

**Technical Data Sheet for AvK-Alternators**

FM 7.3-5

Date:	09/10/13	Customer:	GENERIC DATASHEET only
Project No.:		AvK Reference:	dig150m_6_60_6600

Object data:

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

Generator data:

Generator:	DIG 150 m/6	Poles:	6	Standards:	IEC 60034
Rated power:	5900 kVA	4720 kWe	4861 kWm		
Power factor:	0.80				
Power at pf 1,0	4754 kVA	4754 kWe	4861 kWm		
Rated voltage:	6.6 kV				
Speed:	1200 1/min				
Frequency:	60 Hz			Voltage range / frequency range:	
Rated current:	516.1 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.:	4.2 m³/s	Cooling water quantity:	n/a
--	--	-------------------	----------	-------------------------	-----

Moment of inertia (I):	448 kgm²	Weight:	14200 Kg	Losses (environment):	141 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	96,96	97,1	97	96,5	94,3
Power factor 0.9	97,32	97,45	97,28	96,7	94,55
Power factor 1.0	97,69	97,8	97,55	96,9	94,8

Reactances and time constants

	unsaturated	saturated		unsaturated	saturated				
X_d	1.75	1.58 p.u.	X_q	0.88	0.86 p.u.	$T_{d0'}$	3.1 s	$T_{d0''}$	0.03068 s
X_d'	0.270	0.270 p.u.	X_q'	0.88	0.86 p.u.	$T_{d'}$	0.48 s	$T_{q0'}$	0.4 s
X_d''	0.194	0.176 p.u.	X_q''	0.194	0.194 p.u.	$T_{d''}$	0.02 s	$T_{q0''}$	0.18144 s
X_2	0.204	0.185 p.u.	X_0	0.058	0.053 p.u.	T_a	0.08 s	$T_{q'}$	0.4 s
X_{1s}	n.a.	0.106 p.u.						$T_{q''}$	0.04 s

Short circuit ratio saturated: 0.63	Z_n 7.383 Ohm
-------------------------------------	-----------------

Short circuit data:

Initial short circuit current (3-phase):	I_k''	2932 A	
Max. peak current (3-phase):	I_s	7464 A	
Sustained short circuit current:	I_k	1548 A	Minimum 3 x rated current for max.10 s

Initial short circuit torque:	M_{k2}	346.8 kNm
	M_{k3}	208.1 kNm

Max. faulty synchron moment:	M_f	745.6 kNm
------------------------------	-------	-----------

