

**Technical Data Sheet for AvK-Alternators**

FM 7.3-5

Date:	19/12/13	Customer:	GENERIC DATASHEET only
Project No.:		AvK Reference:	DIG110I_4_60_4160

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

Generator data:					
Generator:	DIG 110 i/4	Poles:	4	Standards: IEC 60034	
Rated power:	1300 kVA	1040 kWe	1087 kWm		
Power factor:	0.80				
Power at pf 1,0	1050 kVA	1050 kWe	1087 kWm		
Rated voltage:	4.16 kV				
Speed:	1800 1/min				
Frequency:	60 Hz	Voltage range / frequency range:			
Rated current:	180.4 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	Filter:			
Enclosure:	IP23				
Cooling:	IC 01 - Open-circuit ventilation				
Coolant:	Ambient Air	Temperature	40 ° C	Temperature Air inlet	40 ° C
		Coolant:		generator:	
		Cooling air vol.:	1.6 m³/s	Cooling water quantity:	n/a
Moment of inertia (I):	26 kgm²	Weight:	3600 Kg	Losses (environment):	47 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	95,49	95,7	95,6	95	91,2
Power factor 0.9	95,96	96,15	96	95,3	91,35
Power factor 1.0	96,43	96,6	96,4	95,6	91,5

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'}	2.2	s
X _{d'}	0.290	0.290	p.u.	X _{q'}	1.20	1.18	p.u.	T _{d'}	0.27	s
X _{d''}	0.209	0.190	p.u.	X _{q''}	0.209	0.209	p.u.	T _{d''}	0.014	s
X ₂	0.220	0.200	p.u.	X ₀	0.063	0.057	p.u.	T _a	0.036	s
X _{1s}	n.a.	0.114	p.u.					T _{q'}	0.28	s
								T _{q''}	0.028	s
Short circuit ratio saturated:	0.46				Z _n	13.312	Ohm			

Short circuit data:			
Initial short circuit current (3-phase):	I _{k''}	950 A	
Max. peak current (3-phase):	I _s	2418 A	
Sustained short circuit current:	I _k	541 A	Minimum 3 x rated current for max.10 s
Initial short circuit torque:	M _{k2}	47.2 kNm	
	M _{k3}	28.3 kNm	
Max. faulty synchron moment:	M _f	101.5 kNm	
Rated kVA torque:	M _{SN}	6.90 kNm	
Rated torque	M _N	5.52 kNm	
Shaft torque	M _{Sh}	5.77 kNm	

Load application:	
max. load application: 672 kVA (corresponds to 51,72 % from 1300 kVA) for Power factor 0.4 15% transient voltage drop	Power: 1300 kVA Power factor: 0.8 transient voltage drop: -22.5 %

Remarks:

Alternator : DIG 110 i/4

Rated output [kVA]

1300

Rated power factor:

0.8

Rated voltage [kV]: 4.16

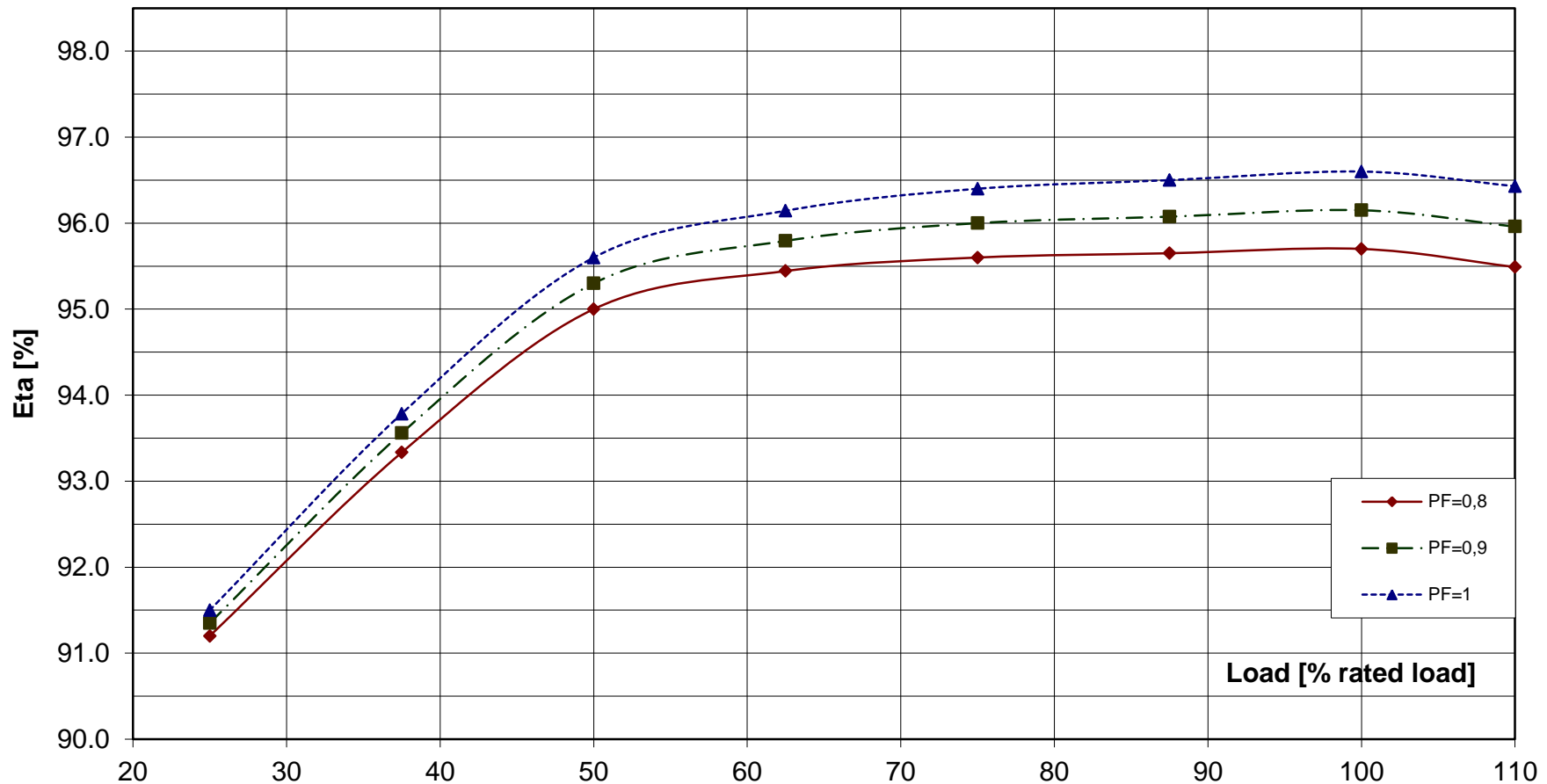
Rated frequency [Hz]

60

Rated speed [rpm]

1800

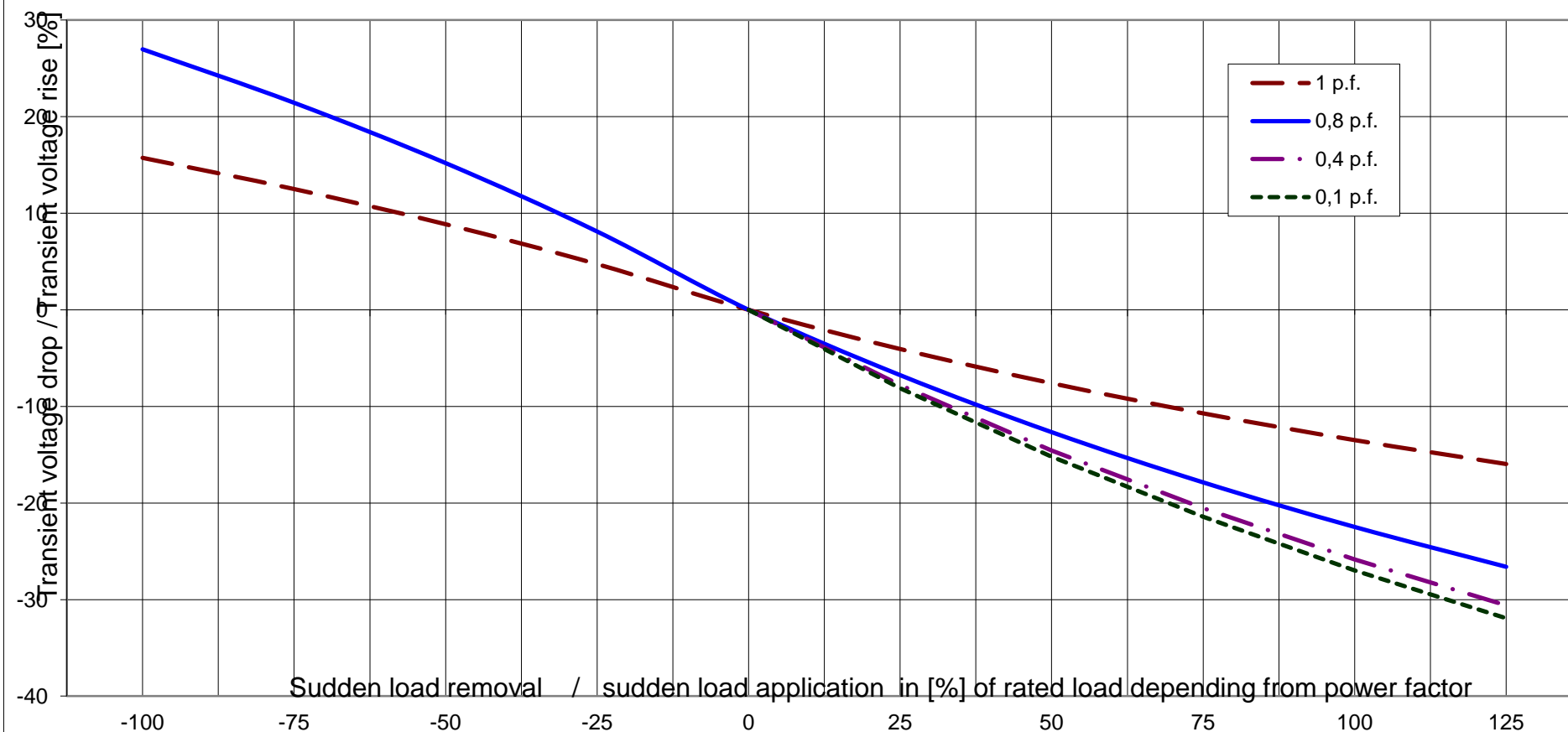
Wirkungsgrad-Kennlinie - Efficiency Curve



Alternator : DIG 110 i/4

Rated output [kVA]	1300	Rated power factor:	0.8	Rated voltage [kV]:	4.16
Rated frequency [Hz]	60	Rated speed [rpm]	1800		

Transient Voltage rise or drop for sudden load removal or application





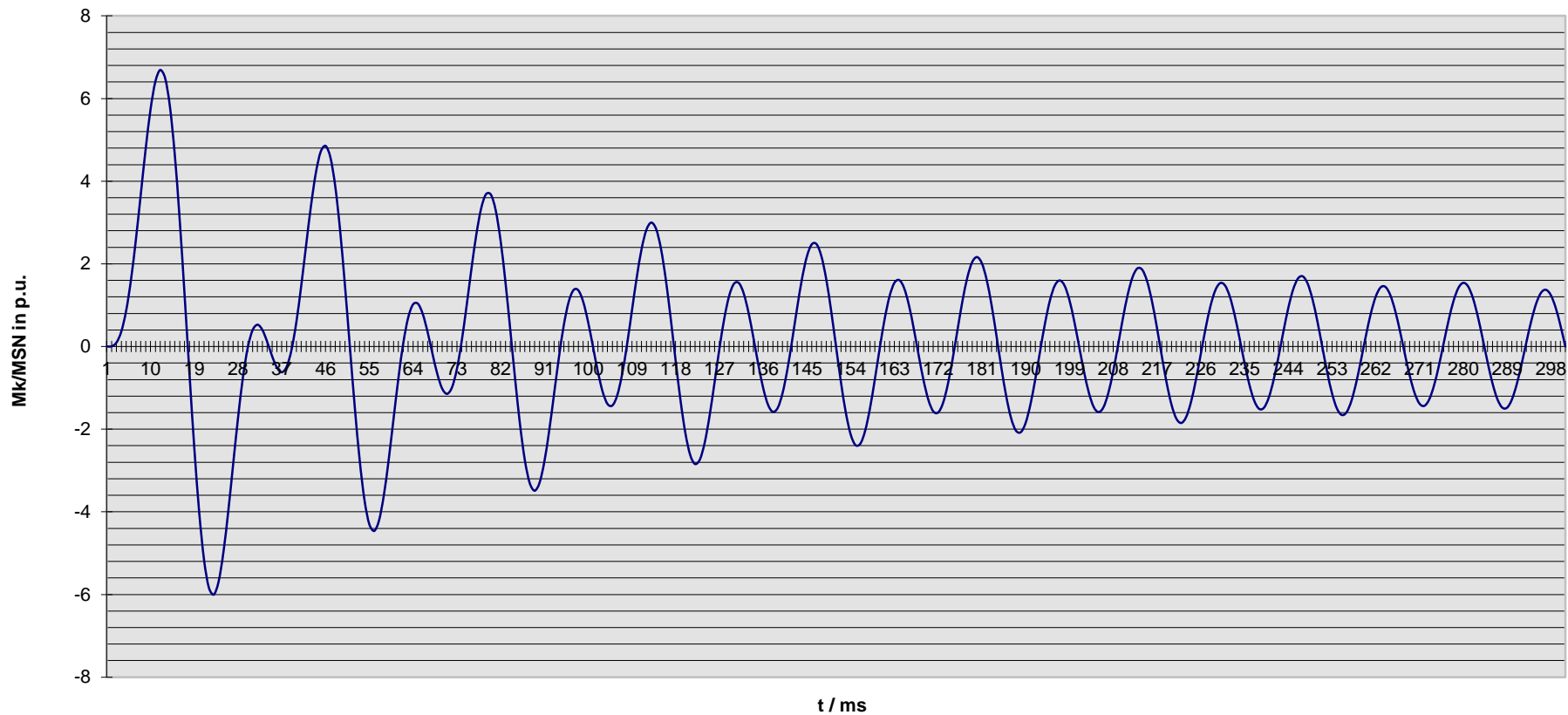
Technisches Datenblatt - Diagramme
Technical data sheet - Diagrams

ING-FCD-0112

Alternator : **DIG 110 i/4**

Rated output [kVA]	1300	Rated power factor:	0.8	Rated voltage [kV]:	4.16
Rated frequency [Hz]	60	Rated speed [rpm]	1800	MSN related to kVA:	6.9 KNm

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



Nenn Daten / nominal data

DIG 110 i/4

Leistung S_N : **1300** kVA

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

Rating

p.f.

Spannung U_N : **4.16** kV

Strom I_N : **180** A

Voltage

Current

Frequenz f : **60** Hz

Drehzahl n : **1,800** min⁻¹

Frequency

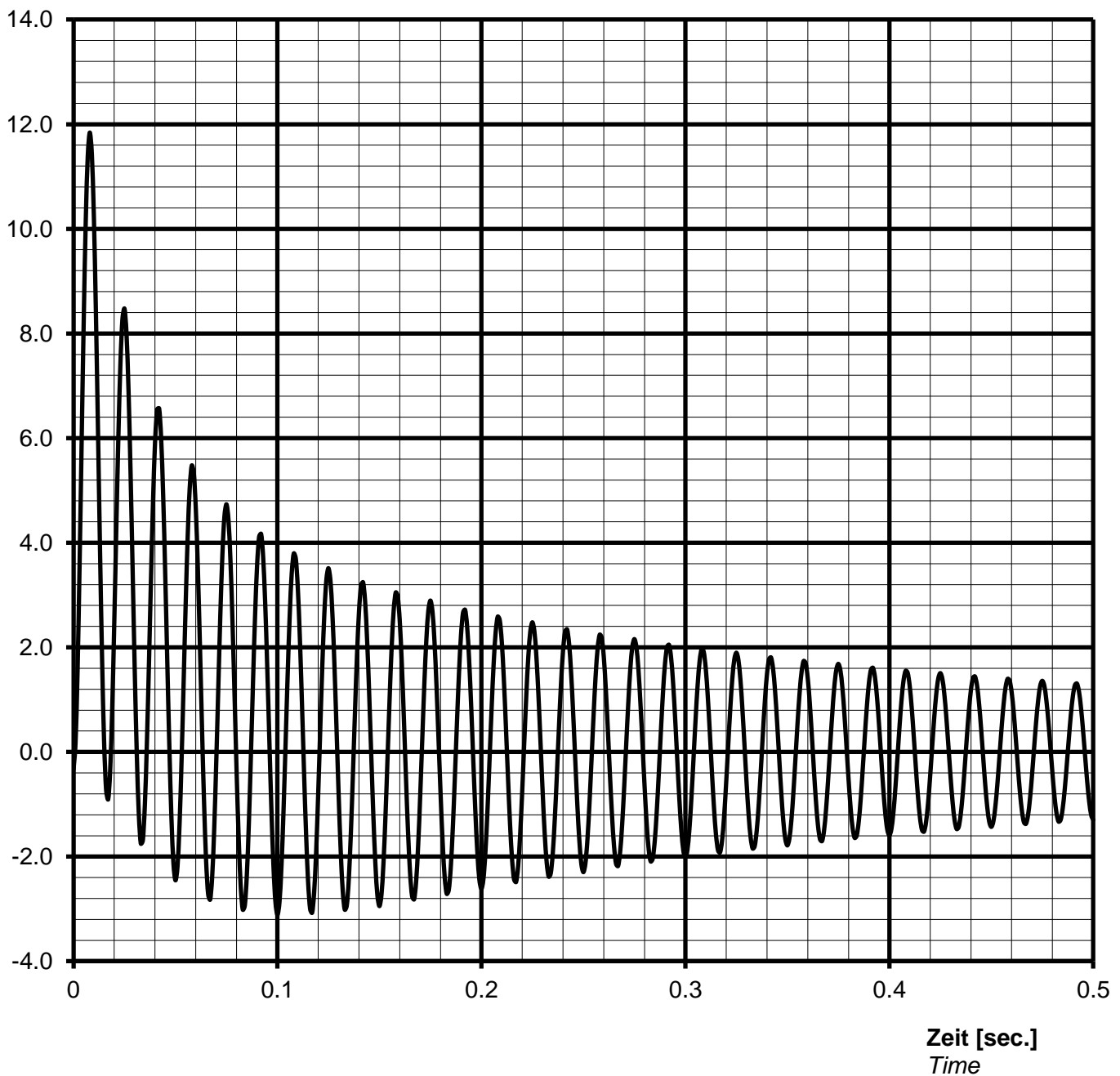
Speed

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

$I_{\text{speak}} =$ **2136** A or **11.84** p.u.

Nenn Daten / nominal data

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

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p.f.

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Current

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Drehzahl n : **1800 min⁻¹**

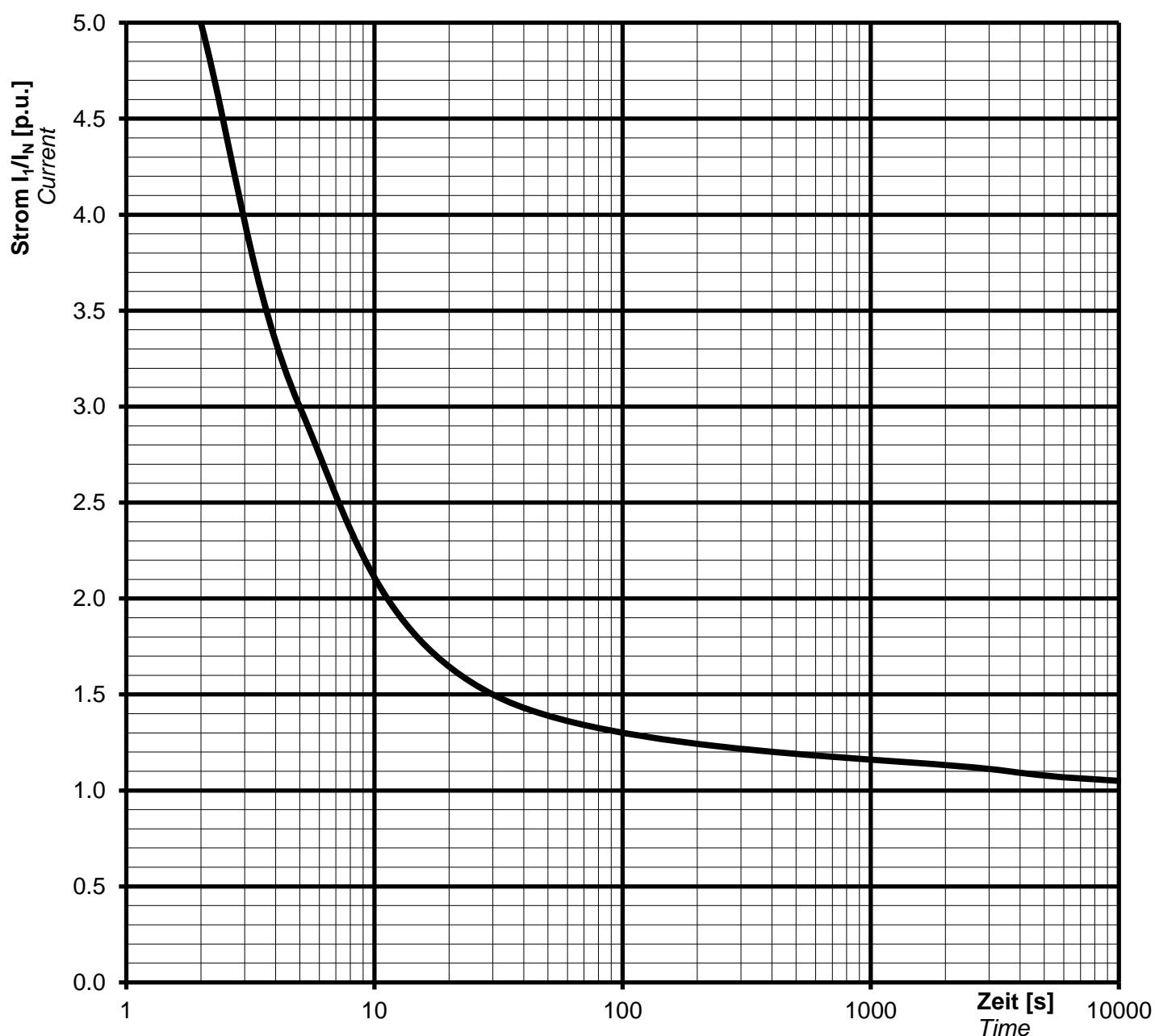
Frequency

Speed

Schutzart **IP23**

Protection

Überlast Kennlinie Overload capability



Notizen / remarks:

Strom / Zeit Kriterien:

$$(I / I_N)^{2+t} = 45s$$

Current/time characteristics:

1,5 * I_N for 30 s

1,1 * I_N for 1 h in 6h

Nenn Daten / nominal data

DIG 110 i/4

Rating S_N : **1300 kVA**

$p.f.$ **0.80**

Bemessungsleistung

Leistungsfaktor $\cos \varphi$:

Nominal voltage U_N : **4.16 kV**

Nominal current I_N : **180 A**

Bemessungsspannung

Bemessungsstrom

Frequency f_N : **60 Hz**

Speed n : **1800 min⁻¹**

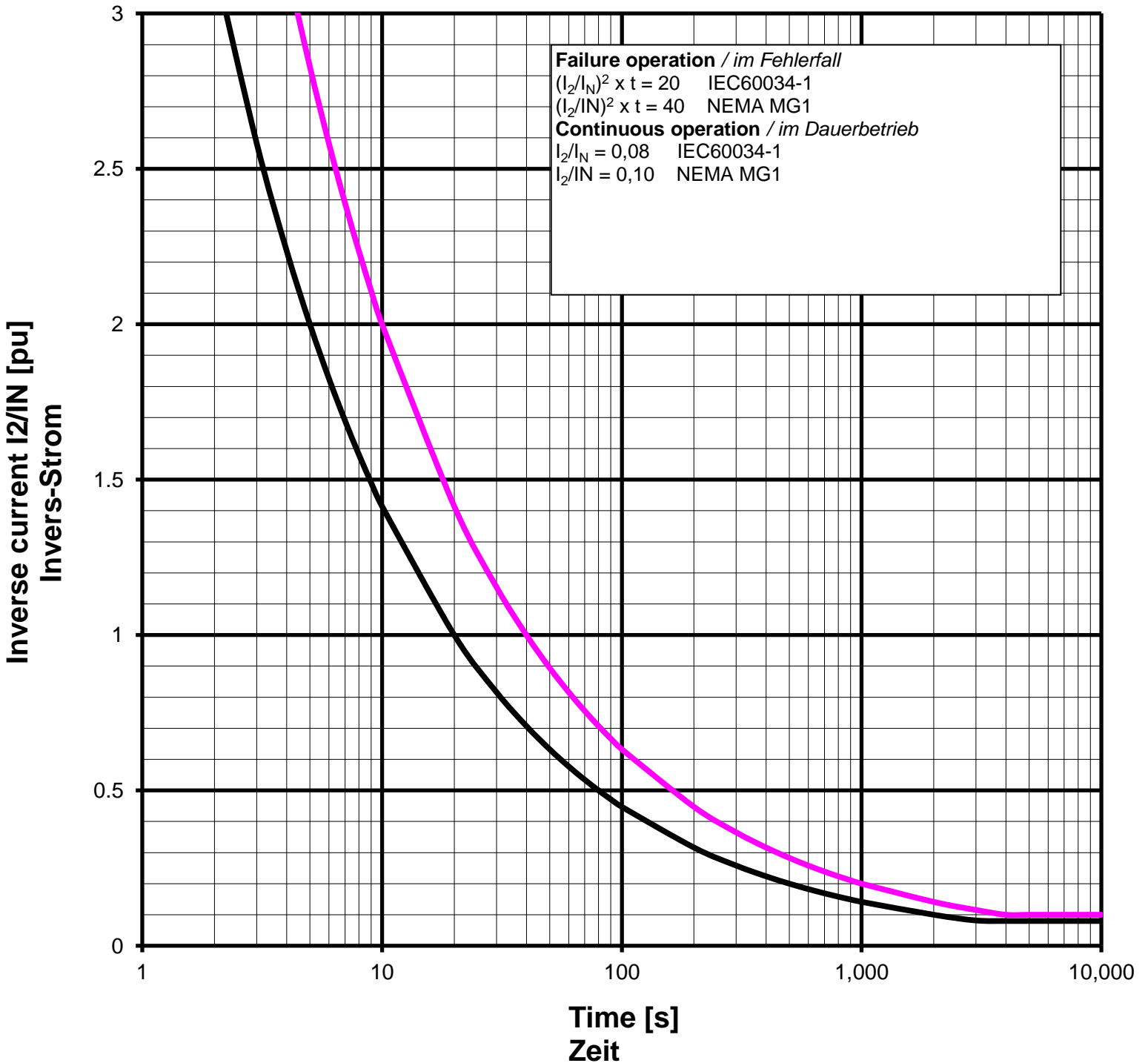
Frequenz

Drehzahl

Protection: **IP23**

Schutzart

Inverse current or unbalanced negative sequence current



Remarks / Notizen:



TYPE

DIG 110 i/4

Projekt:

Order Nr.:

Capability (P-Q) Diagram

