

**Technical Data Sheet for AvK-Alternators**

FM 7.3-5

Date:	25/09/13	Customer:	GENERIC DATASHEET only
Project No.:		AvK Reference:	DSG062M1_4_50_400

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

Generator data:					
Generator:	DSG 62 M1/4	Poles:	4	Standards: IEC 60034	
Rated power:	660 kVA	528 kWe	564 kWm		
Power factor:	0.80				
Power at pf 1,0	538 kVA	538 kWe	564 kWm		
Rated voltage:	0.4 kV				
Speed:	1500 1/min				
Frequency:	50 Hz	Voltage range / frequency range:			
Rated current:	952.6 A	Zone A according IEC 60034-1 (dU = +/-5%, df = +/-2%)			
Winding pitch:	2/3				
Insulation class:	Stator: Class H	Rotor: Class H	Temperature rise:	H	
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.:	1.8 m³/s	Cooling water quantity:	n/a
Moment of inertia (I):	12.4 kgm²	Weight:	2010 Kg	Losses (environment):	36 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	93,28	93,6	93,9	93,4	90,4
Power factor 0.9	94,23	94,5	94,6	93,95	90,75
Power factor 1.0	95,17	95,4	95,3	94,5	91,1

Reactances and time constants											
	unsaturated		saturated			unsaturated		saturated			
X _d	2.60	2.34	p.u.	X _q	1.20	1.18	p.u.	T _{d0'}	2.075 s	T _{d0''}	0.0173 s
X _{d'}	0.223	0.223	p.u.	X _{q'}	1.20	1.18	p.u.	T _{d'}	0.18 s	T _{q0'}	0.18 s
X _{d''}	0.128	0.116	p.u.	X _{q''}	0.142	0.142	p.u.	T _{d''}	0.009 s	T _{q0''}	0.15211 s
X ₂	0.142	0.129	p.u.	X ₀	0.055	0.050	p.u.	T _a	0.018 s	T _{q'}	0.18 s
X _{1s}	n.a.	0.070	p.u.							T _{q''}	0.018 s
Short circuit ratio saturated: 0.43					Z _n 0.242 Ohm						