Rated kVA torque:	M_{SN}	46.95 kNm
-------------------	----------	-----------

Rated torque	M_N	37.56 kNm
--------------	-------	-----------

Shaft torque	M_{Sh}	38.68 kNm
--------------	----------	-----------

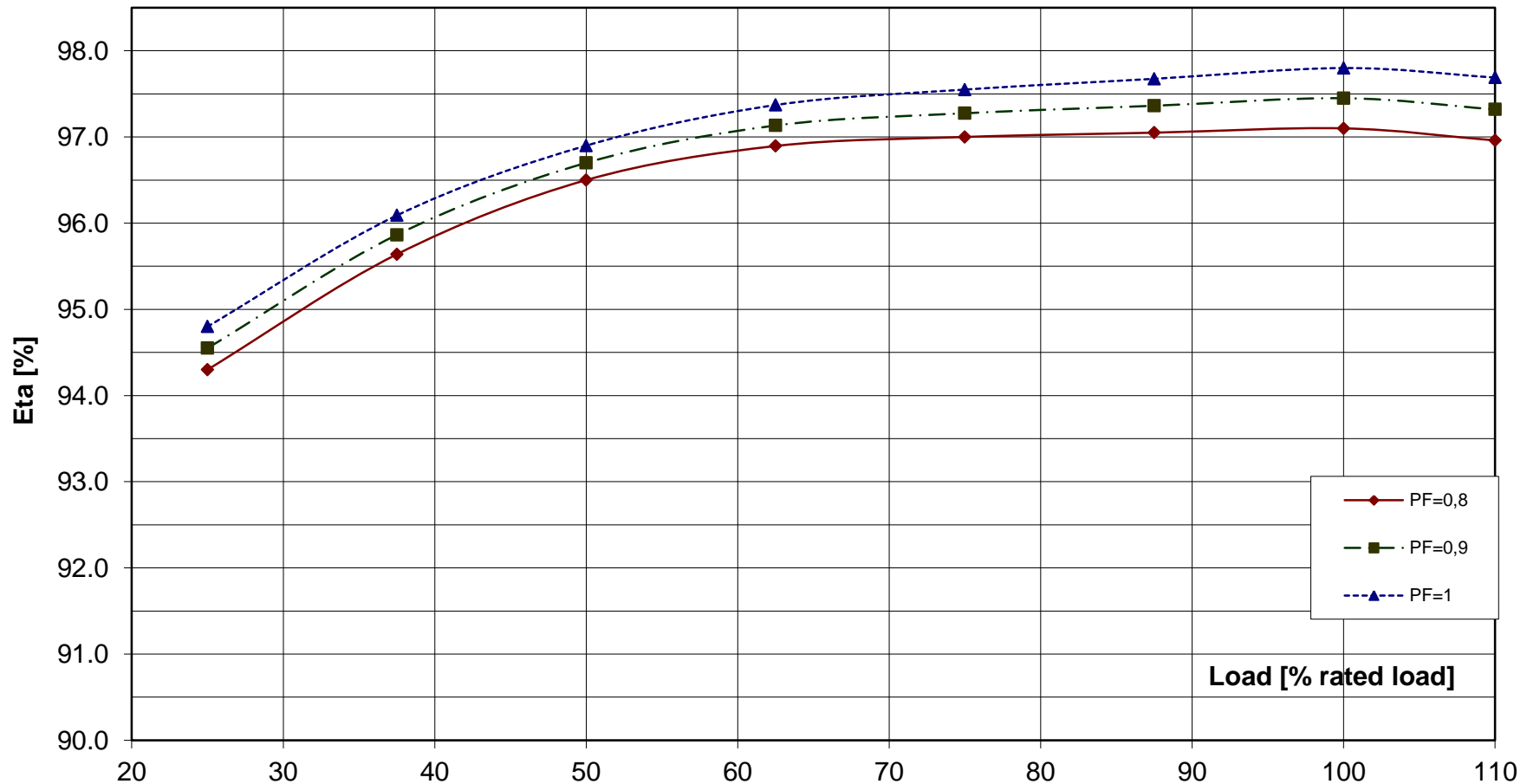
Load application:

max. load application: 3278 kVA (corresponds to 55,56 % from 5900 kVA) for Power