

**Technical Data Sheet for AvK-Alternators**

FM 7.3-5

Date:	09/10/13	Customer:	GENERIC DATASHEET only
Project No.:		AvK Reference:	dig156o_8_60_6600

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

Generator data:					
Generator:	DIG 156 o/8	Poles:	8	Standards: IEC 60034	
Rated power:	7500 kVA	6000 kWe	6166 kWm		
Power factor:	0.80				
Power at pf 1,0	6043 kVA	6043 kWe	6166 kWm		
Rated voltage:	6.6 kV				
Speed:	900 1/min				
Frequency:	60 Hz	Voltage range / frequency range:			
Rated current:	656.1 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.:	5.5 m³/s	Cooling water quantity:	n/a
Moment of inertia (I):	1110 kgm²	Weight:	21400 Kg	Losses (environment):	166 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	97,17	97,3	97,1	96,9	95
Power factor 0.9	97,54	97,65	97,4	97,05	95,1
Power factor 1.0	97,9	98	97,7	97,2	95,2

Reactances and time constants										
	unsaturated		saturated			unsaturated		saturated		
X _d	1.85	1.67	p.u.	X _q	0.93	0.91	p.u.	T _{d0'}	3.2	s
X _{d'}	0.285	0.285	p.u.	X _{q'}	0.93	0.91	p.u.	T _{d'}	0.49	s
X _{d''}	0.198	0.180	p.u.	X _{q''}	0.198	0.198	p.u.	T _{d''}	0.03	s
X ₂	0.208	0.189	p.u.	X ₀	0.059	0.054	p.u.	T _a	0.095	s
X _{1s}	n.a.	0.108	p.u.					T _{q'}	0.6	s
								T _{q''}	0.06	s
Short circuit ratio saturated: 0.6					Z _n 5.808 Ohm					

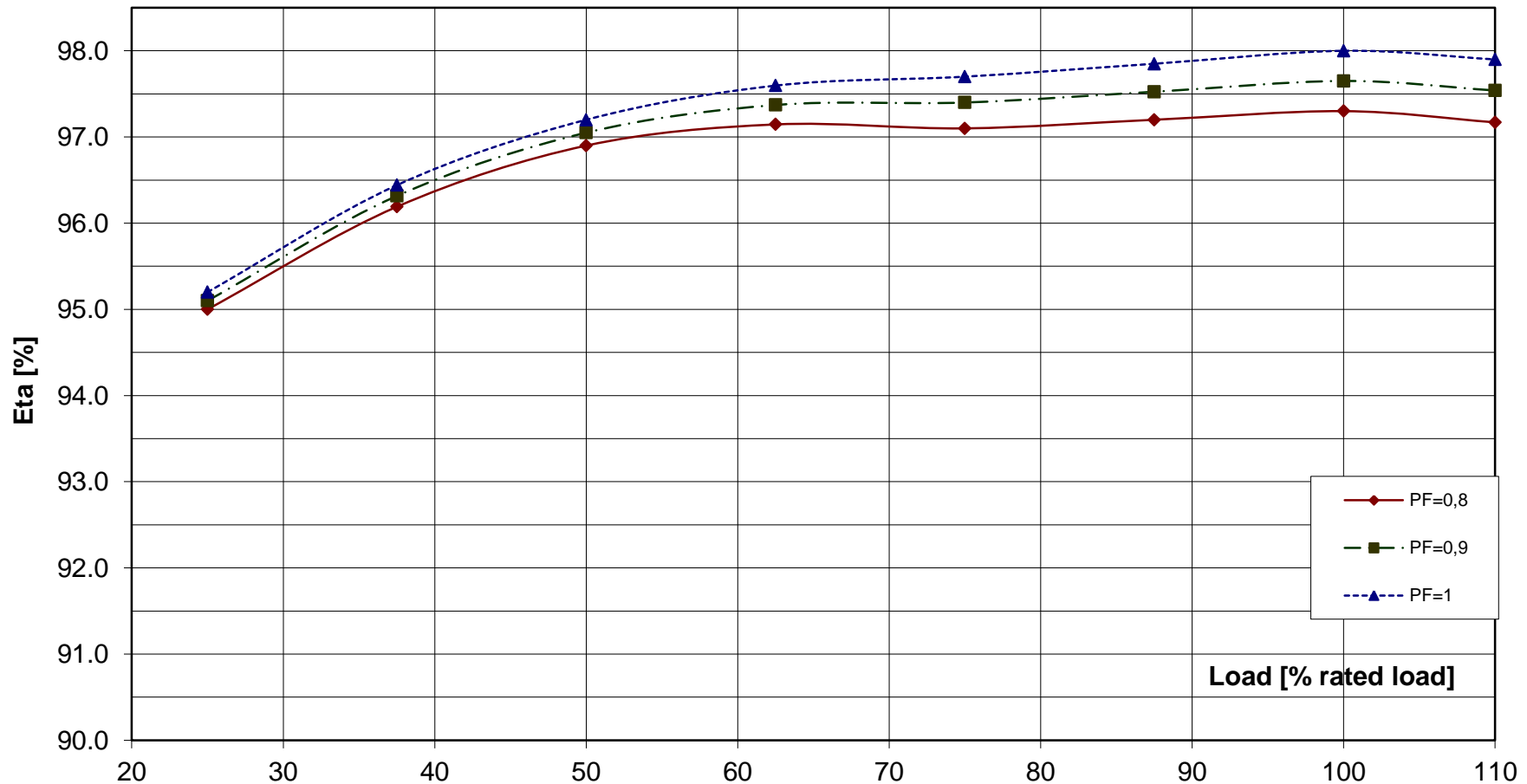
Short circuit data:			
Initial short circuit current (3-phase):	I _{k''}	3645 A	
Max. peak current (3-phase):	I _s	9279 A	
Sustained short circuit current:	I _k	1968 A	Minimum 3 x rated current for max.10 s
Initial short circuit torque:	M _{k2}	574.7 kNm	
	M _{k3}	344.8 kNm	
Max. faulty synchron moment:	M _f	1235.6 kNm	
Rated kVA torque:	M _{SN}	79.58 kNm	
Rated torque	M _N	63.66 kNm	
Shaft torque	M _{Sh}	65.43 kNm	

