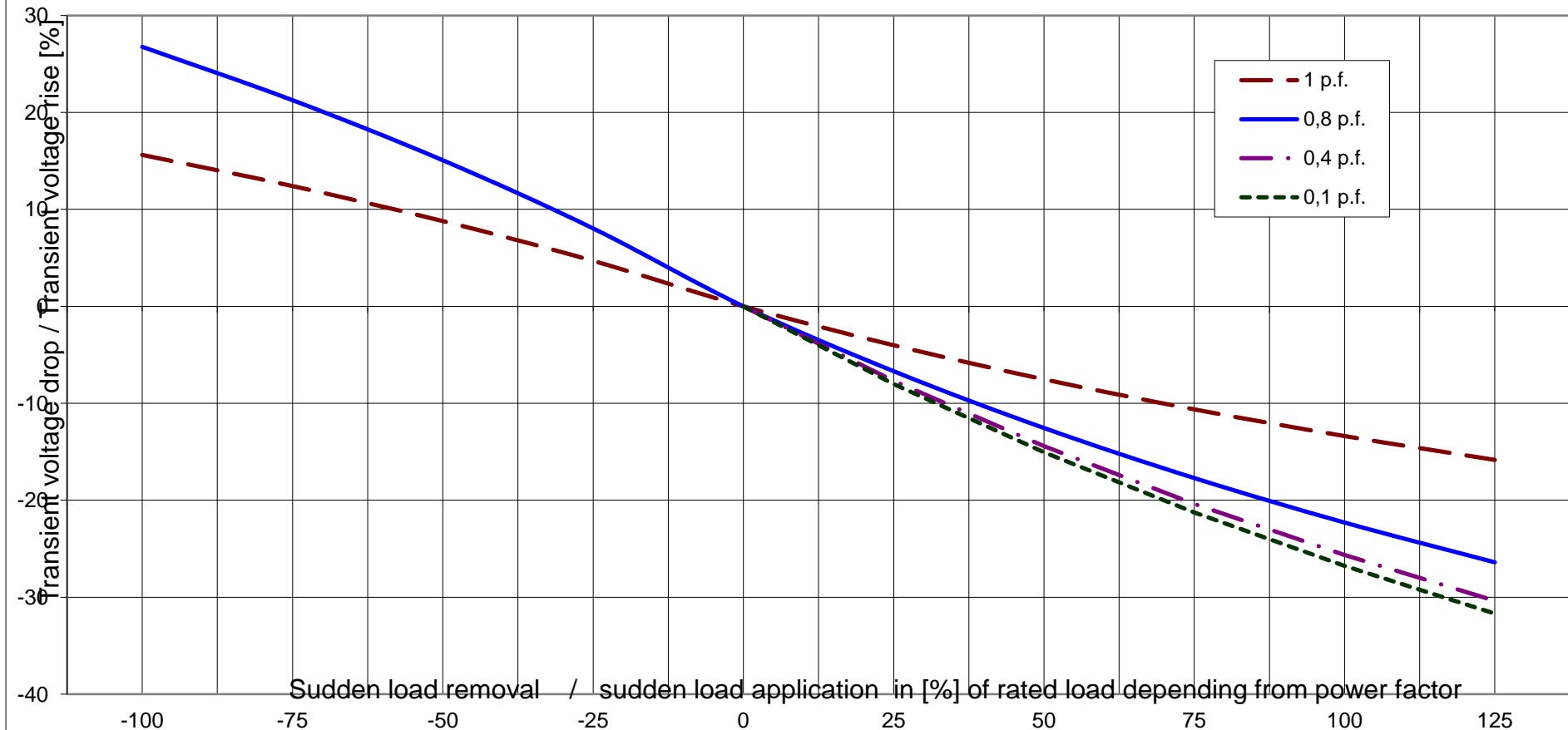
Wirkungsgrad-Kennlinie - Efficiency Curve



Alternator : DIG 130 k/4

Rated output [kVA]	3450	Rated power factor:	0.8	Rated voltage [kV]:	6.6
Rated frequency [Hz]	60	Rated speed [rpm]	1800		