factor 0.4 15% transient voltage drop	Power: 5900 kVA Power factor: 0.8 transient voltage drop: -21.3 %
---	---

Remarks:

Alternator :	DIG 150 m/6			
Rated output [kVA]	5900	Rated power factor:	0.8	Rated voltage [kV]: 6.6
Rated frequency [Hz]	60	Rated speed [rpm]	1200	

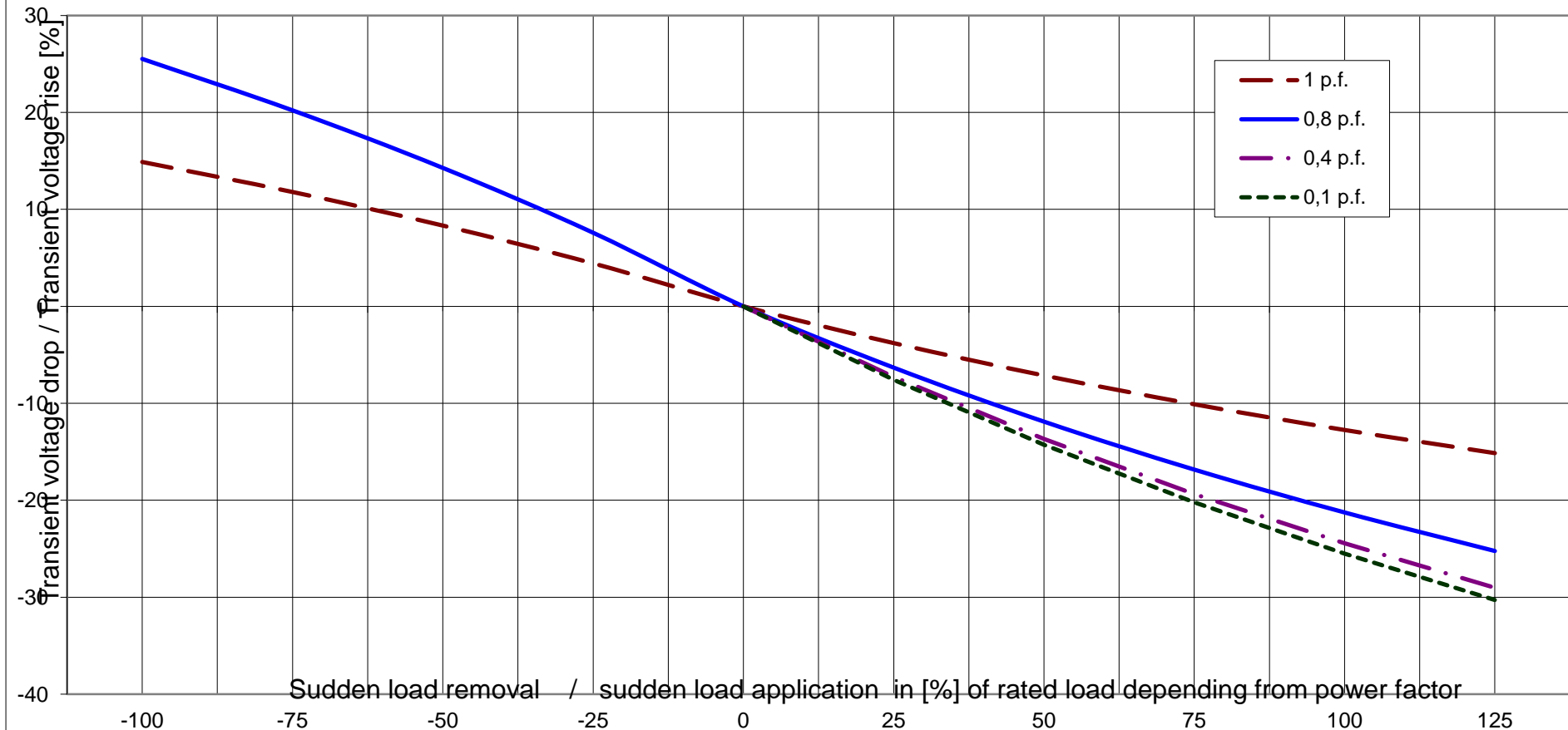
Wirkungsgrad-Kennlinie - Efficiency Curve