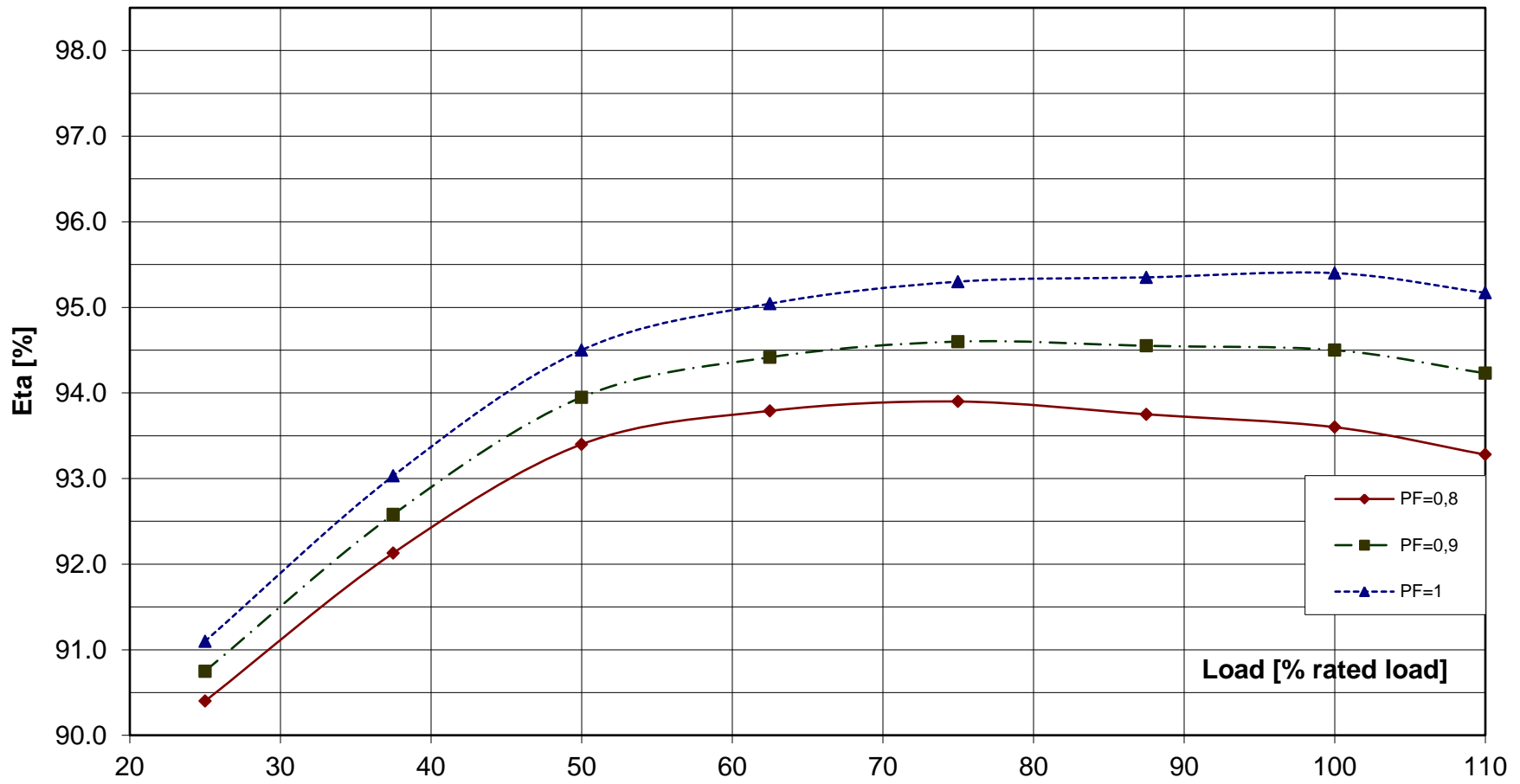
Short circuit data:		
Initial short circuit current (3-phase):	I _{k''}	8212 A
Max. peak current (3-phase):	I _s	20904 A
Sustained short circuit current:	I _k	2858 A
Minimum 3 x rated current for max.10 s		
Initial short circuit torque:	M _{k2}	47.1 kNm
	M _{k3}	28.3 kNm
Max. faulty synchron moment:	M _f	101.3 kNm
Rated kVA torque:	M _{SN}	4.20 kNm
Rated torque	M _N	3.36 kNm
Shaft torque	M _{Sh}	3.59 kNm

Load application:	
max. load application: 444 kVA (corresponds to 67,26 % from 660 kVA) for Power factor 0.4 15% transient voltage drop	Power: 660 kVA Power factor: 0.8 transient voltage drop: -18.2 %

Remarks:

Alternator :	DSG 62 M1/4		
Rated output [kVA]	660	Rated power factor:	0.8
Rated frequency [Hz]	50	Rated speed [rpm]	1500
			Rated voltage [kV]: 0.4

