



Technical Data Sheet for AvK-Alternators

FM 7.3-5

Date:	03/10/13	Customer:	GENERIC DATASHEET only
Project No.:		AvK Reference:	dig120i_4_50_11000

Object data:

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

Generator data:

Generator:	DIG 120 i/4	Poles:	4	Standards:	IEC 60034
Rated power:	1650 kVA	1320 kWe	1382 kWm		
Power factor:	0.80				
Power at pf 1,0	1334 kVA	1334 kWe	1382 kWm		
Rated voltage:	11 kV				
Speed:	1500 1/min				
Frequency:	50 Hz			Voltage range / frequency range:	
Rated current:	86.6 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.:	2.5 m³/s	Cooling water quantity:	n/a
Moment of inertia (I):	59 kgm²	Weight:	5400 Kg	Losses (environment):	62 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	95,28	95,5	95,5	94,7	92,2
Power factor 0.9	95,81	96	95,95	95,15	92,45
Power factor 1.0	96,33	96,5	96,4	95,6	92,7

Reactances and time constants

	unsaturated	saturated		unsaturated	saturated					
X_d	2.20	1.98 p.u.	X_q	1.10	1.08 p.u.	$T_{d0'}$	2.75 s	$T_{d0''}$	0.02333 s	
X_d'	0.280	0.280 p.u.	X_q'	1.10	1.08 p.u.	$T_{d'}$	0.35 s	$T_{q0'}$	0.3 s	
X_d''	0.198	0.180 p.u.	X_q''	0.198	0.198 p.u.	$T_{d''}$	0.015 s	$T_{q0''}$	0.16667 s	
X_2	0.208	0.189 p.u.	X_0	0.059	0.054 p.u.	T_a	0.05 s	$T_{q'}$	0.3 s	
X_{1s}	n.a.	0.108 p.u.						$T_{q''}$	0.03 s	

Short circuit ratio saturated: 0.51	Z_n 73.333 Ohm
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Short circuit data:

Initial short circuit current (3-phase):	I_k''	481 A	
Max. peak current (3-phase):	I_s	1224 A	
Sustained short circuit current:	I_k	260 A	Minimum 3 x rated current for max.10 s
Initial short circuit torque:	M_{k2}	75.9 kNm	
	M_{k3}	45.5 kNm	
Max. faulty synchron moment:	M_f	163.2 kNm	
Rated kVA torque:	M_{SN}	10.51 kNm	
Rated torque	M_N	8.41 kNm	
Shaft torque	M_{Sh}	8.81 kNm	

Load application:

max. load application: 884 kVA (corresponds to 53,57 % from 1650 kVA) for Power factor 0.4 15% transient voltage drop	Power: 1650 kVA Power factor: 0.8 transient voltage drop: -21.9 %
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Remarks:

Alternator : DIG 120 i/4

Rated output [kVA]

1650

Rated power factor:

0.8

Rated voltage [kV]: 11

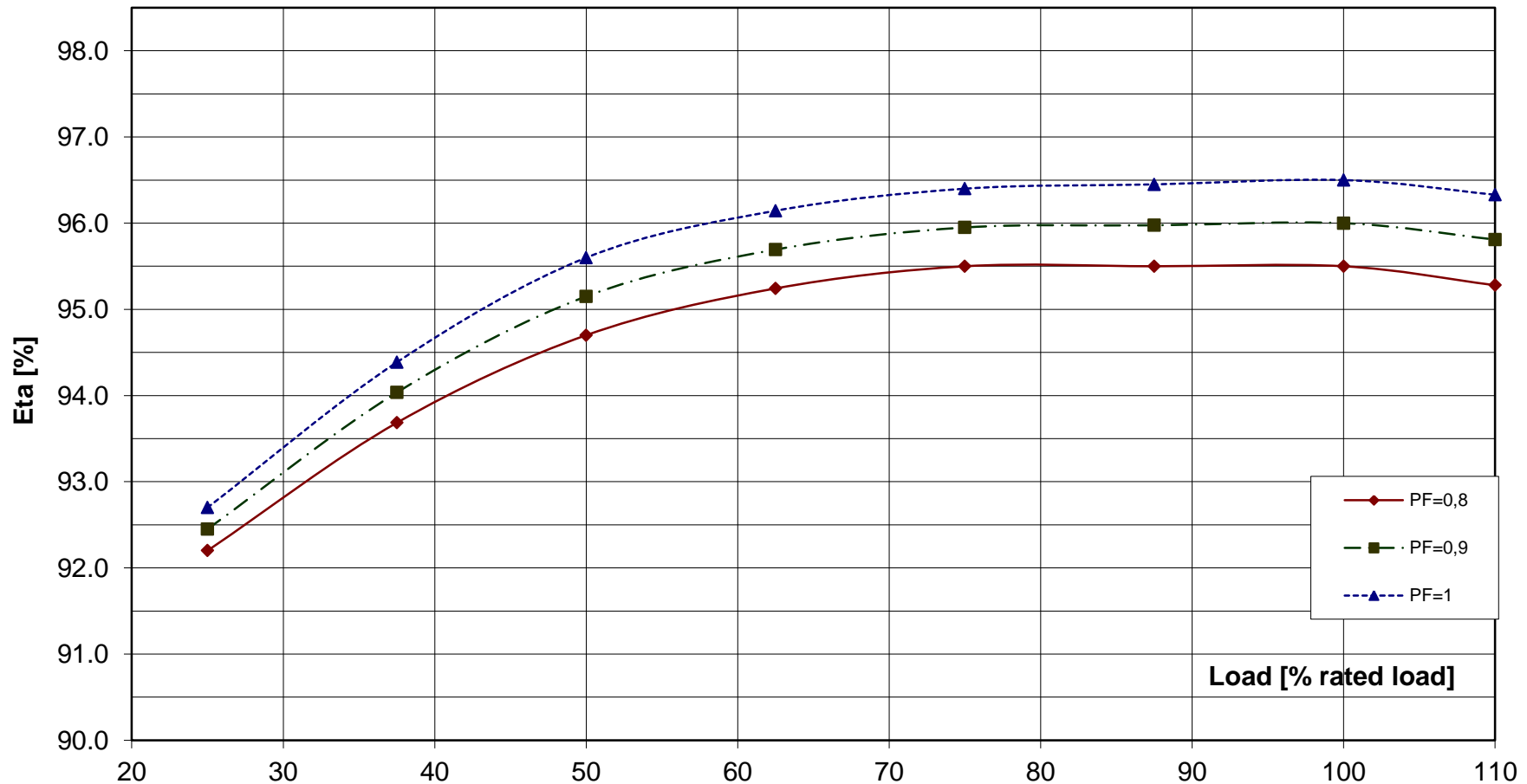
Rated frequency [Hz]

50

Rated speed [rpm]