Alternator : DIG 150 m/6

Rated output [kVA]	5900	Rated power factor:	0.8	Rated voltage [kV]:	6.6
Rated frequency [Hz]	60	Rated speed [rpm]	1200		

Transient Voltage rise or drop for sudden load removal or application





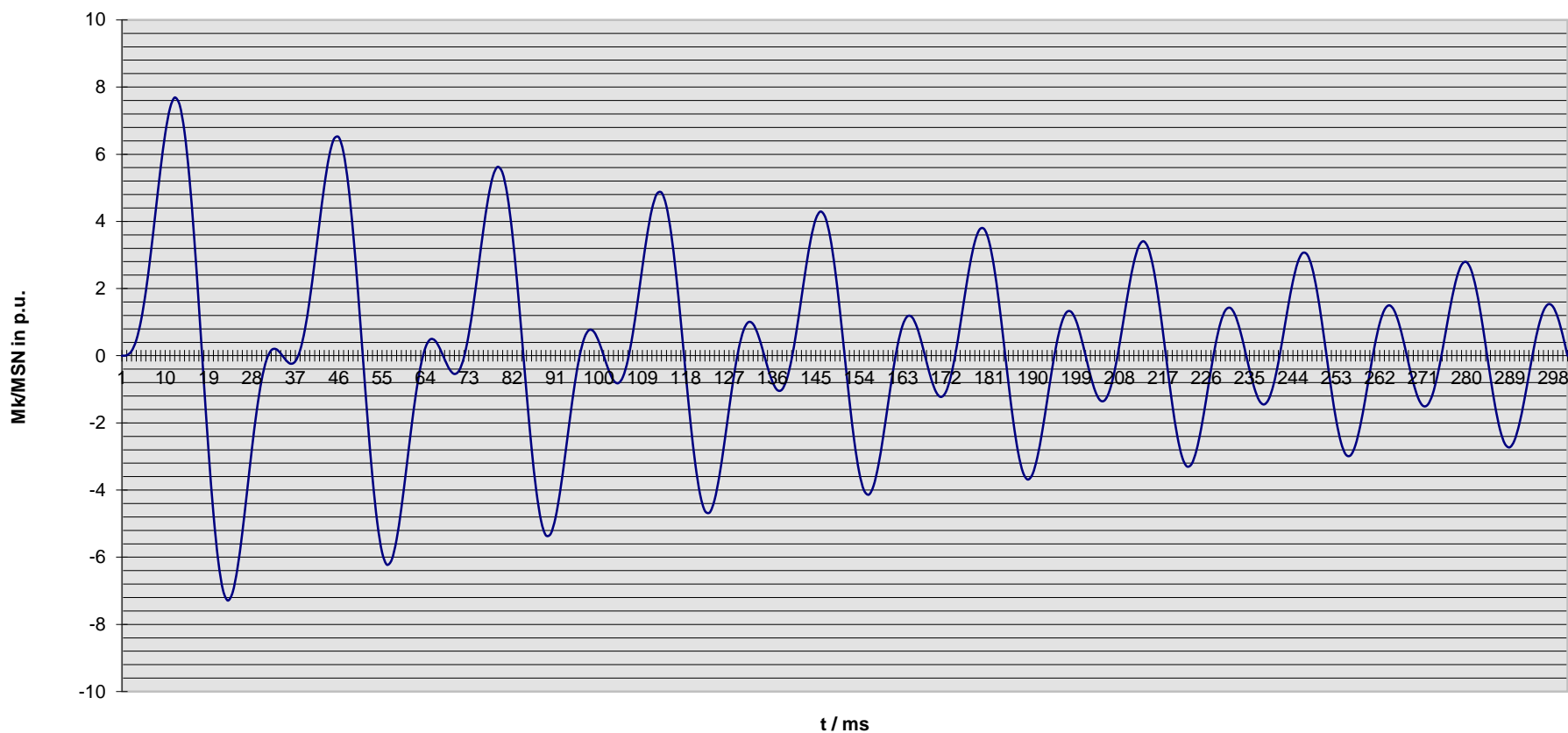
Technisches Datenblatt - Diagramme
Technical data sheet - Diagrams

ING-FCD-0112

Alternator : **DIG 150 m/6**

Rated output [kVA]	5900	Rated power factor:	0.8	Rated voltage [kV]:	6.6
Rated frequency [Hz]	60	Rated speed [rpm]	1200	MSN related to kVA:	46.95 KNm

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



Nenndaten / nominal data

DIG 150 m/6

Leistung S_N : **5900 kVA**

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

Rating

p.f.

Spannung U_N : **6.60 kV**

Strom I_N : **516 A**

Voltage

Current

Frequenz f : **60 Hz**

Drehzahl n : **1,200 min⁻¹**

Frequency

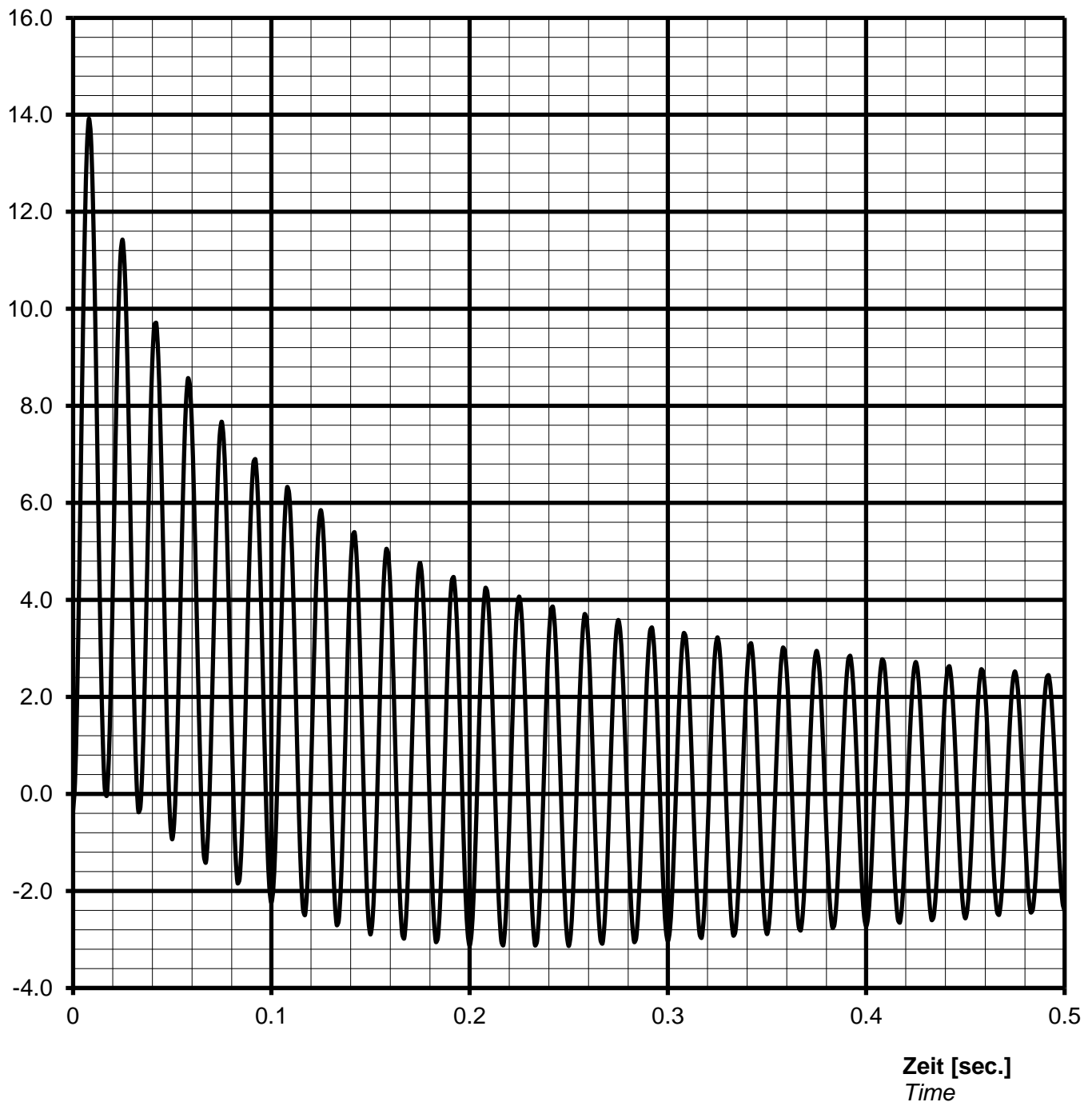
Speed

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

$I_{\text{peak}} =$ **7184 A** or **13.92 p.u.**

Nennwerten / nominal data

DIG 150 m/6

Leistung S_N : **5900 kVA**

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

Rating

p.f.

Spannung U_N : **6.60 kV**

Strom I_N : **516 A**

Voltage

Current

Frequenz f: **60 Hz**

Drehzahl n: **1200 min⁻¹**

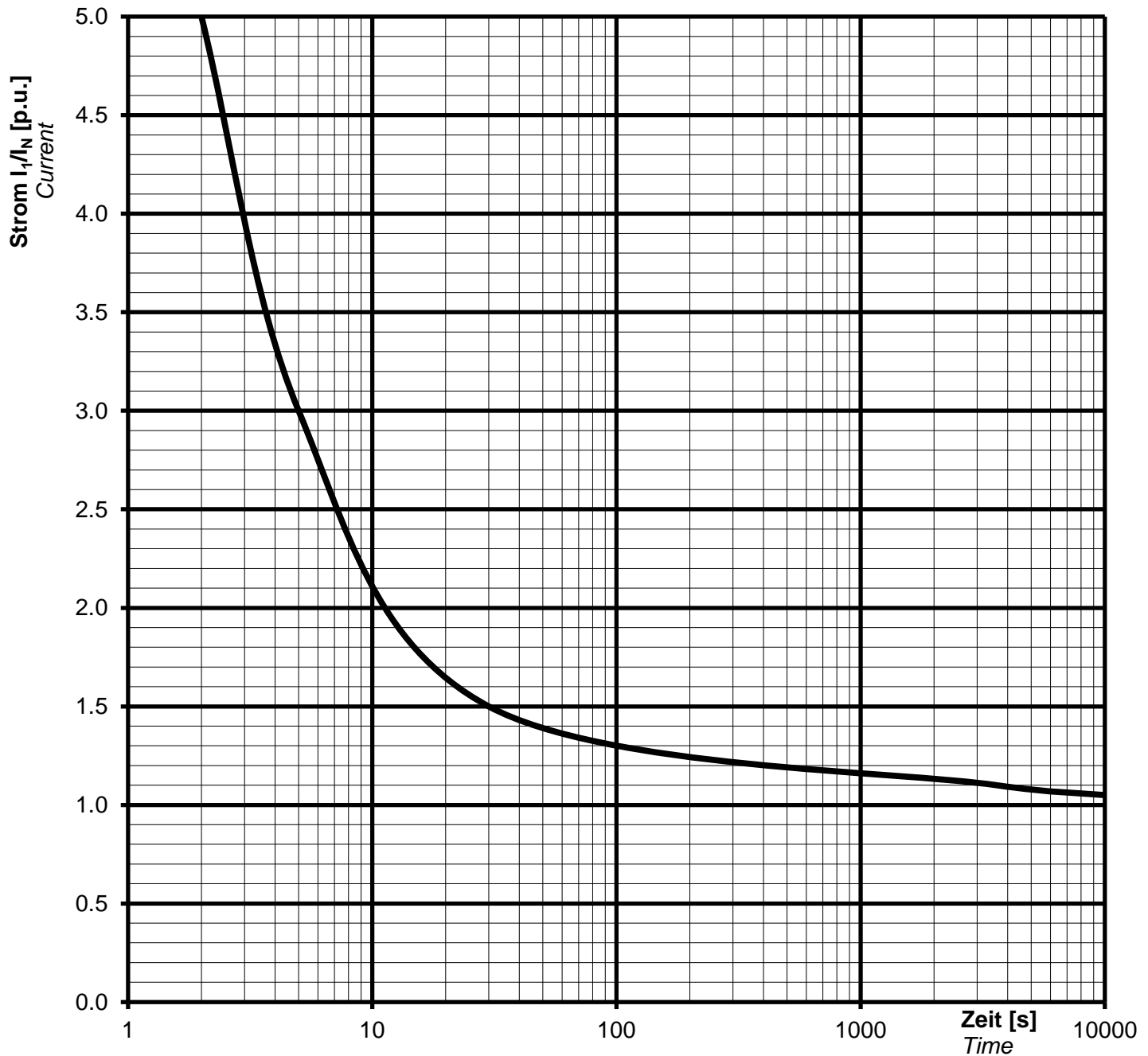
Frequency

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

DIG 150 m/6

Rating S_N : **5900 kVA**

p.f. **0.80**

Bemessungsleistung

Leistungsfaktor $\cos \varphi$:

Nominal voltage U_N : **6.60 kV**

Nominal current I_N : **516 A**

Bemessungsspannung

Bemessungsstrom

Frequency f_N : **60 Hz**

Speed n : **1200 min⁻¹**

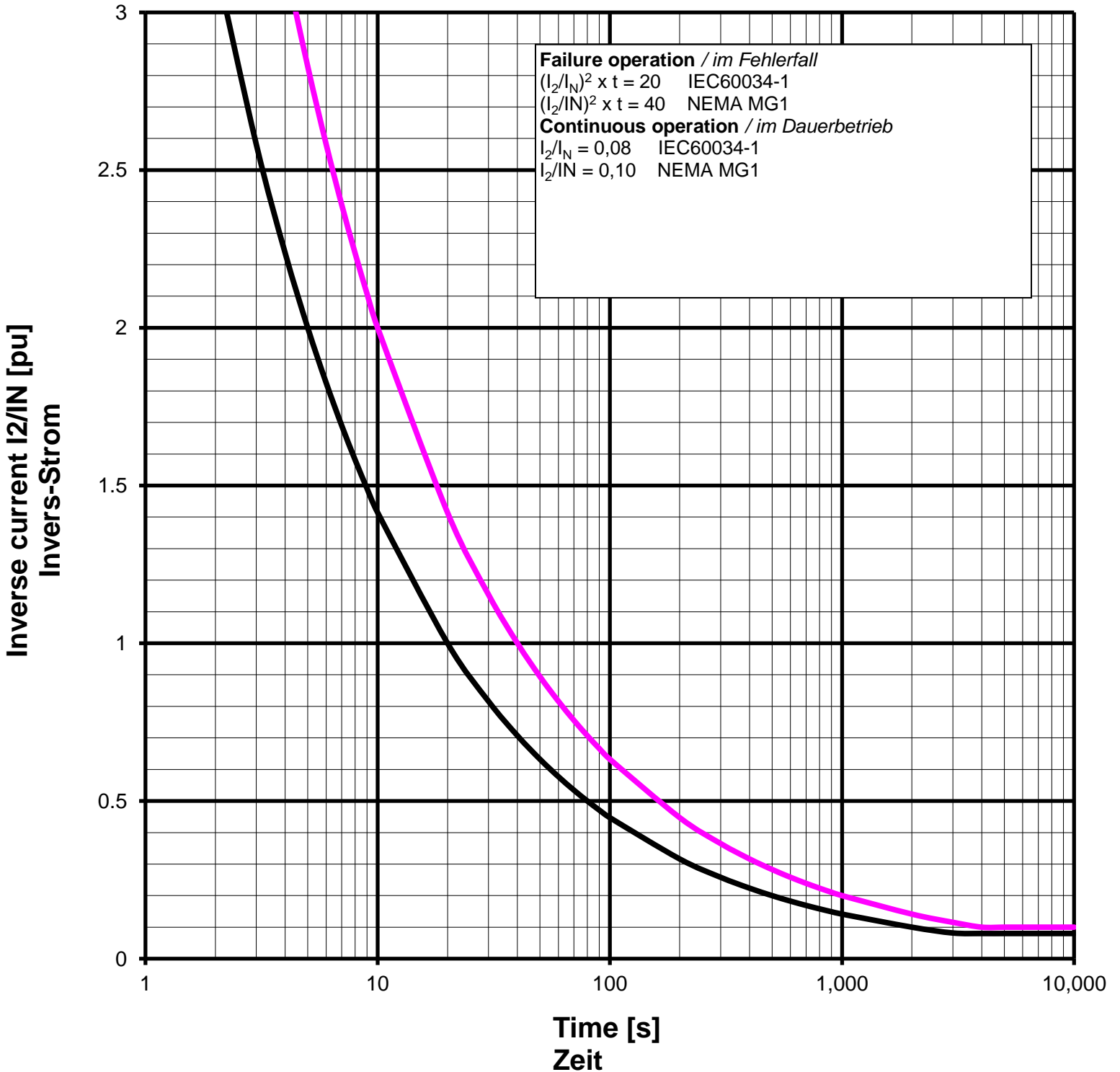
Frequenz

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

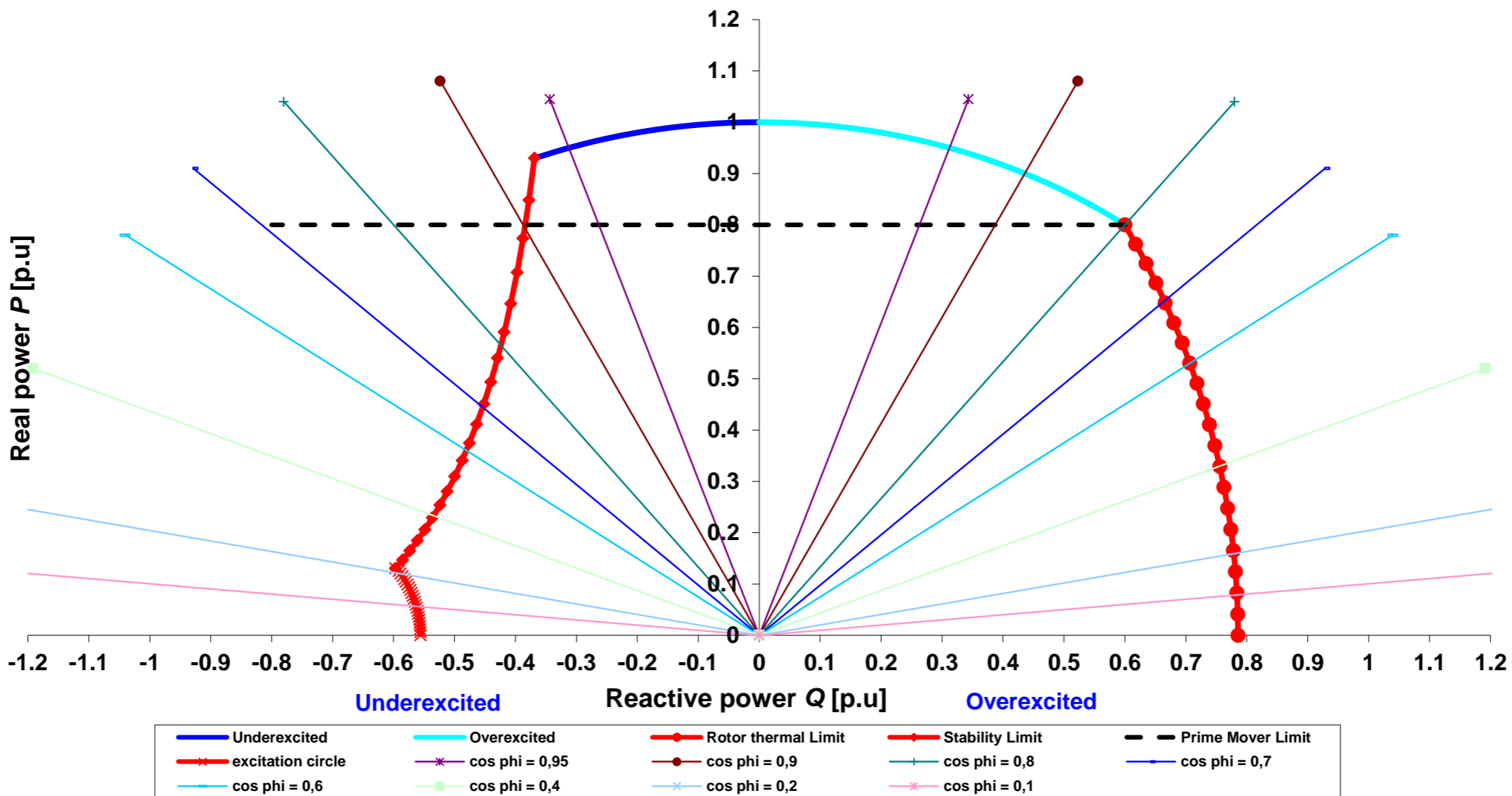
TYPE

DIG 150 m/6

Projekt:

Order Nr.:

Capability (P-Q) Diagram

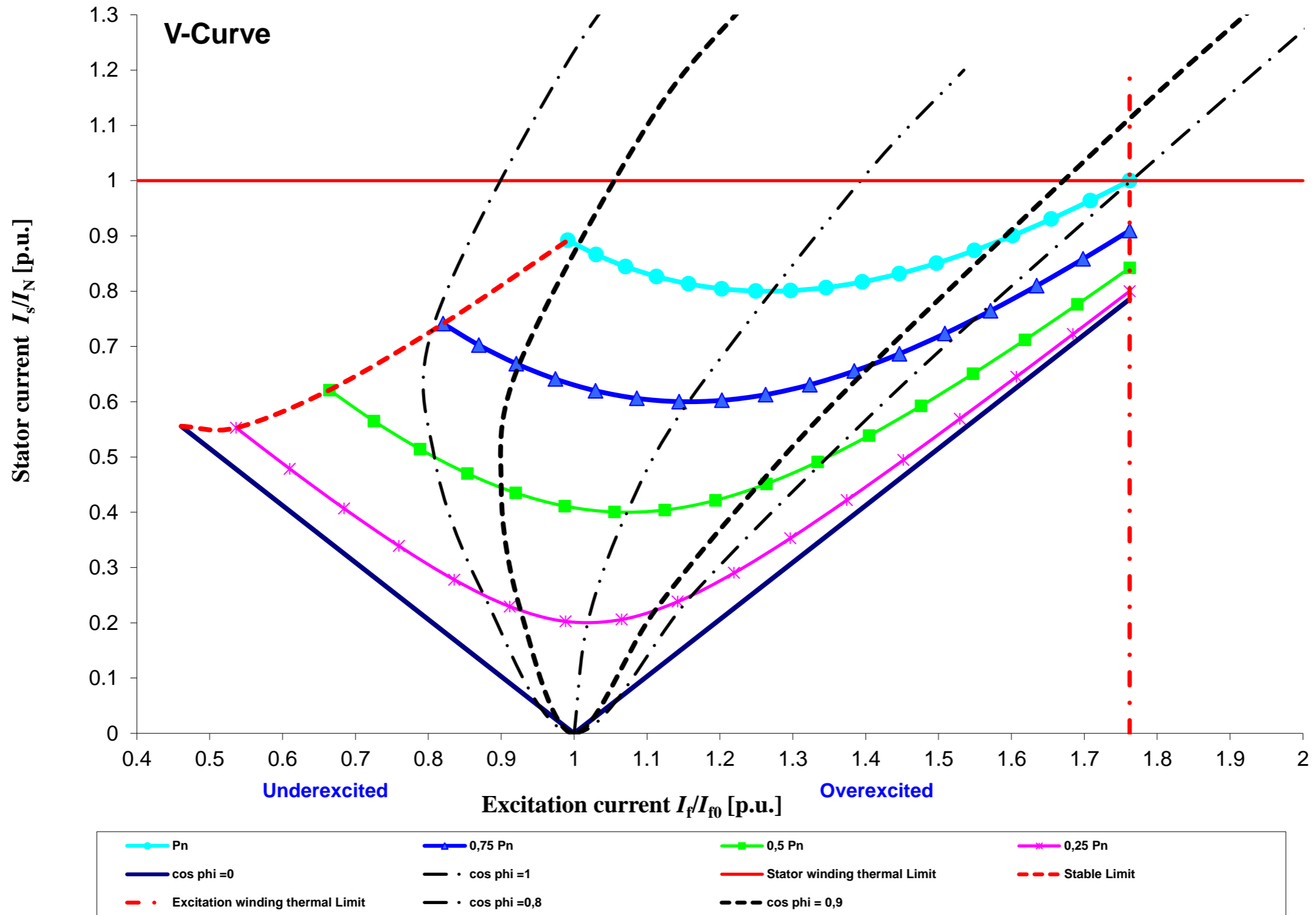


Cummins Generator Technologies

Datum / date:

17/10/2013

TYPE	DIG 150 m/6	Projekt:		Order Nr.:	
------	-------------	----------	--	------------	--



Cummins Generator Technologies	Datum / date:	
	17/10/2013	