Load application:	
max. load application: 3947 kVA (corresponds to 52,63 % from 7500 kVA) for Power factor 0.4 15% transient voltage drop	Power: 7500 kVA Power factor: 0.8 transient voltage drop: -22.2 %

Remarks:

Alternator :	DIG 156 o/8			
Rated output [kVA]	7500	Rated power factor:	0.8	Rated voltage [kV]: 6.6
Rated frequency [Hz]	60	Rated speed [rpm]	900	

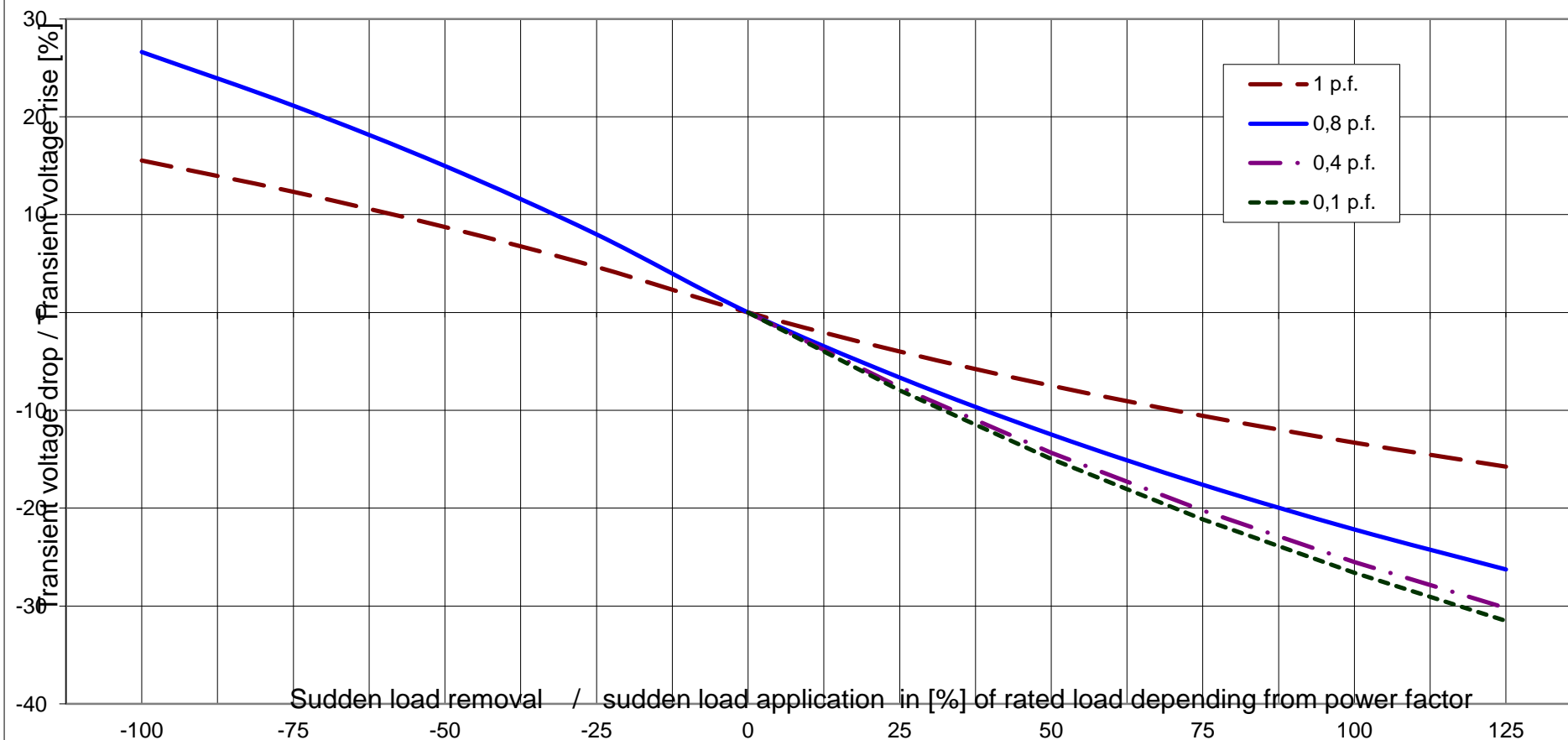
Wirkungsgrad-Kennlinie - Efficiency Curve



Alternator : DIG 156 o/8

Rated output [kVA]	7500	Rated power factor:	0.8	Rated voltage [kV]:	6.6
Rated frequency [Hz]	60	Rated speed [rpm]	900		

Transient Voltage rise or drop for sudden load removal or application





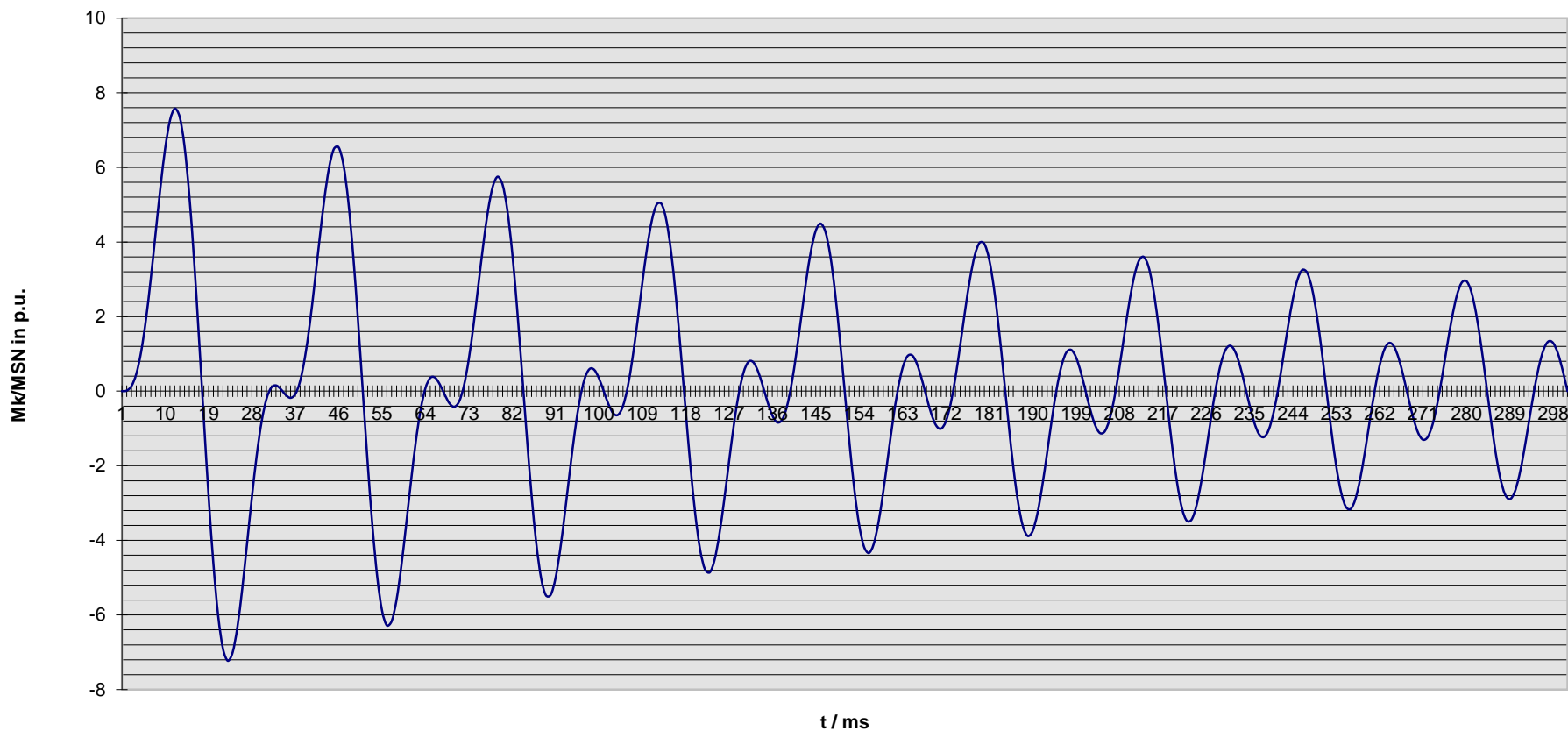
Technisches Datenblatt - Diagramme
Technical data sheet - Diagrams

ING-FCD-0112

Alternator : **DIG 156 o/8**

Rated output [kVA]	7500	Rated power factor:	0.8	Rated voltage [kV]:	6.6
Rated frequency [Hz]	60	Rated speed [rpm]	900	MSN related to kVA:	79.58 KNm

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



Nenndaten / nominal data

DIG 156 o/8

Leistung S_N : **7500 kVA**

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

Rating

p.f.

Spannung U_N : **6.60 kV**

Strom I_N : **656 A**

Voltage

Current

Frequenz f : **60 Hz**

Drehzahl n : **900 min⁻¹**

Frequency

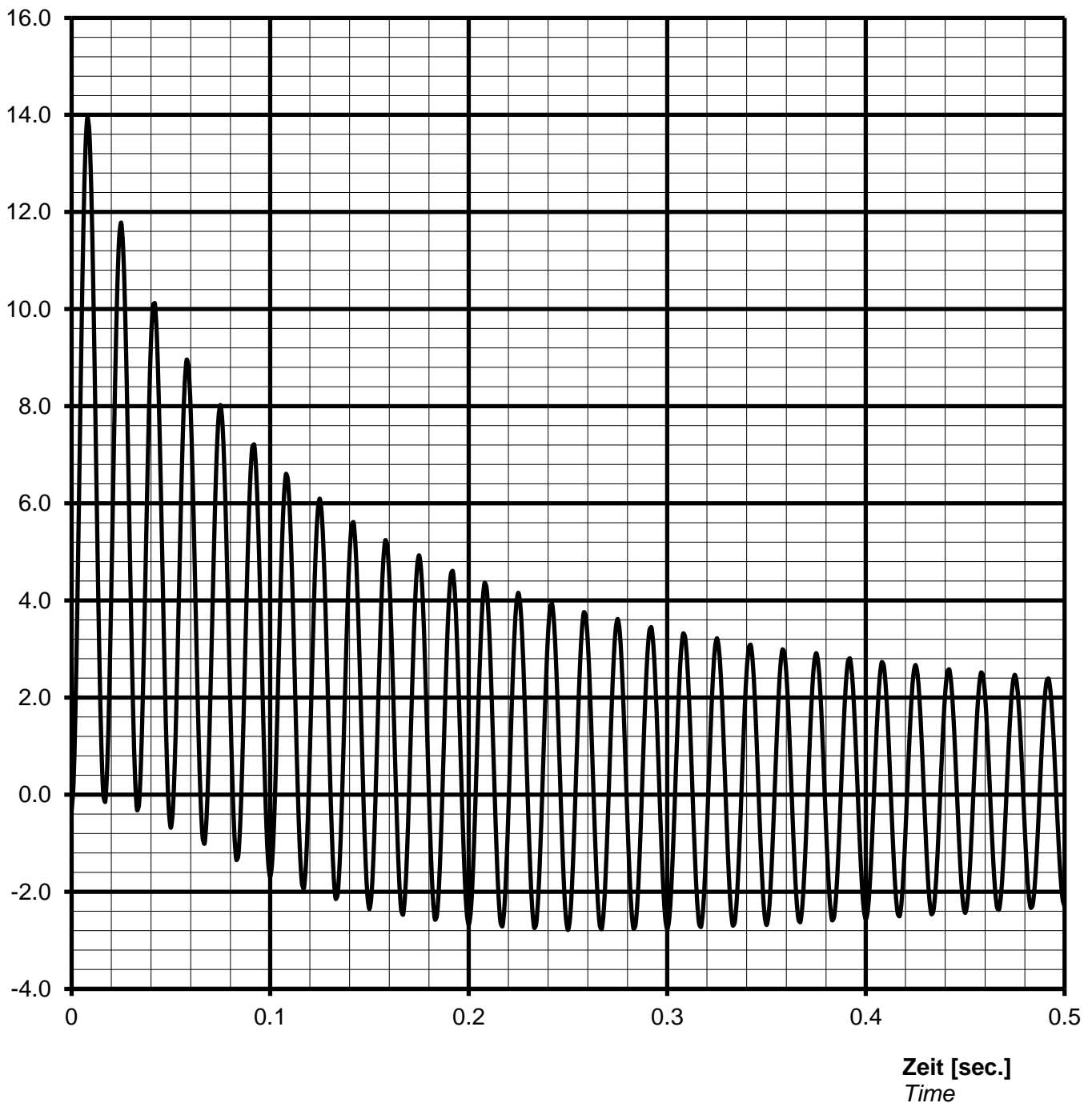
Speed

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 $I_{\text{peak}} = 9153 \text{ A}$ or 13.95 p.u.

Nenn Daten / nominal data

DIG 156 o/8

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Rating

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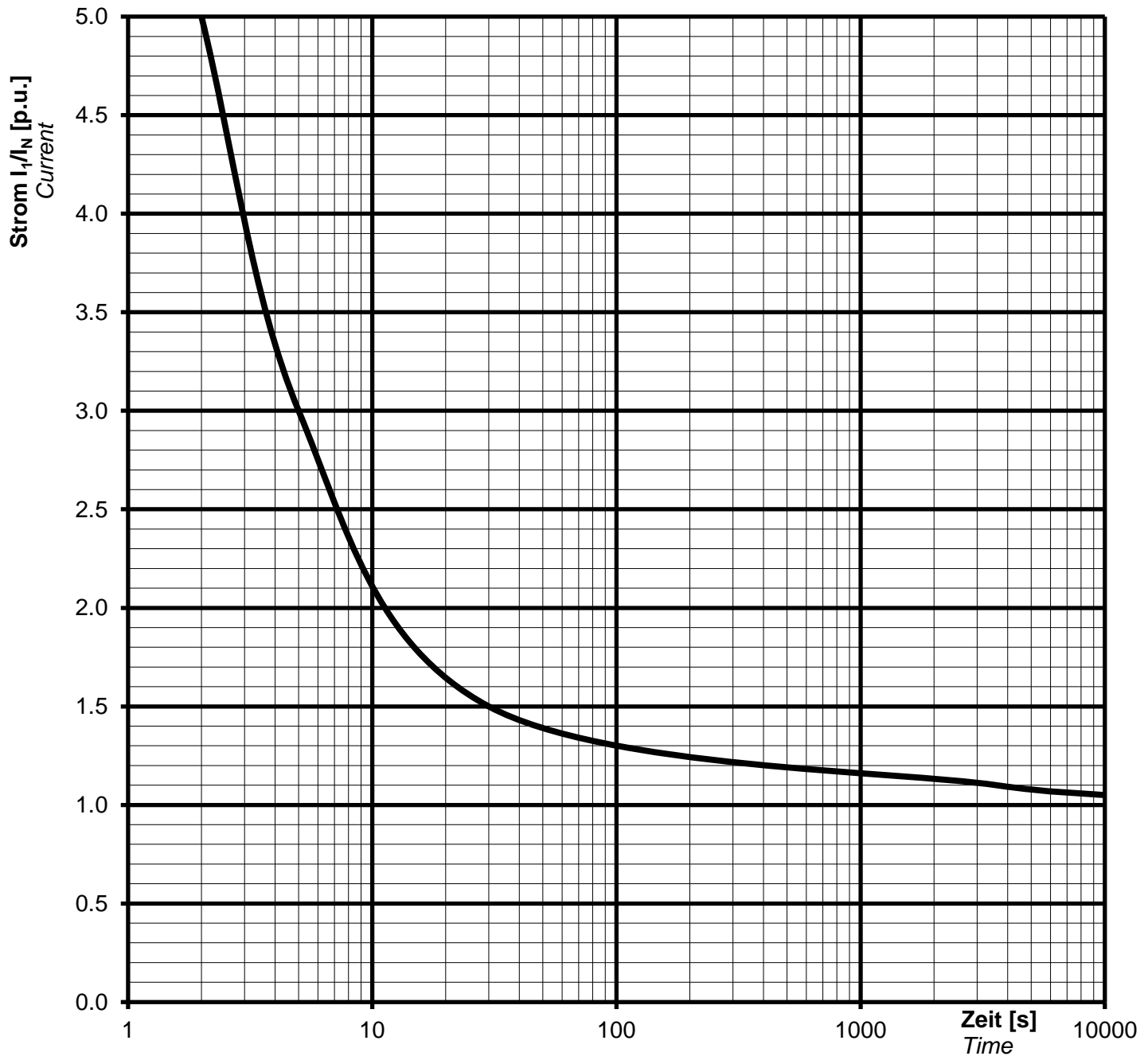
Frequency

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 156 o/8

Rating S_N : **7500 kVA**

p.f. **0.80**

Bemessungsleistung

Leistungsfaktor $\cos \varphi$:

Nominal voltage U_N : **6.60 kV**

Nominal current I_N : **656 A**

Bemessungsspannung

Bemessungsstrom

Frequency f_N : **60 Hz**

Speed n : **900 min⁻¹**

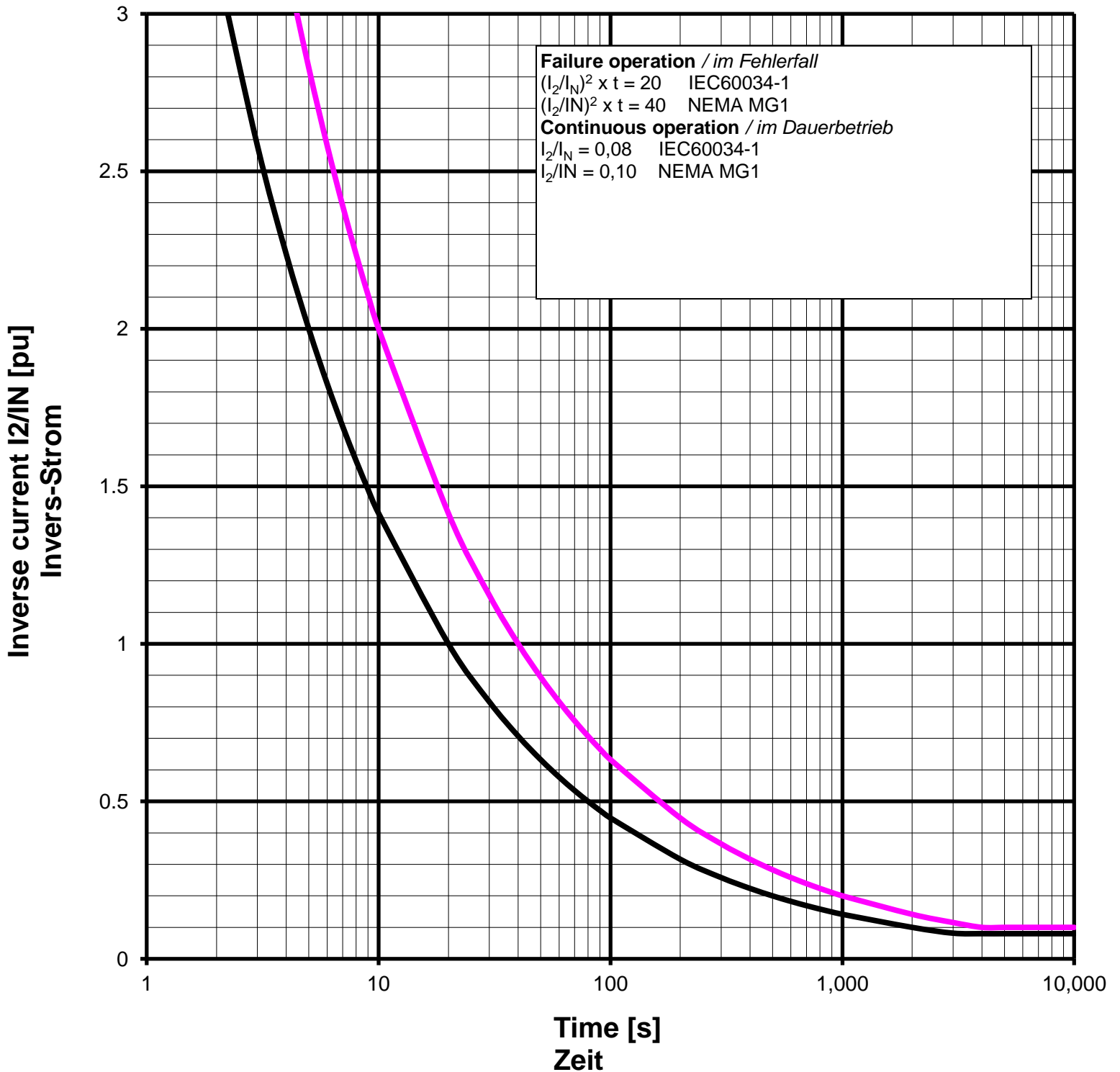
Frequenz

Drehzahl

Protection: **IP23**

Schutzart

Inverse current or unbalanced negative sequence current



Remarks / Notizen:



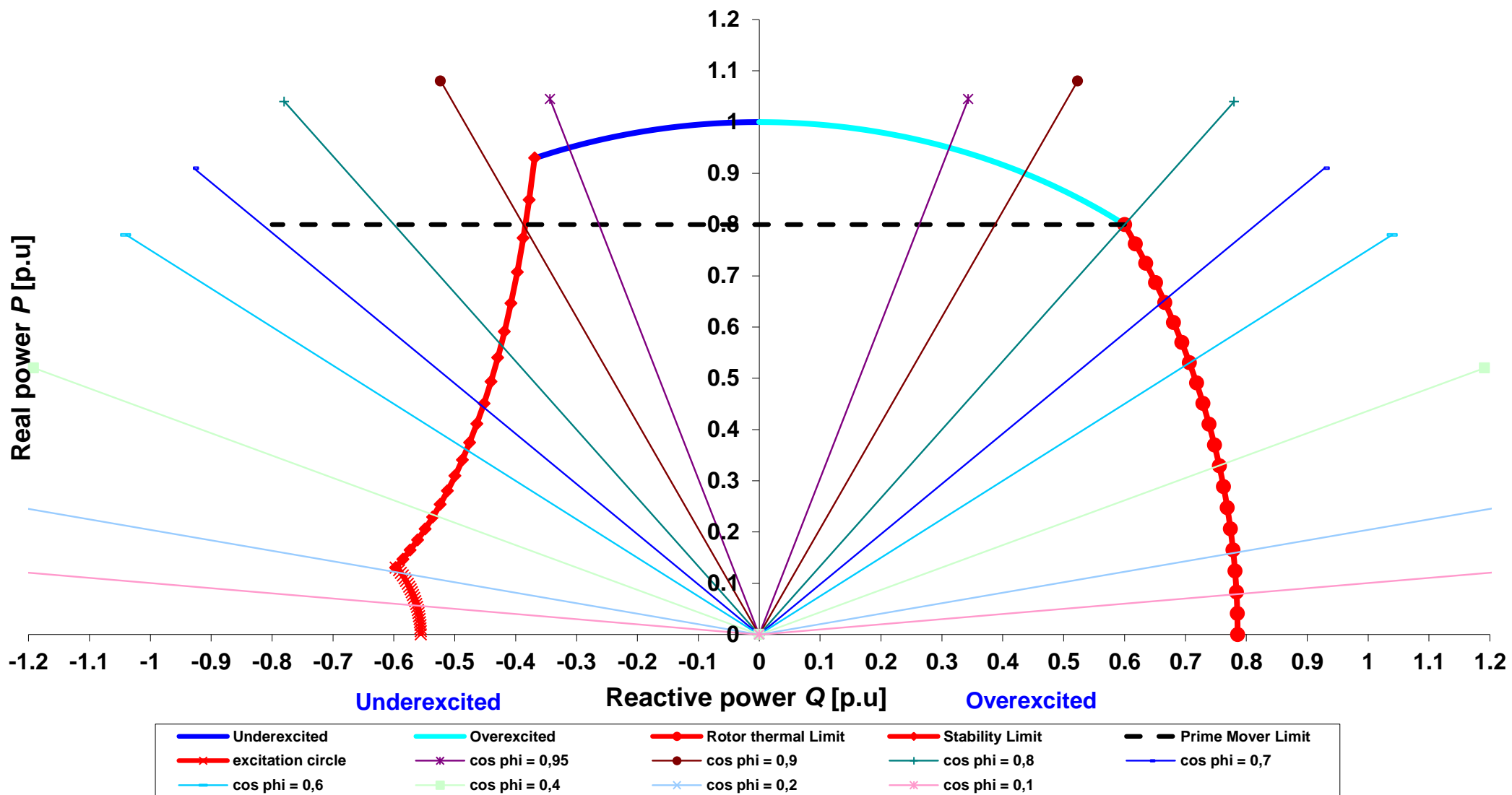
TYPE

DIG 156 o/8

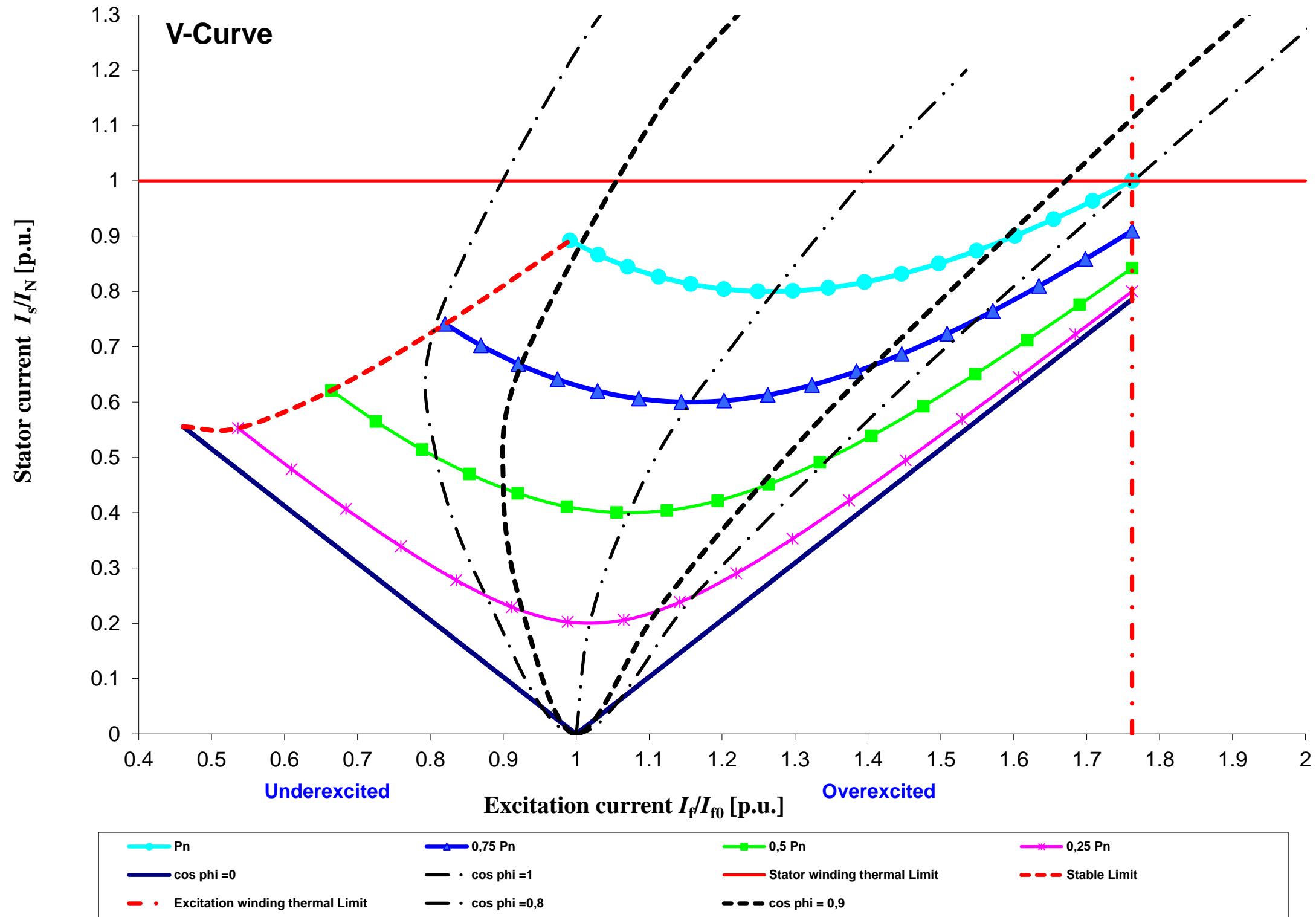
Projekt:

Order Nr.:

Capability (P-Q) Diagram



TYPE	DIG 156 o/8	Projekt:		Order Nr.:	
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Cummins Generator Technologies	Datum / date:	
	18/10/2013	