1500

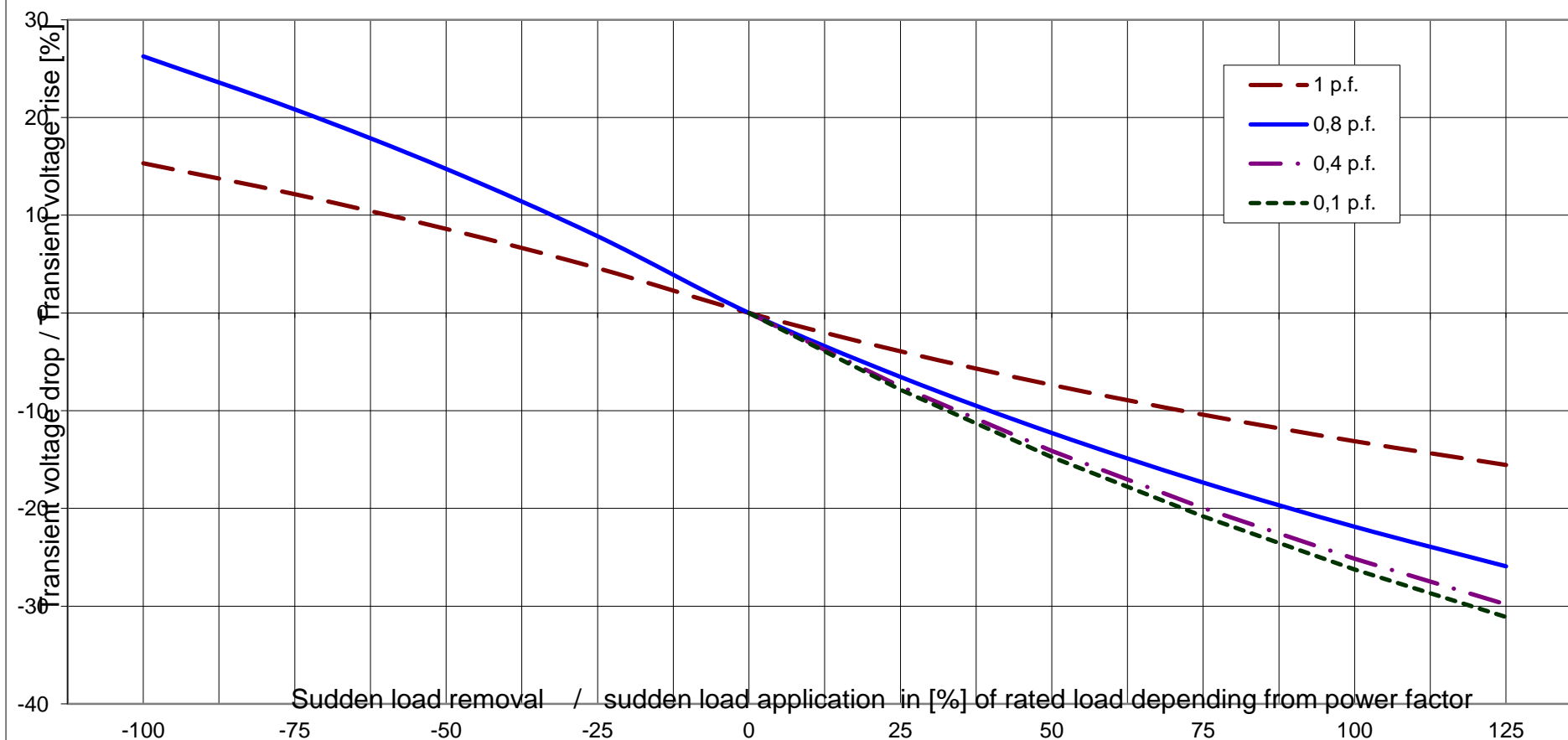
Wirkungsgrad-Kennlinie - Efficiency Curve



Alternator : DIG 120 i/4

Rated output [kVA]	1650	Rated power factor:	0.8	Rated voltage [kV]:	11
Rated frequency [Hz]	50	Rated speed [rpm]	1500		

Transient Voltage rise or drop for sudden load removal or application

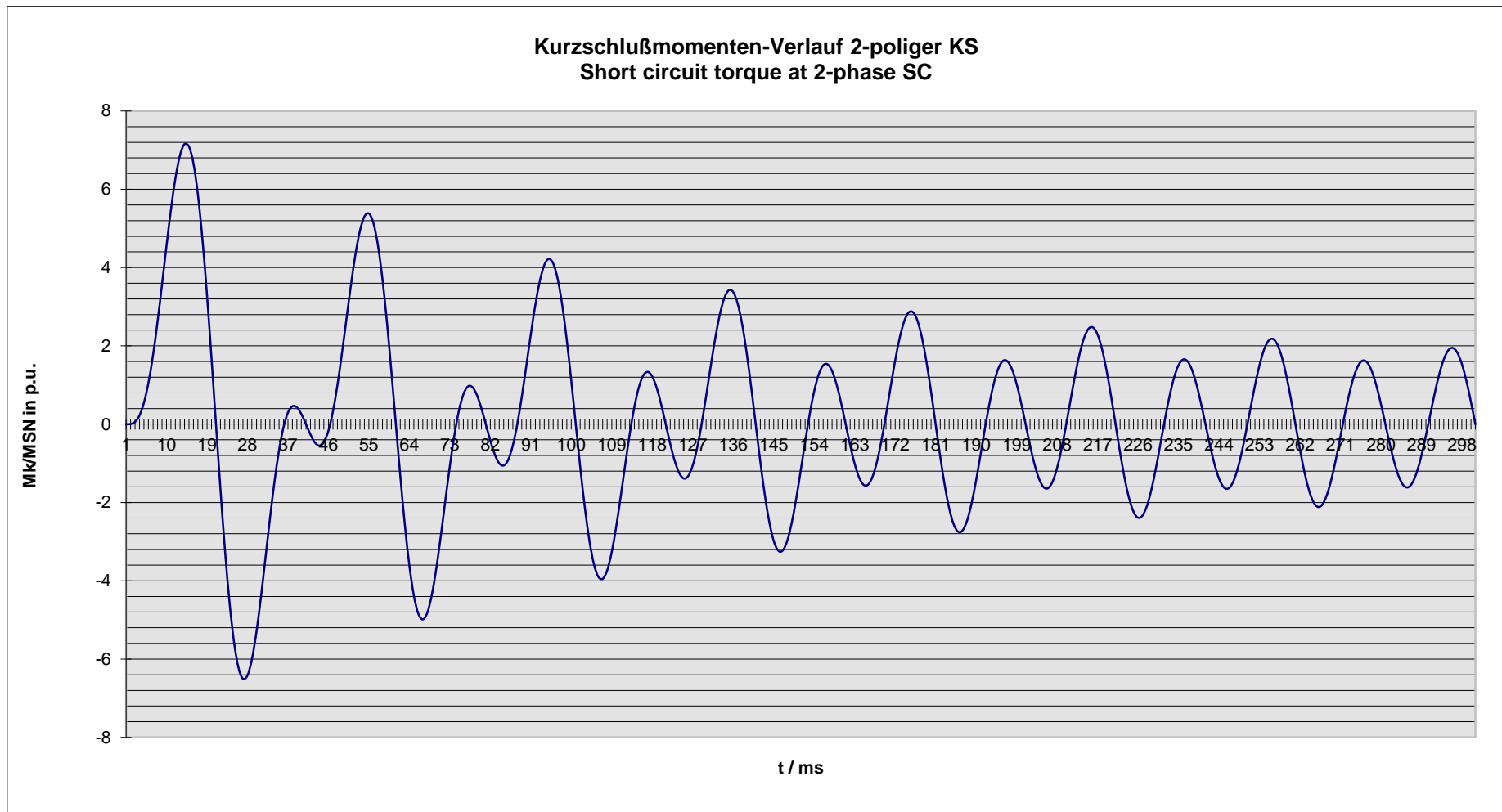




Technisches Datenblatt - Diagramme
Technical data sheet - Diagrams

ING-FCD-0112

Alternator :	DIG 120 i/4			
Rated output [kVA]	1650	Rated power factor:	0.8	Rated voltage [kV]: 11
Rated frequency [Hz]	50	Rated speed [rpm]	1500	MSN related to kVA: 10.5 KNm



Nenndaten / nominal data

DIG 120 i/4

Leistung S_N : **1650 kVA**

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

Rating

p.f.

Spannung U_N : **11.00 kV**

Strom I_N : **87 A**

Voltage

Current

Frequenz f : **50 Hz**

Drehzahl n : **1,500 min⁻¹**

Frequency

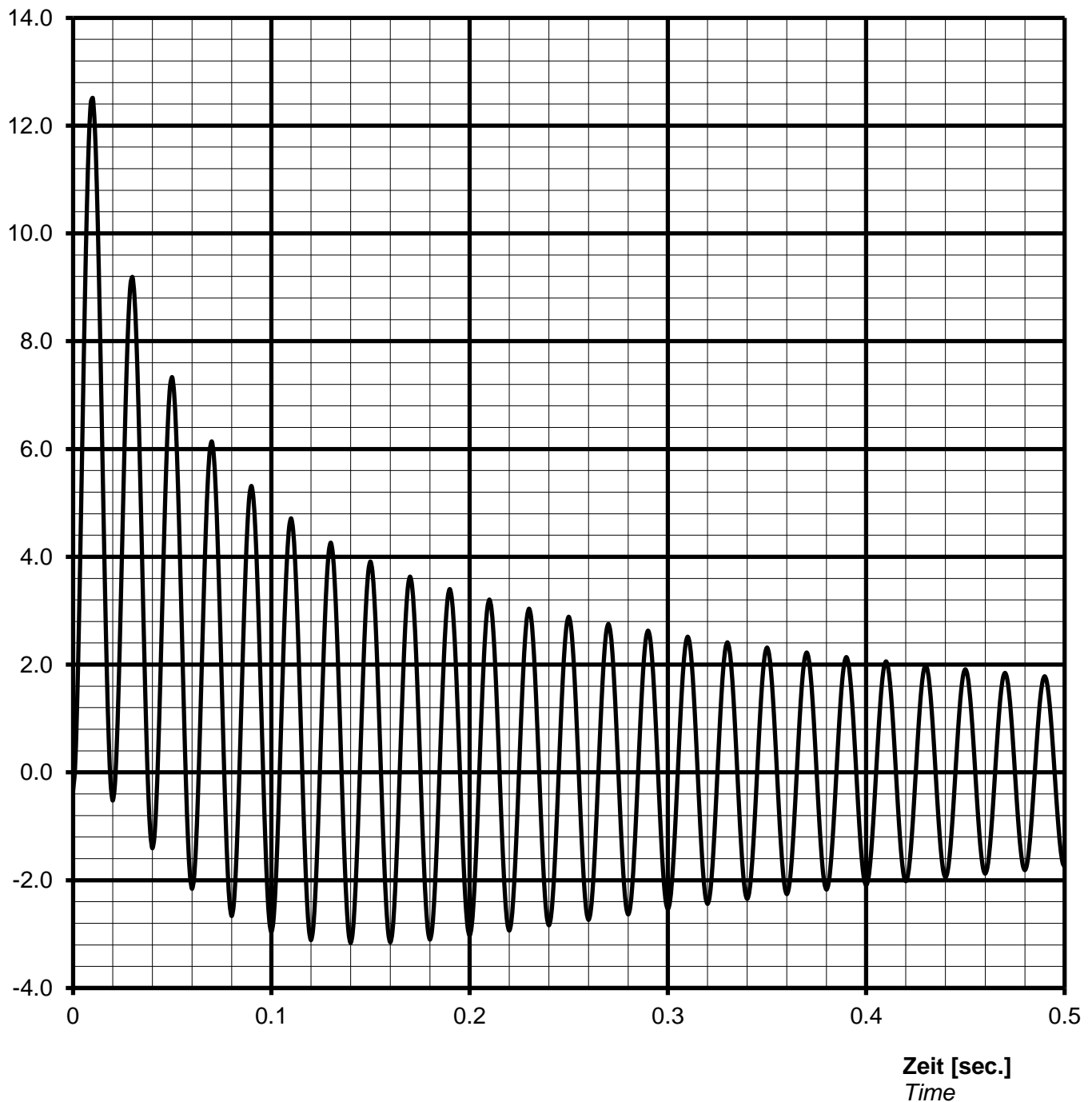
Speed

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 $I_{\text{peak}} =$ **1083 A** or **12.51 p.u.**

Nennwerten / nominal data

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Voltage

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Frequenz f: **50 Hz**

Drehzahl n: **1500 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:

$$1,5 \cdot I_N \text{ for } 30 \text{ s}$$

$$1,1 \cdot I_N \text{ for } 1 \text{ h in } 6 \text{ h}$$

Nennwerten / nominal data

DIG 120 i/4

Rating S_N : **1650 kVA**

p.f. **0.80**

Bemessungsleistung

Leistungsfaktor $\cos \varphi$:

Nominal voltage U_N : **11.00 kV**

Nominal current I_N : **87 A**

Bemessungsspannung

Bemessungsstrom

Frequency f_N : **50 Hz**

Speed n : **1500 min⁻¹**

Frequenz

Drehzahl

Protection: **IP23**

Schutzart

Inverse current or unbalanced negative sequence current



Remarks / Notizen:



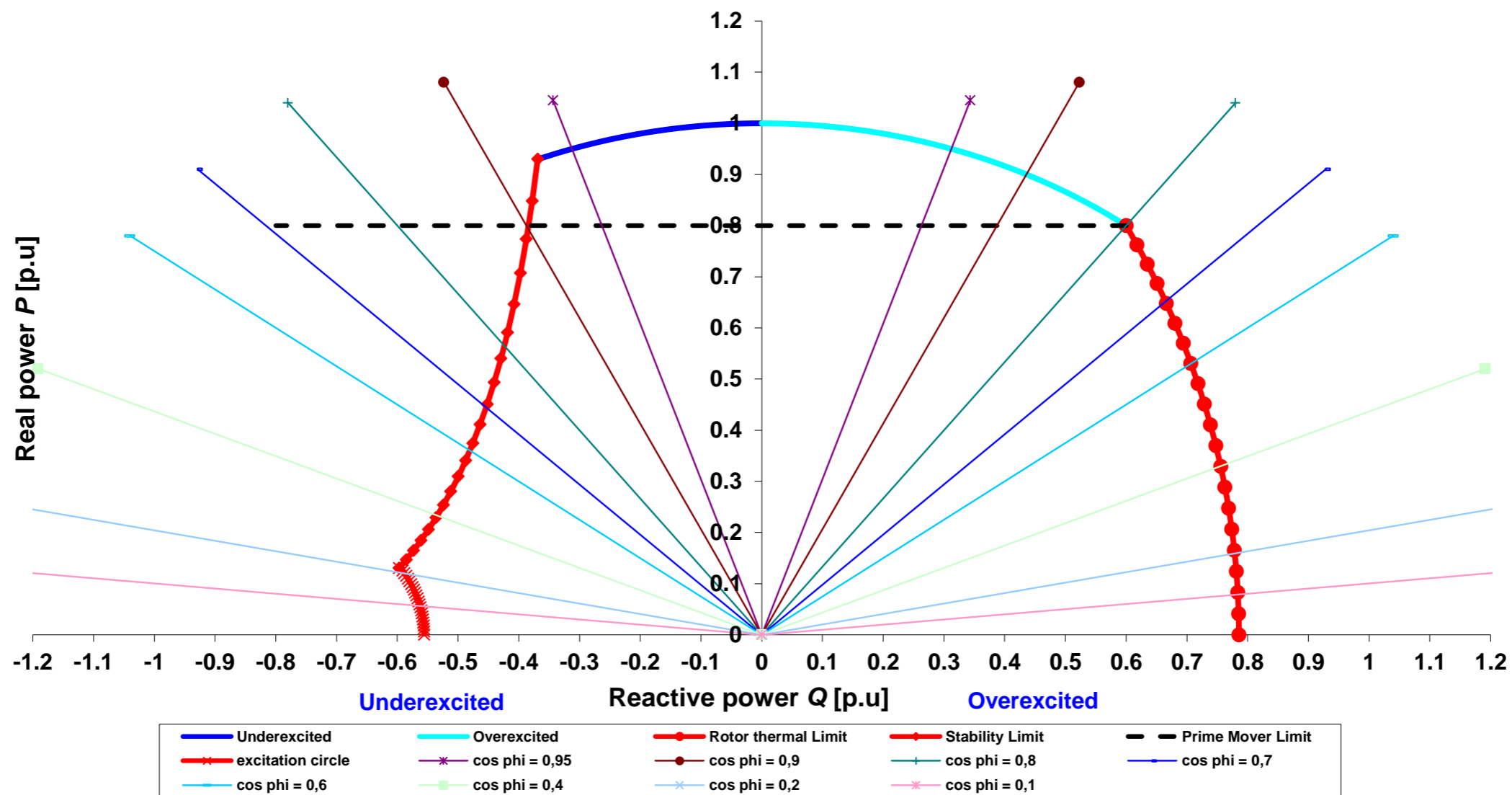
TYPE

DIG 120 i/4

Projekt:

Order Nr.:

Capability (P-Q) Diagram



TYPE

DIG 120 i/4

Projekt:

Order Nr.:

