

**Technical Data Sheet for AvK-Alternators**

FM 7.3-5

Date:	09/10/13	Customer:	GENERIC DATASHEET only
Project No.:		AvK Reference:	dig156l_6_50_11000

Object data:

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

Generator data:

Generator:	DIG 156 I/6	Poles:	6	Standards:	IEC 60034
Rated power:	5500 kVA	4400 kWe	4527 kWm		
Power factor:	0.80				
Power at pf 1,0	4435 kVA	4435 kWe	4527 kWm		
Rated voltage:	11 kV				
Speed:	1000 1/min				
Frequency:	50 Hz			Voltage range / frequency range:	
Rated current:	288.7 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):	710 kgm²	Weight:	17100 Kg	Losses (environment):	127 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	97,06	97,2	97,15	96,7	94,82
Power factor 0.9	97,47	97,59	97,53	96,95	94,98
Power factor 1.0	97,87	97,97	97,9	97,2	95,13

Reactances and time constants

	unsaturated	saturated		unsaturated	saturated				
X_d	1.78	1.61 p.u.	X_q	0.89	0.87 p.u.	$T_{d0'}$	3.1 s	$T_{d0''}$	0.046 s
X_d'	0.276	0.276 p.u.	X_q'	0.89	0.87 p.u.	$T_{d'}$	0.48 s	$T_{q0'}$	0.6 s
X_d''	0.198	0.180 p.u.	X_q''	0.198	0.198 p.u.	$T_{d''}$	0.03 s	$T_{q0''}$	0.2697 s
X_2	0.208	0.189 p.u.	X_0	0.059	0.054 p.u.	T_a	0.1 s	$T_{q'}$	0.6 s
X_{1s}	n.a.	0.108 p.u.						$T_{q''}$	0.06 s

Short circuit ratio saturated: 0.62	Z_n 22.000 Ohm
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Short circuit data:

Initial short circuit current (3-phase):	I_k''	1604 A	
Max. peak current (3-phase):	I_s	4083 A	
Sustained short circuit current:	I_k	866 A	Minimum 3 x rated current for max.10 s
Initial short circuit torque:	M_{k2}	379.3 kNm	
	M_{k3}	227.6 kNm	
Max. faulty synchron moment:	M_f	815.5 kNm	
Rated kVA torque:	M_{SN}	52.53 kNm	
Rated torque	M_N	42.02 kNm	
Shaft torque	M_{Sh}	43.23 kNm	