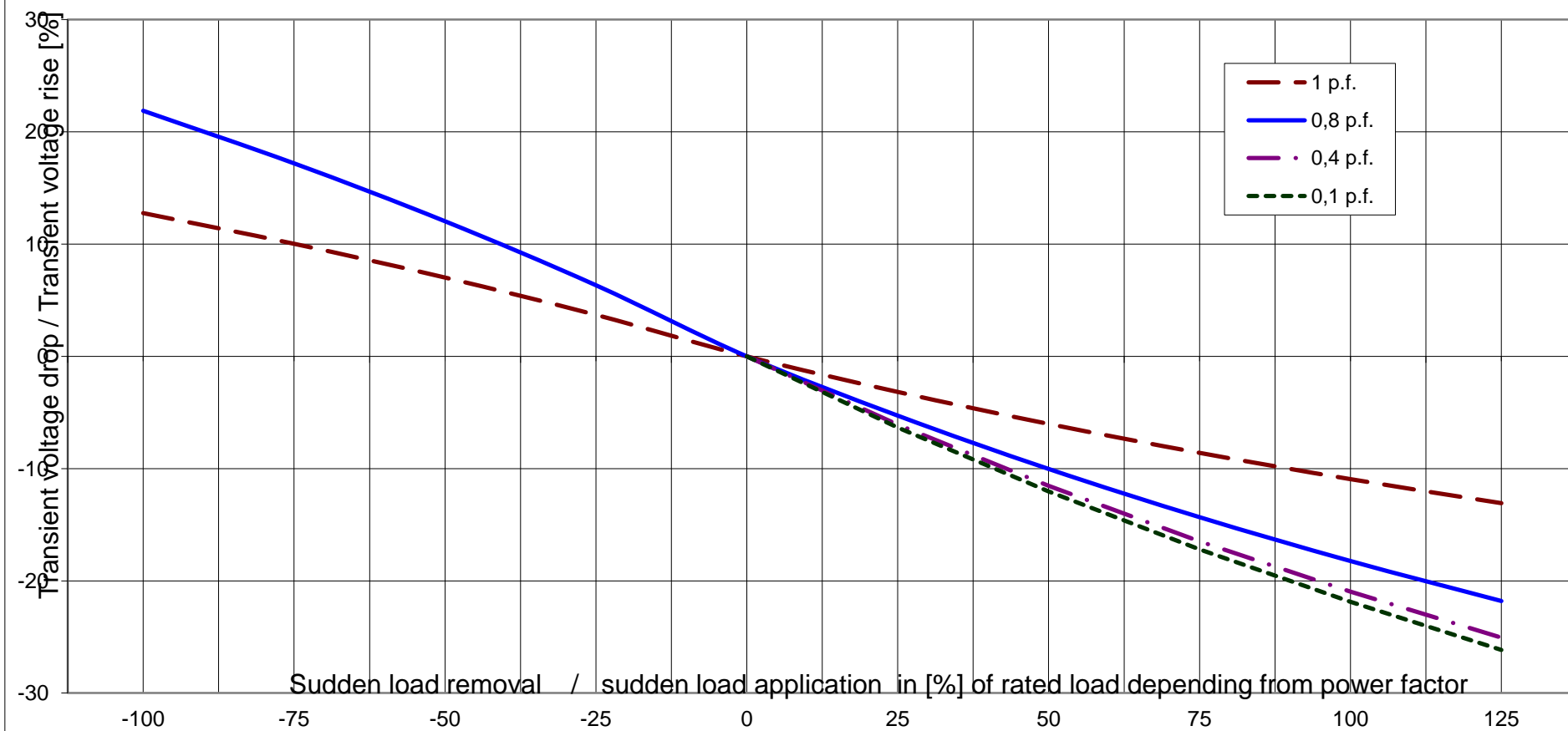
Wirkungsgrad-Kennlinie - Efficiency Curve



Alternator : DSG 62 M1/4

Rated output [kVA]	660	Rated power factor:	0.8	Rated voltage [kV]:	0.4
Rated frequency [Hz]	50	Rated speed [rpm]	1500		