Transient Voltage rise or drop for sudden load removal or application



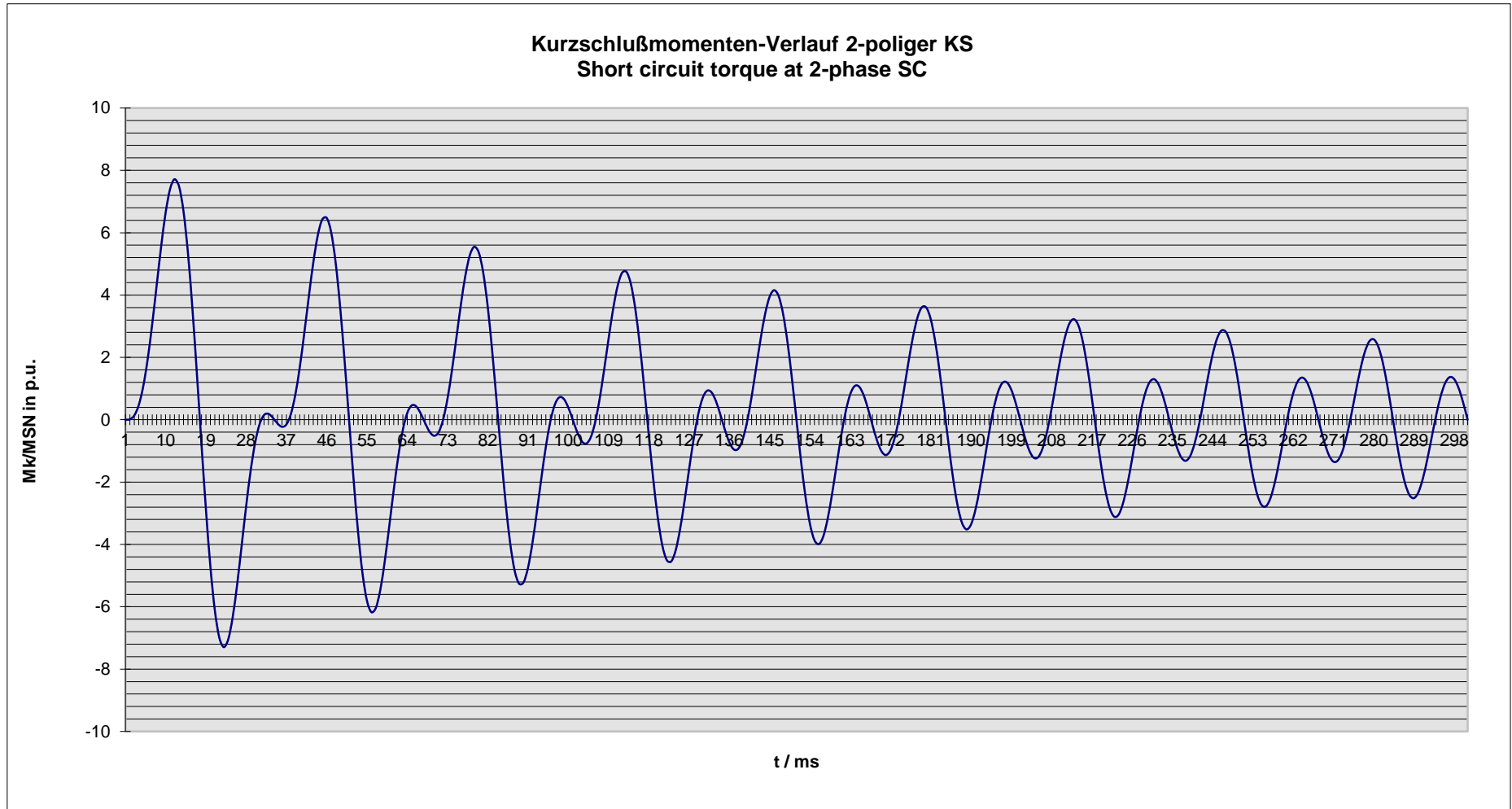


Technisches Datenblatt - Diagramme
Technical data sheet - Diagrams

ING-FCD-0112

Alternator :	DIG 130 k/4			
Rated output [kVA]	3450	Rated power factor:	0.8	Rated voltage [kV]: 6.6
Rated frequency [Hz]	60	Rated speed [rpm]	1800	MSN related to kVA: 18.3 KNm

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



Nenn Daten / nominal data

DIG 130 k/4

Leistung S_N : **3450** kVA

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

Rating

p.f.