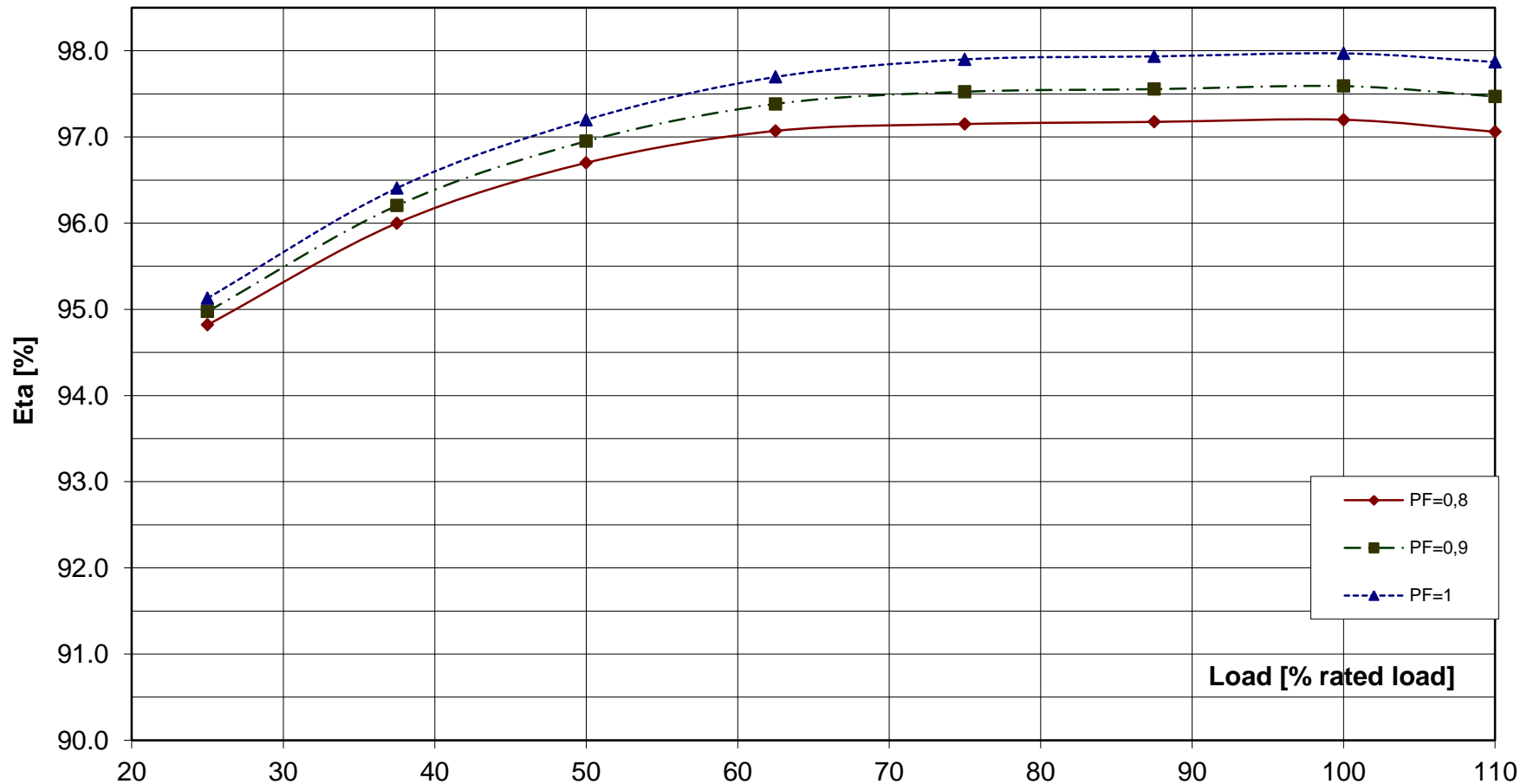
Load application:

max. load application: 2989 kVA (corresponds to 54,35 % from 5500 kVA) for Power factor 0.4 15% transient voltage drop	Power: 5500 kVA Power factor: 0.8 transient voltage drop: -21.6 %
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Remarks:

Alternator :	DIG 156 I/6			
Rated output [kVA]	5500	Rated power factor:	0.8	Rated voltage [kV]: 11
Rated frequency [Hz]	50	Rated speed [rpm]	1000	