Transient Voltage rise or drop for sudden load removal or application



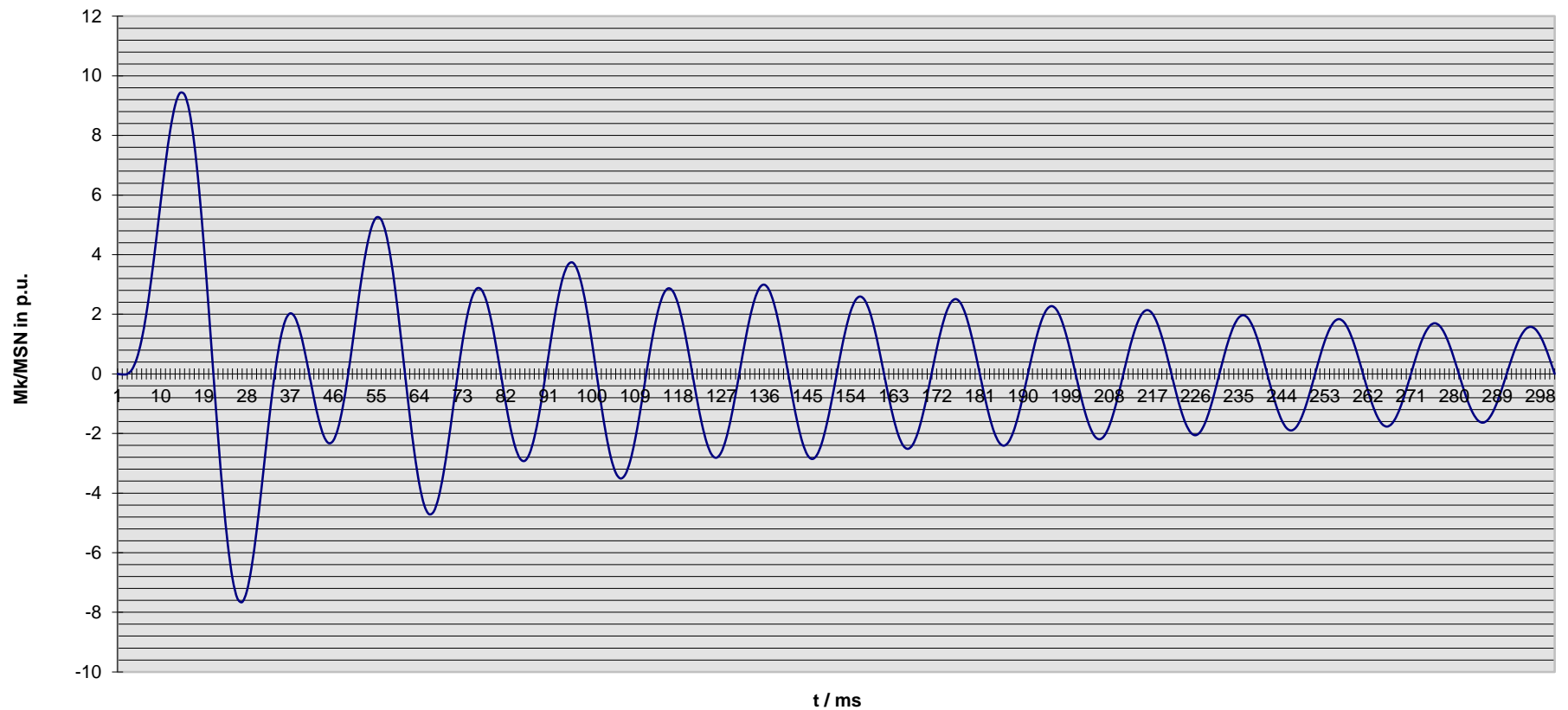


Technisches Datenblatt - Diagramme
Technical data sheet - Diagrams

ING-FCD-0112

Alternator :	DSG 62 M1/4			
Rated output [kVA]	660	Rated power factor:	0.8	Rated voltage [kV]: 0.4
Rated frequency [Hz]	50	Rated speed [rpm]	1500	MSN related to kVA: 4.2 KNm

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





Technisches Datenblatt - Diagramme
Technical data sheet - Diagrams

ING-FCD-0112

Nennenden / nominal data

DSG 62 M1/4

Leistung S_N : **660** kVA

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

Rating

p.f.