Spannung U_N : **6.60** kV

Strom I_N : **302** A

Voltage

Current

Frequenz f : **60** Hz

Drehzahl n : **1,800** min⁻¹

Frequency

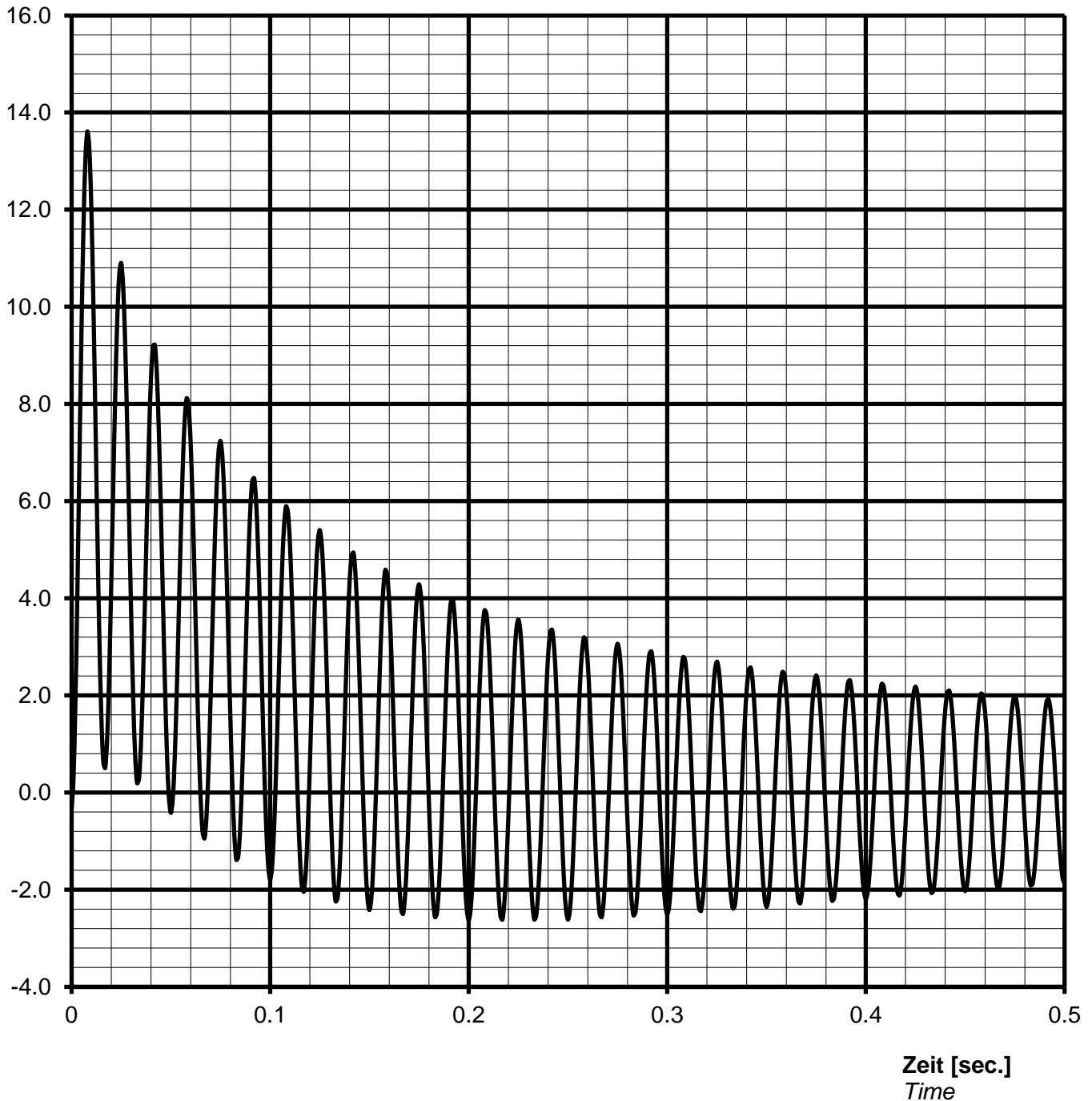
Speed

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 $I_{\text{peak}} =$ **4108 A** or **13.61 p.u.**

Nennwerten / nominal data

DIG 130 k/4

Leistung S_N : **3450** kVA

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

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p.f.

Spannung U_N : **6.60** kV

Strom I_N : **302** A

Voltage

Current

Frequenz f: **60** Hz

Drehzahl n: **1800** 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

Nennwerten / nominal data

DIG 130 k/4

Rating S_N : **3450 kVA**

p.f. **0.80**

Bemessungsleistung
Nominal voltage U_N : **6.60 kV**
Bemessungsspannung

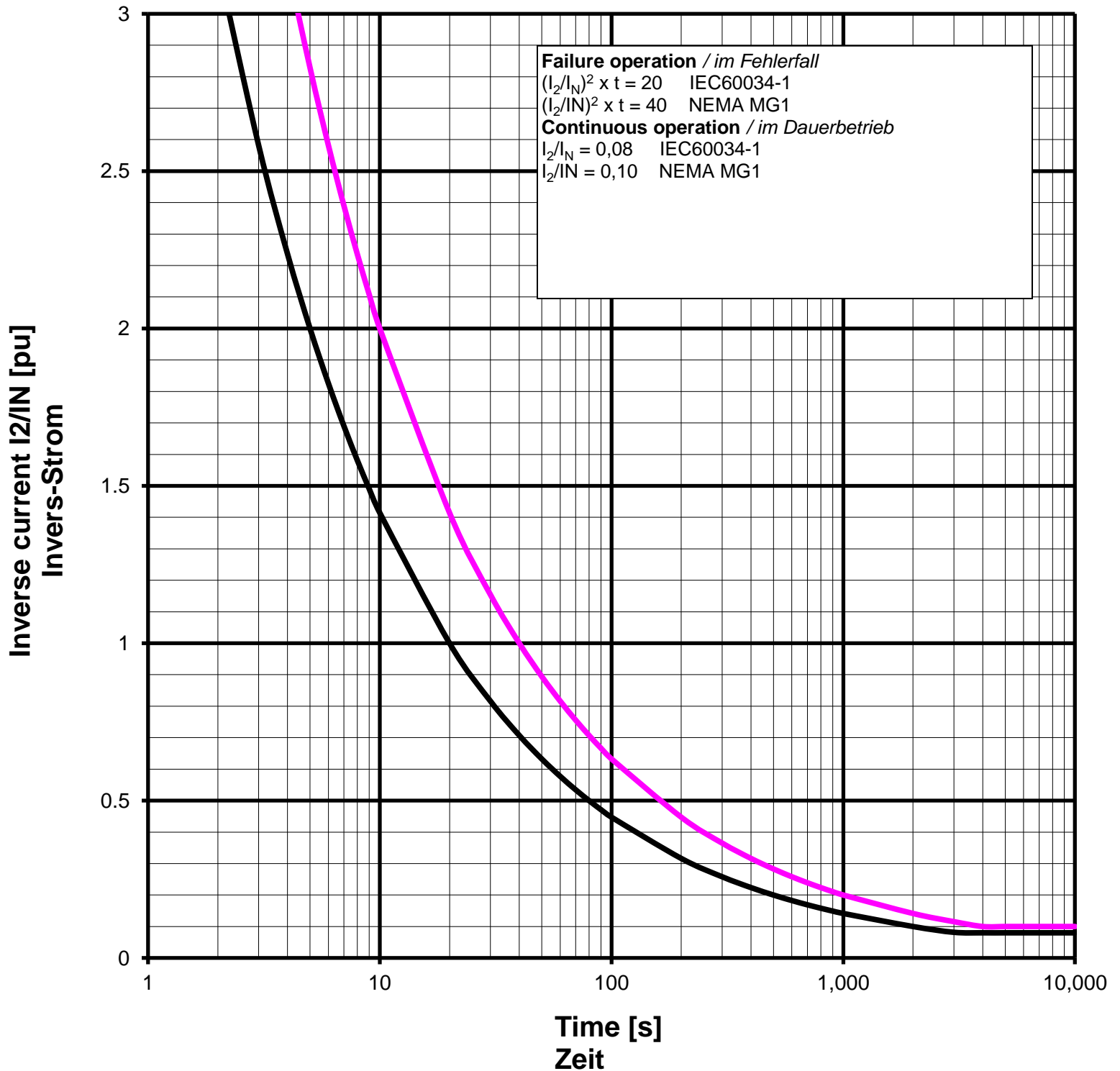
Leistungsfaktor $\cos \varphi$:
Nominal current I_N : **302 A**

Frequency f_N : **60 Hz**
Frequenz

Speed n : **1800 min⁻¹**
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

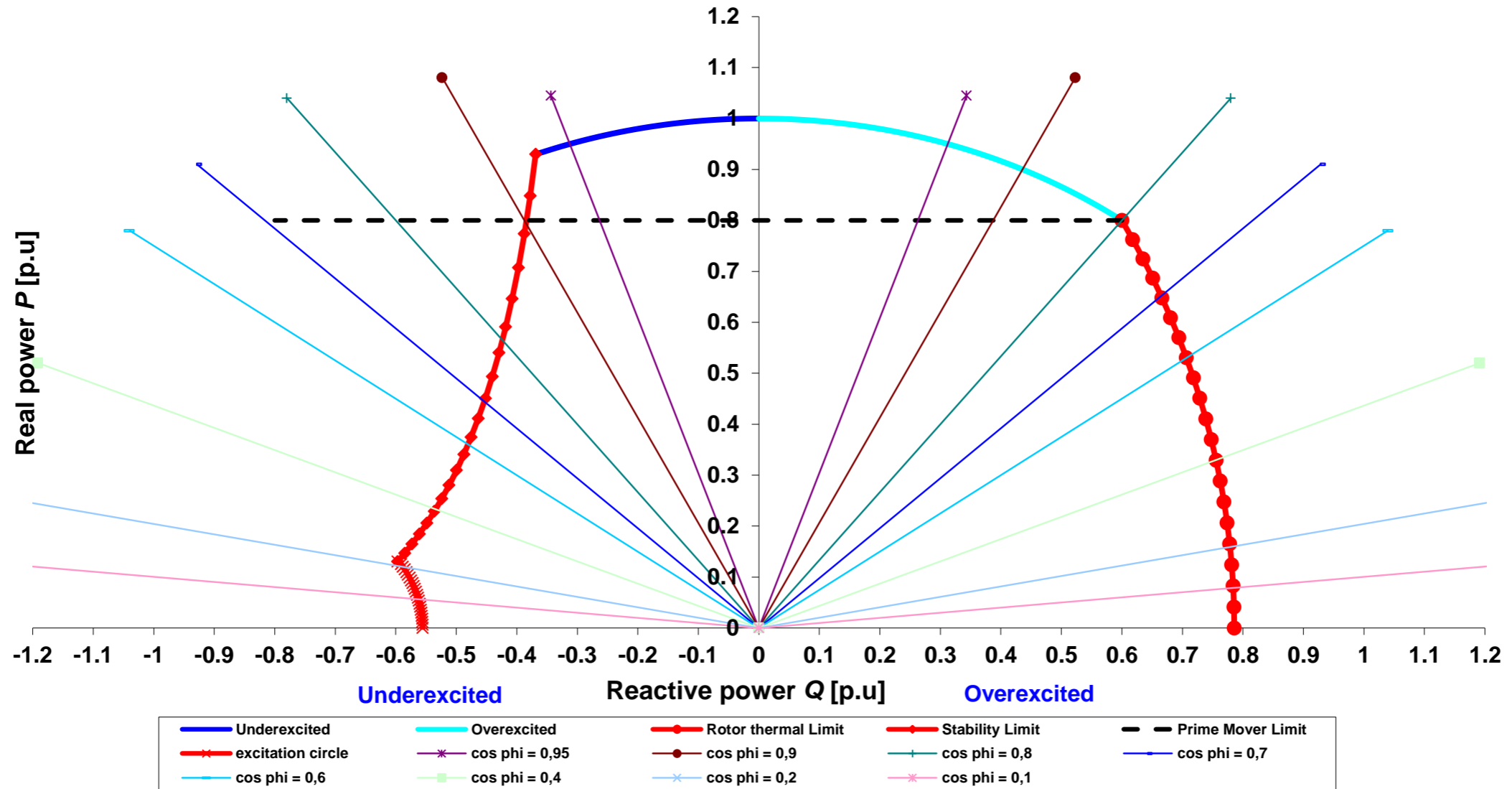
TYPE

DIG 130 k/4

Projekt:

Order Nr.:

Capability (P-Q) Diagram

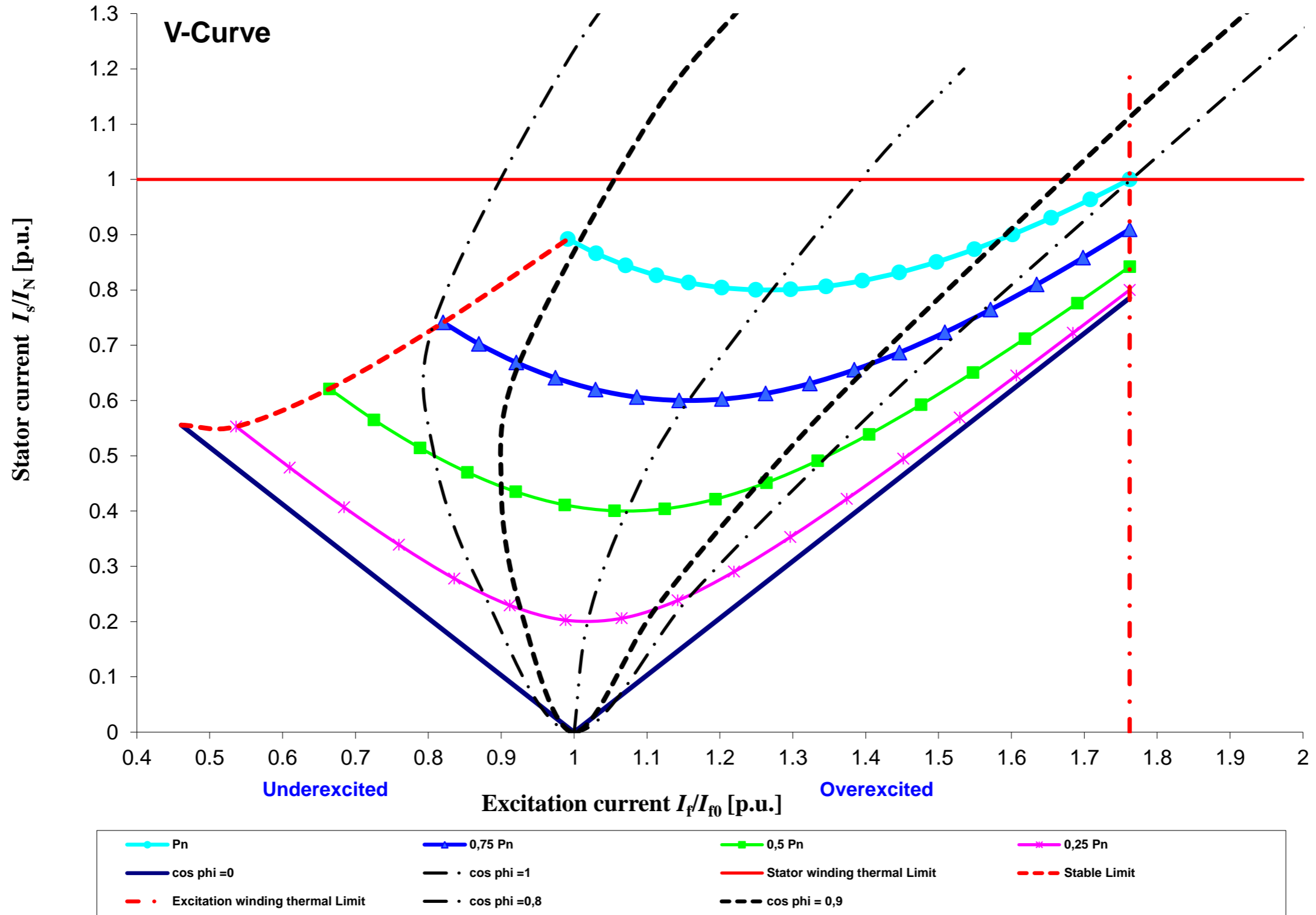


Cummins Generator Technologies

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	