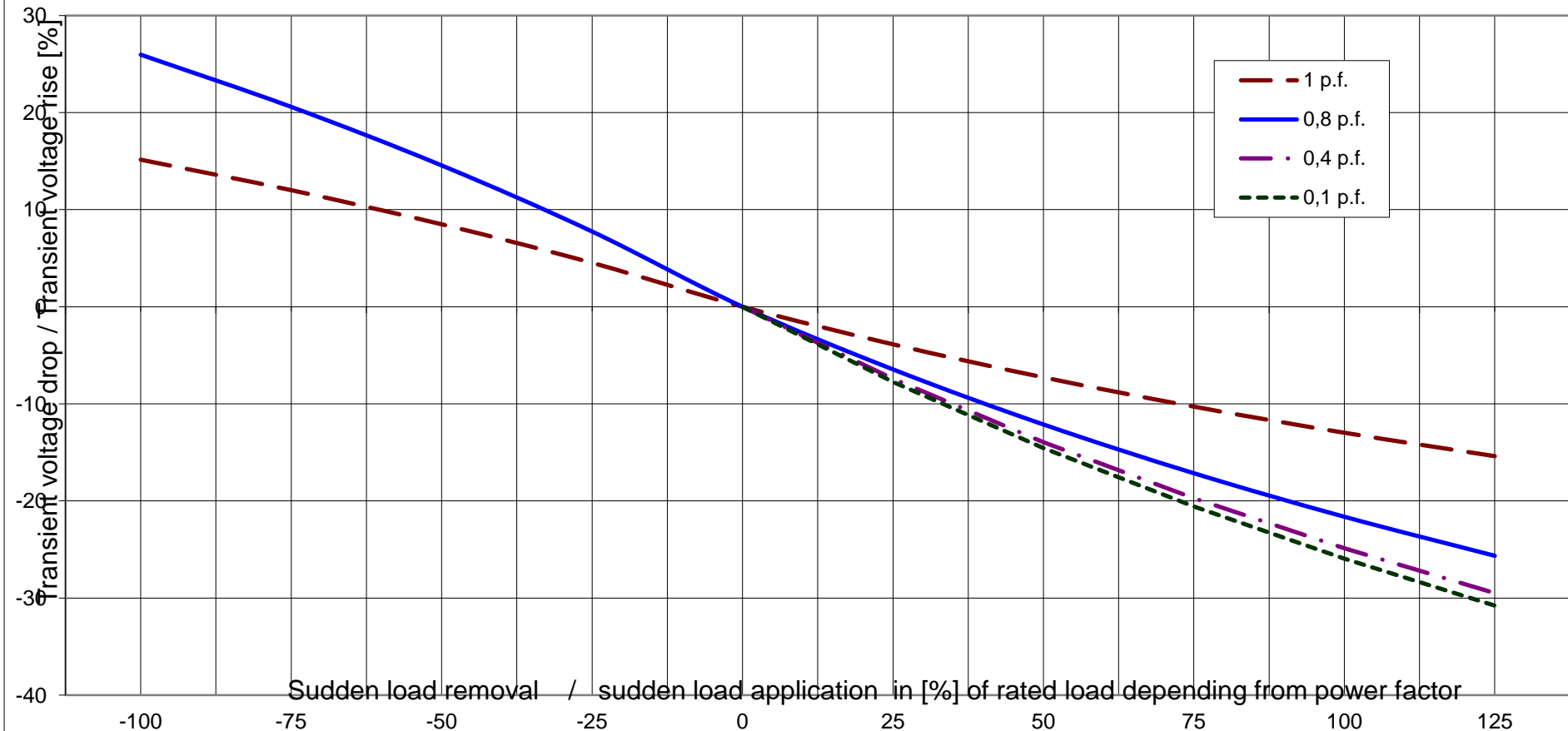
Wirkungsgrad-Kennlinie - Efficiency Curve



Alternator : DIG 156 I/6

Rated output [kVA]	5500	Rated power factor:	0.8	Rated voltage [kV]:	11
Rated frequency [Hz]	50	Rated speed [rpm]	1000		