Spannung U_N : **0.40** kV

Strom I_N : **953** A

Voltage

Current

Frequenz f: **50** Hz

Drehzahl n: **1,500** min⁻¹

Frequency

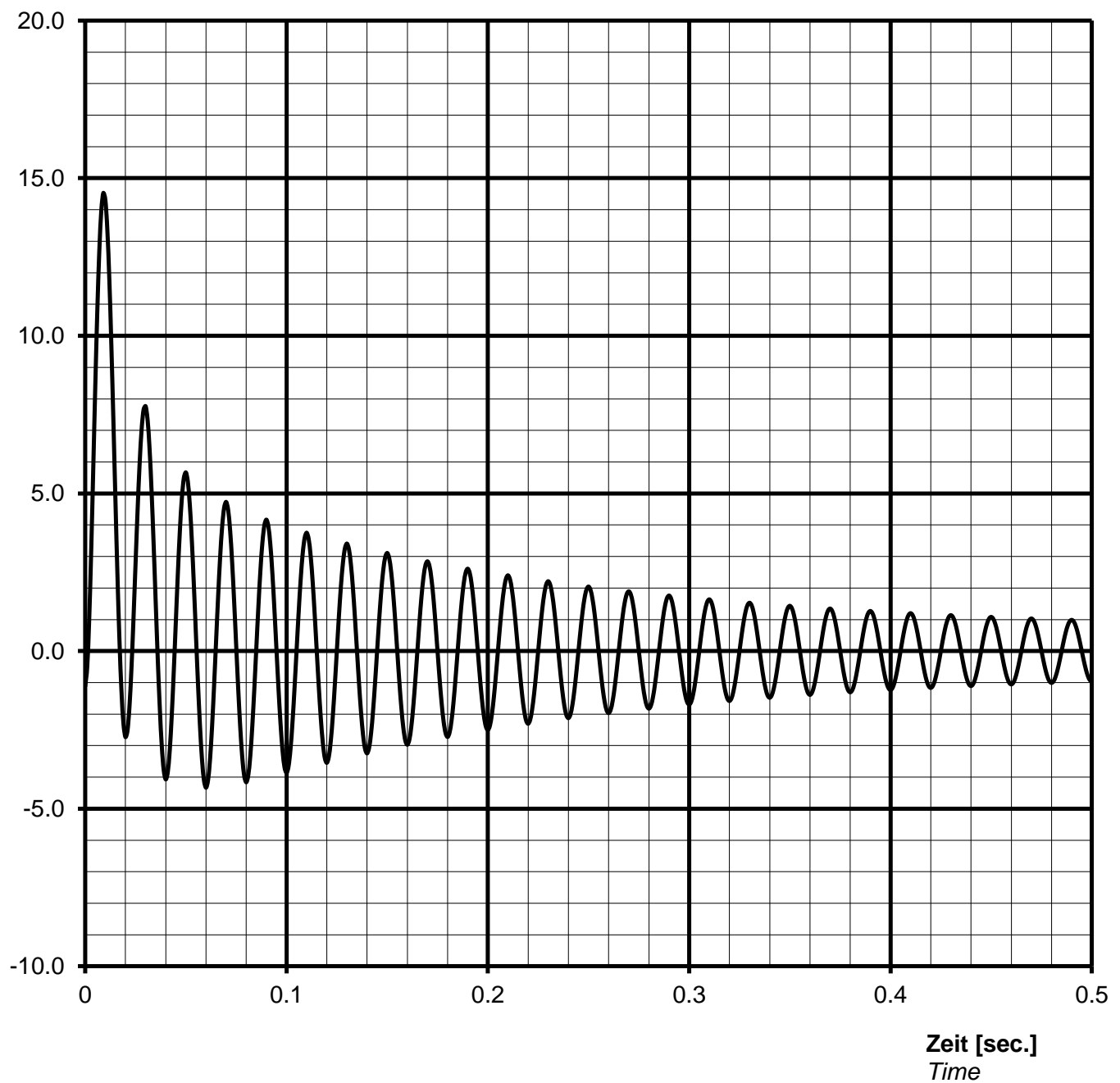
Speed

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 $I_{\text{peak}} =$ **13843 A** or **14.53 p.u.**



Technisches Datenblatt - Diagramme
Technical data sheet - Diagrams

ING-FCD-0112

Nennwerten / nominal data

DSG 62 M1/4

Leistung S_N : **660** kVA

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

Rating

p.f.

Spannung U_N : **0.40** kV

Strom I_N : **953** A

Voltage

Current

Frequenz f : **50** Hz

Drehzahl n : **1500** min⁻¹

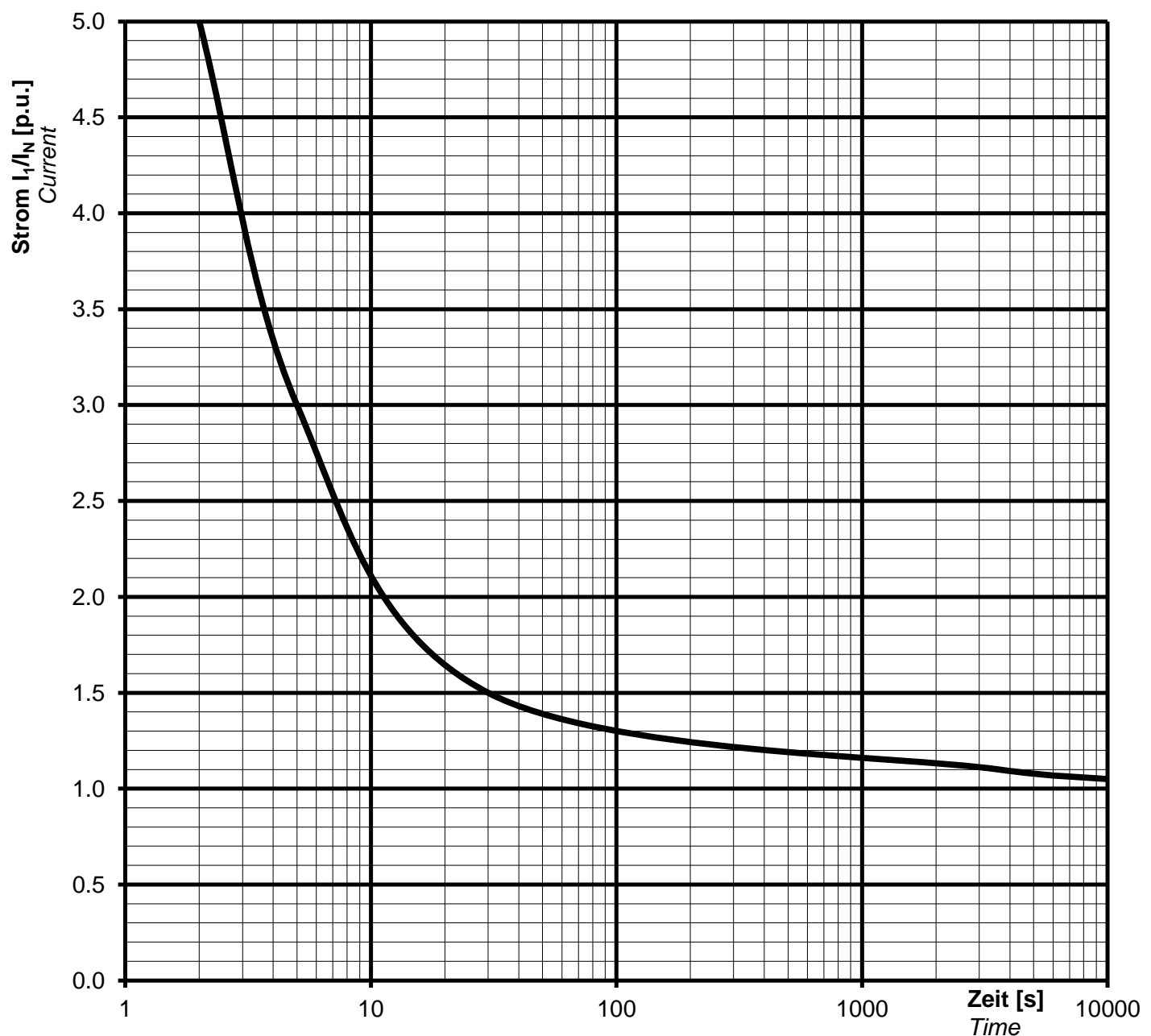
Frequency

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 * I_N for 30 s

1,1 * I_N for 1 h in 6h

Alle Angaben gemäß VDE 0530, IEC600 34

All data according VDE 0530, IEC600 34

Nenn Daten / nominal data

DSG 62 M1/4

Rating S_N : **660 kVA**

p.f. **0.80**

Bemessungsleistung

Leistungsfaktor $\cos \varphi$:

Nominal voltage U_N : **0.40 kV**

Nominal current I_N : **953 A**

Bemessungsspannung

Bemessungsstrom

Frequency f_N : **50 Hz**

Speed n : **1500 min⁻¹**

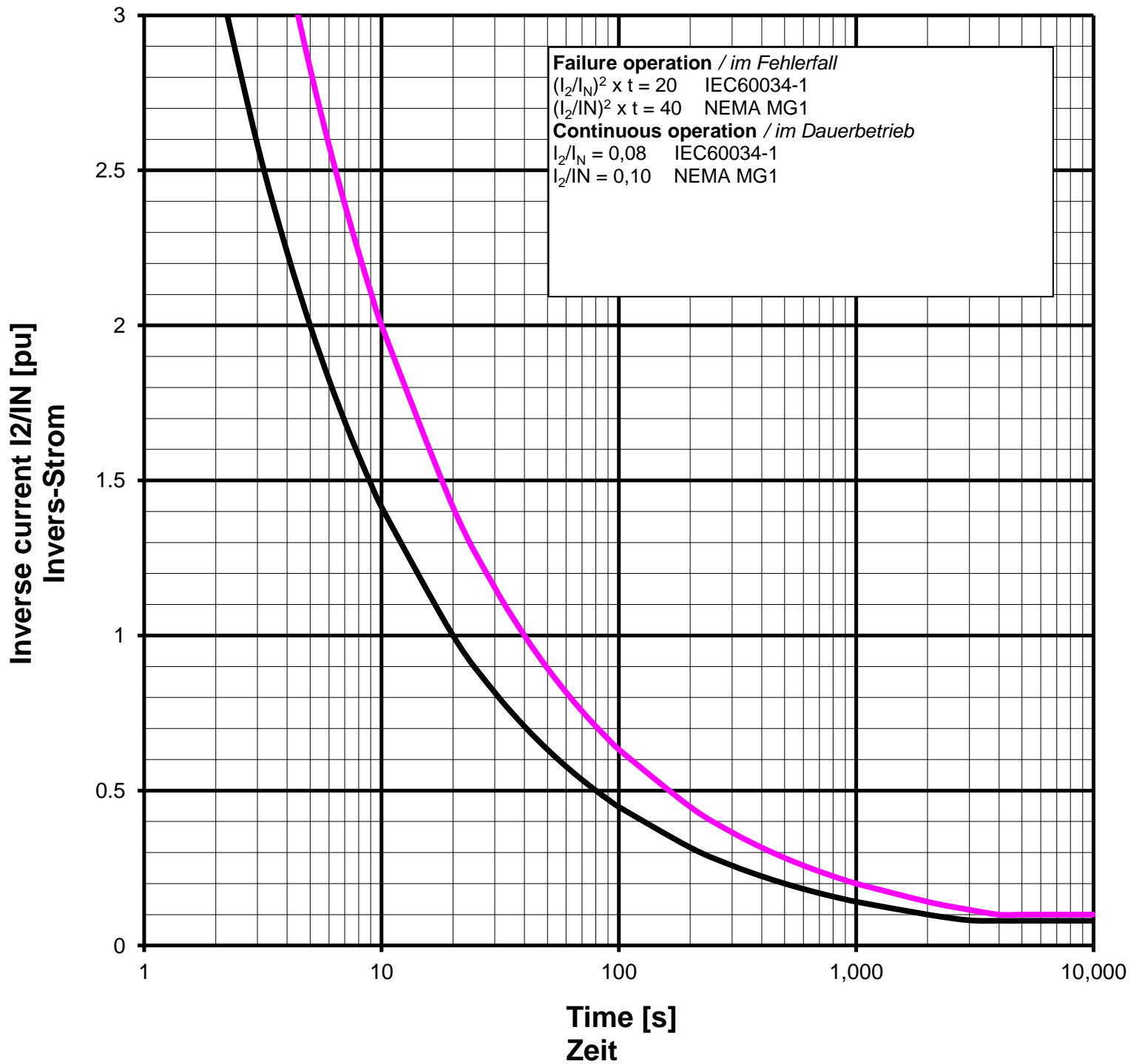
Frequenz

Drehzahl

Protection: **IP23**

Schutzart

Inverse current or unbalanced negative sequence current



Remarks / Notizen:

All data according IEC 60034-1, NEMA MG1



Technische Daten selbstregelnden Drehstrom-Synchrongenerator
technical data for self regulating three phase alternator

ING-FCD-0112

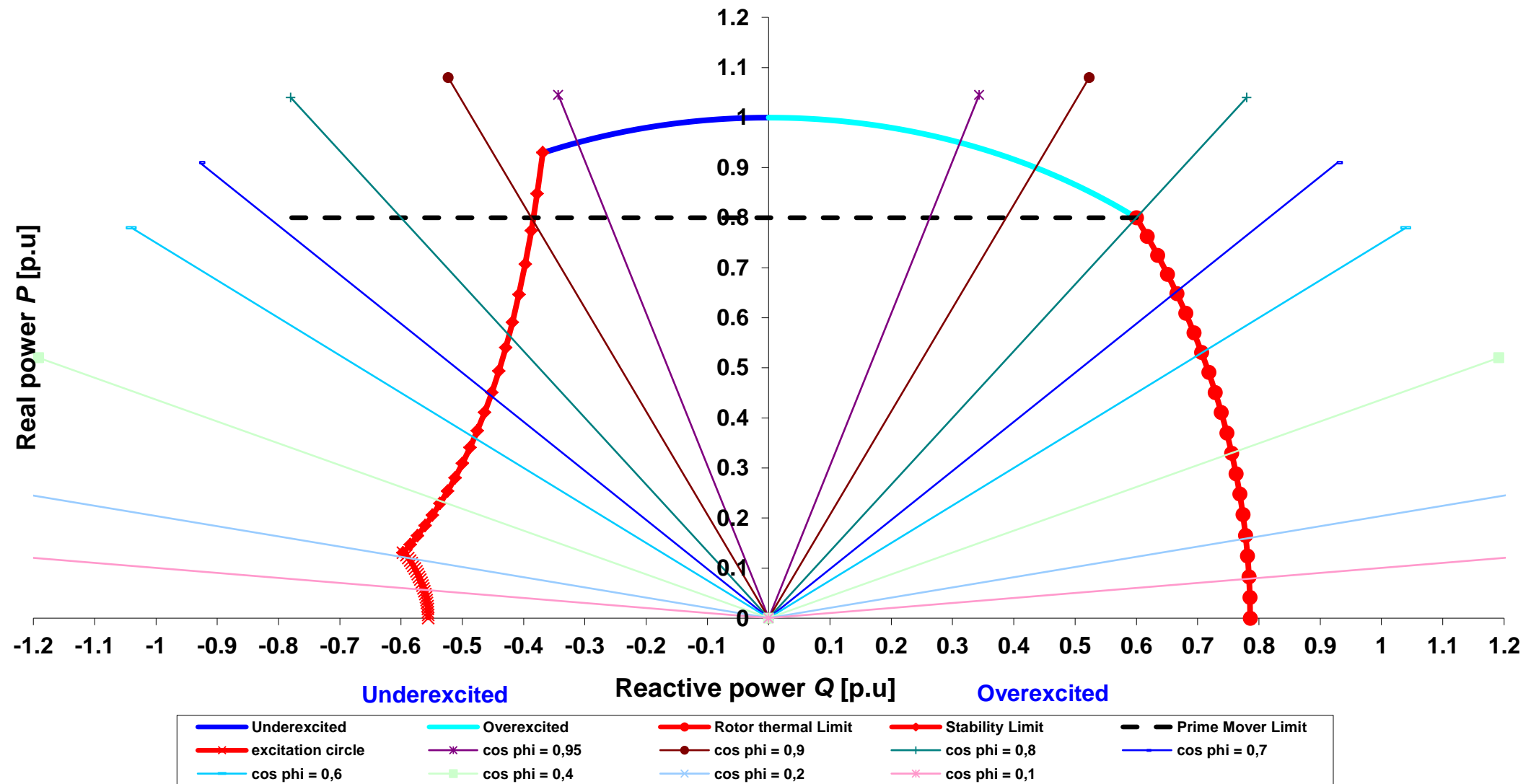
TYPE

DSG 62 M1/4

Projekt:

Order Nr.:

Capability (P-Q) Diagram



Cummins Generator Technologies

Datum / date:

25/09/2013