Transient Voltage rise or drop for sudden load removal or application

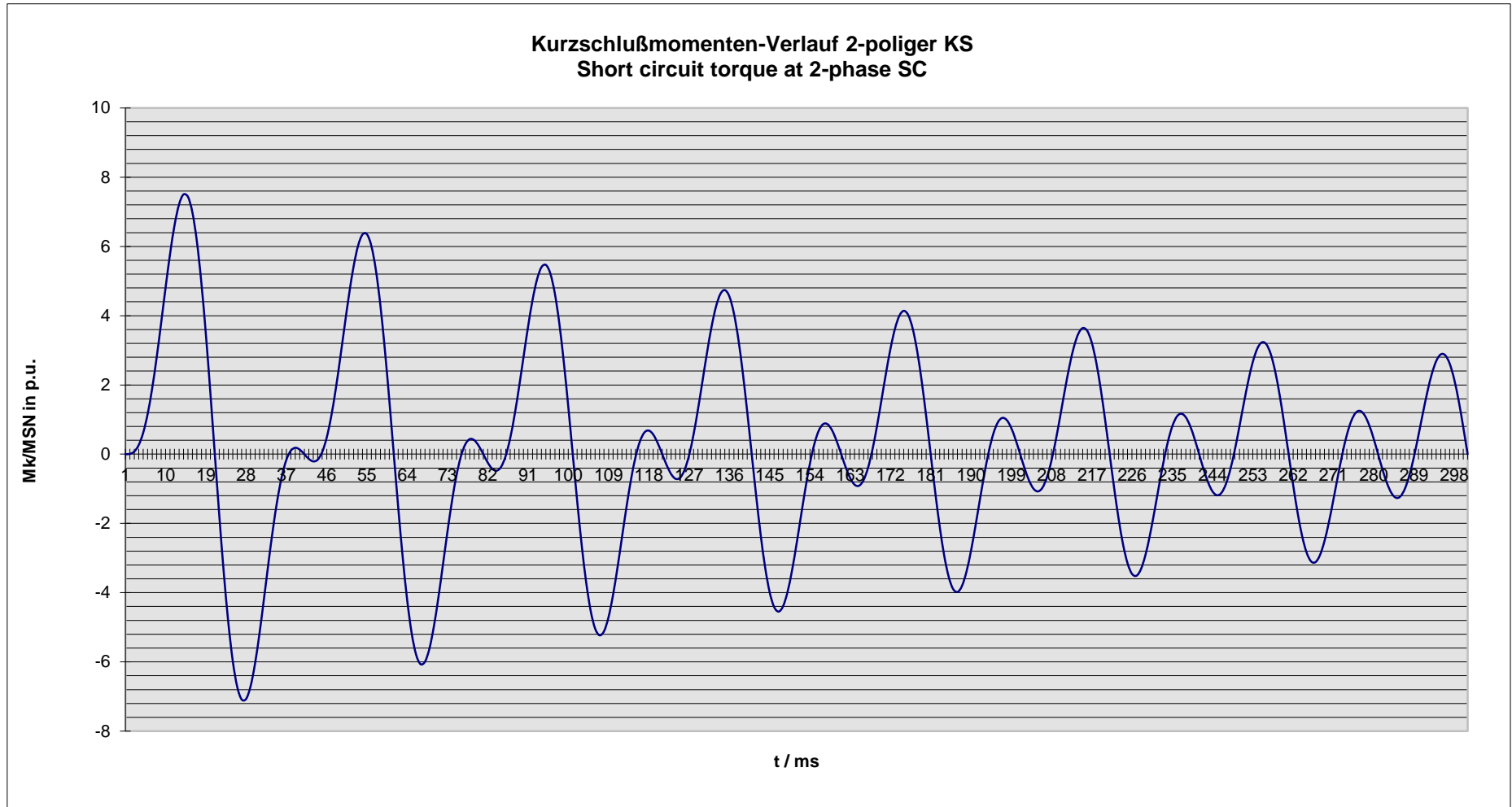




Technisches Datenblatt - Diagramme
Technical data sheet - Diagrams

ING-FCD-0112

Alternator :	DIG 156 I/6			
Rated output [kVA]	5500	Rated power factor:	0.8	Rated voltage [kV]: 11
Rated frequency [Hz]	50	Rated speed [rpm]	1000	MSN related to kVA: 52.52 KNm



Nenndaten / nominal data

DIG 156 I/6

Leistung S_N : **5500** kVA

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

Rating

p.f.

Spannung U_N : **11.00** kV

Strom I_N : **289** A

Voltage

Current

Frequenz f : **50** Hz

Drehzahl n : **1,000** min⁻¹

Frequency

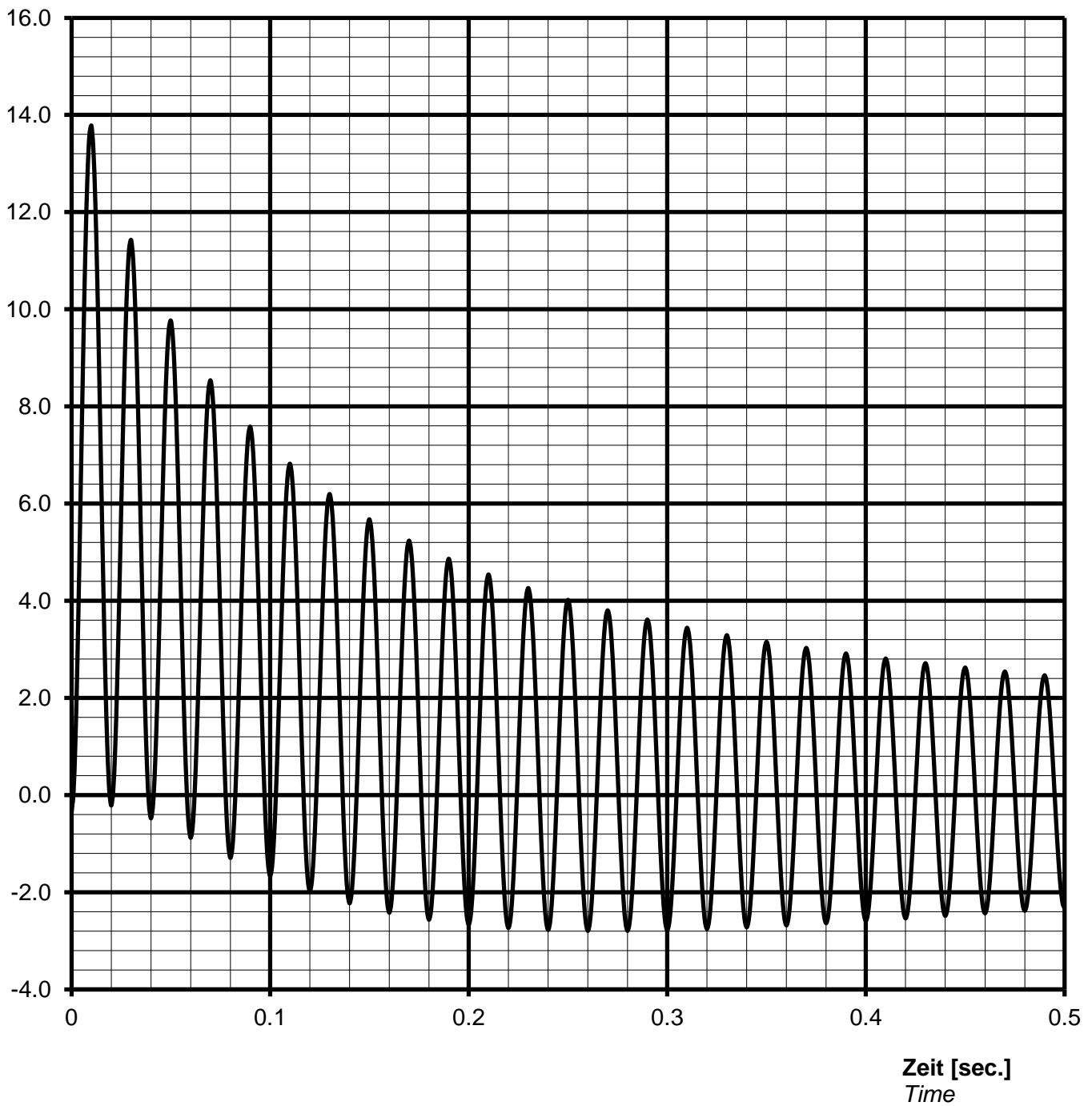
Speed

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 $I_{\text{peak}} =$ **3978 A** or **13.78 p.u.**

Nennwerten / nominal data

DIG 156 I/6

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

Rating

p.f.

Spannung U_N : **11.00 kV**

Strom I_N : **289 A**

Voltage

Current

Frequenz f: **50 Hz**

Drehzahl n: **1000 min⁻¹**

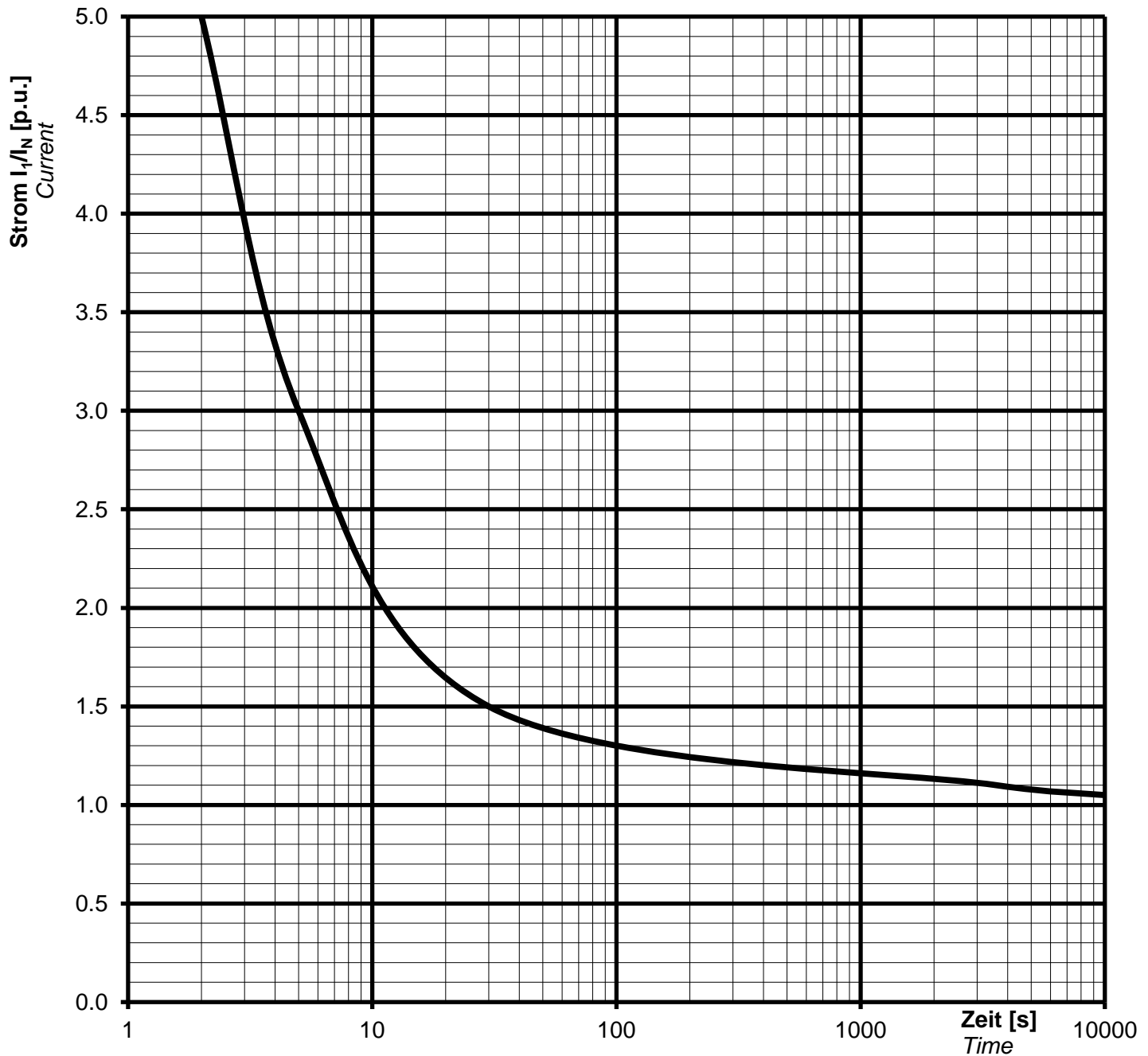
Frequency

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 156 I/6

Rating S_N : **5500 kVA**

p.f. **0.80**

Bemessungsleistung

Leistungsfaktor $\cos \varphi$:

Nominal voltage U_N : **11.00 kV**

Nominal current I_N : **289 A**

Bemessungsspannung

Bemessungsstrom

Frequency f_N : **50 Hz**

Speed n : **1000 min⁻¹**

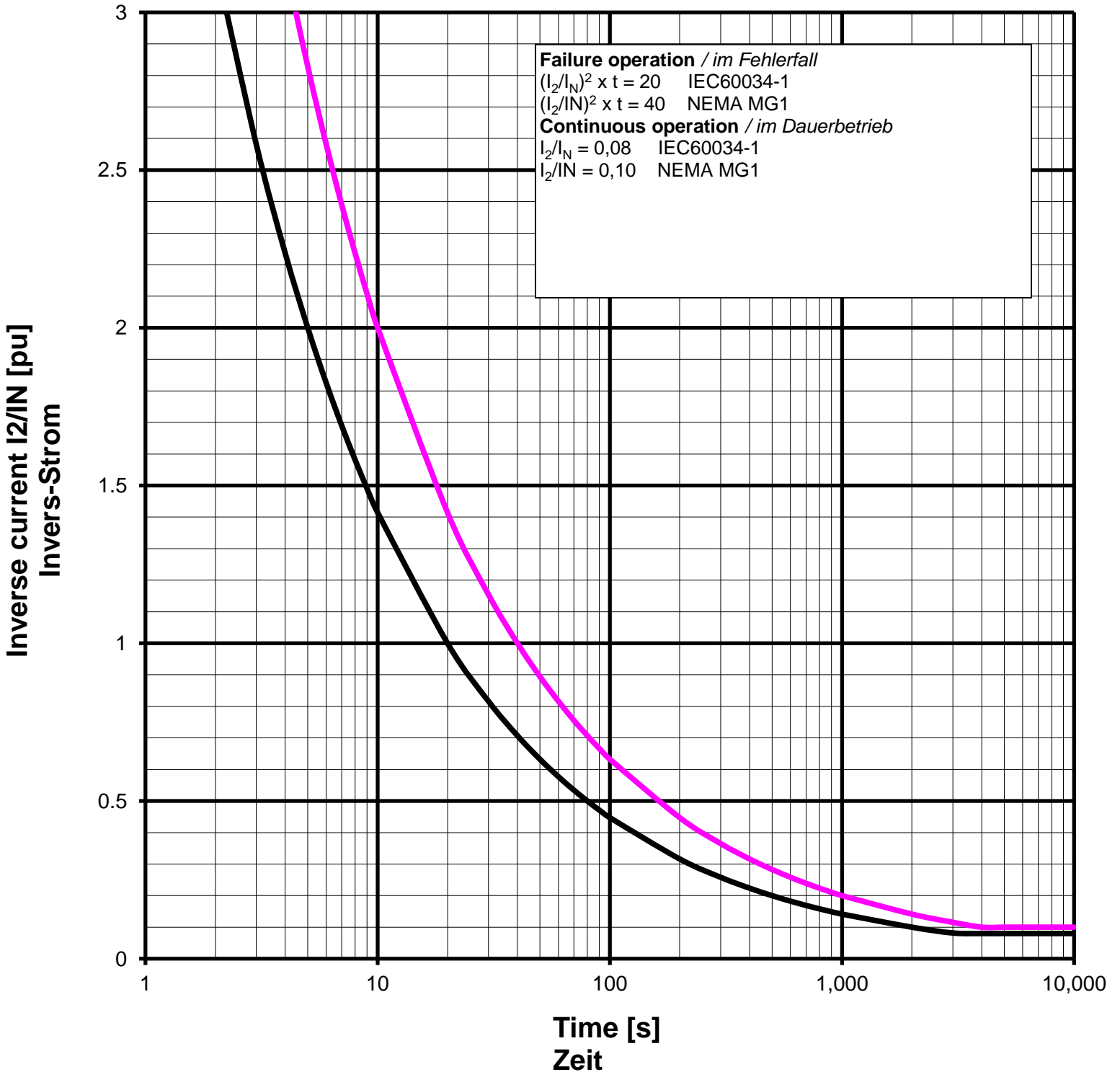
Frequenz

Drehzahl

Protection: **IP23**

Schutzart

Inverse current or unbalanced negative sequence current



Remarks / Notizen:

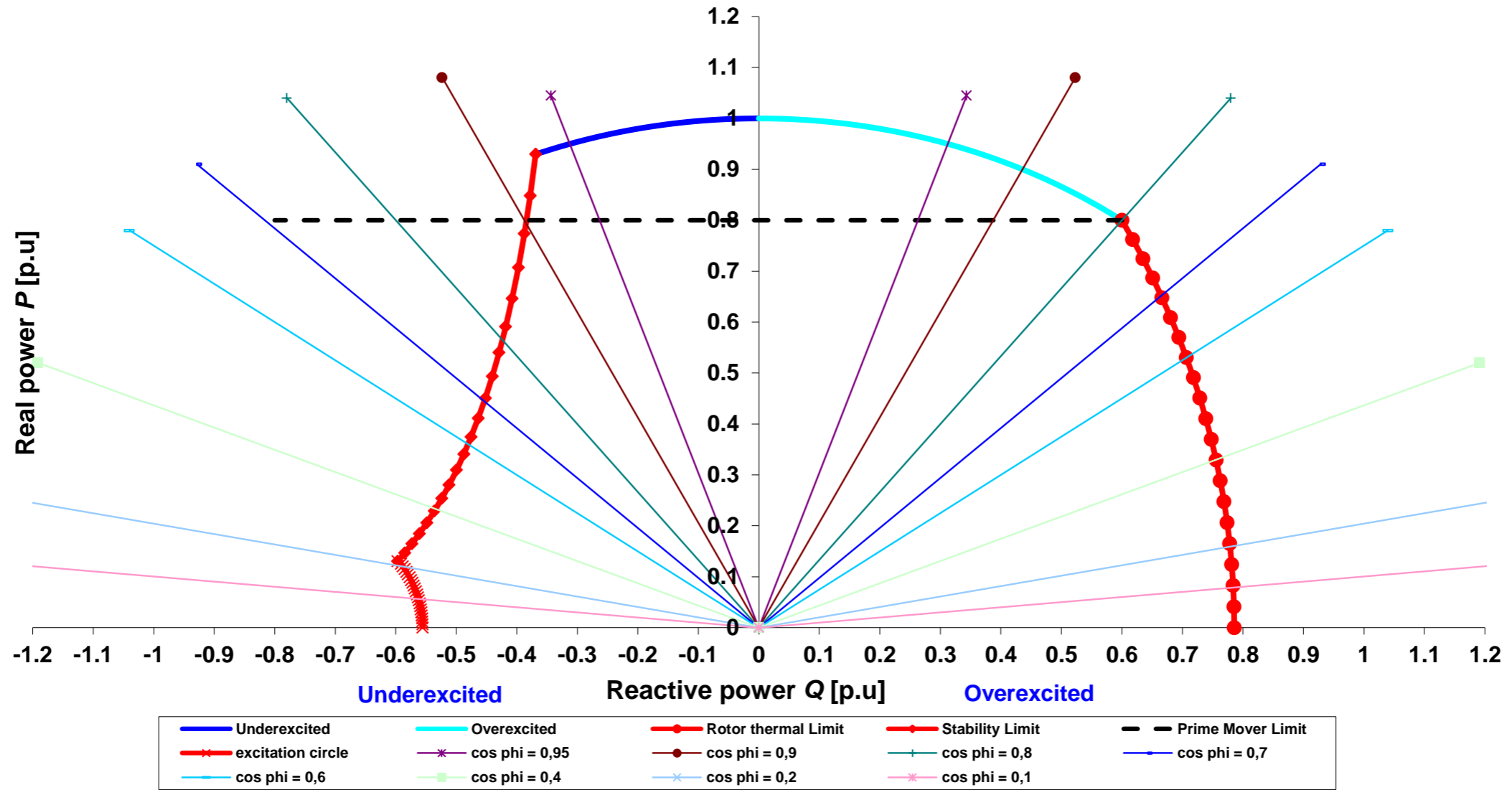
TYPE

DIG 156 I/6

Projekt:

Order Nr.:

Capability (P-Q) Diagram



TYPE

DIG 156 I/6

Projekt:

Order Nr.:

