

**Technical Data Sheet for AvK-Alternators**

FM 7.3-5

Date:	26/09/13	Customer:	GENERIC DATASHEET only
Project No.:		AvK Reference:	DSG062M1_4_60_480

<b>Object data:</b>	
Site:	Prime Mover:
Application: Stationary Power Plant	Manufacturer:

<b>Generator data:</b>					
Generator:	DSG 62 M1/4	Poles:	4	Standards: IEC 60034	
Rated power:	790 kVA	632 kWe	671 kWm		
Power factor:	0.80				
Power at pf 1,0	641 kVA	641 kWe	671 kWm		
Rated voltage:	0.48 kV				
Speed:	1800 1/min				
Frequency:	60 Hz	Voltage range / frequency range:			
Rated current:	950.2 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				
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.:	2.1 m³/s	Cooling water quantity:	n/a
Moment of inertia (I):	12.4 kgm²	Weight:	2010 Kg	Losses (environment):	39 KW
				Losses (cooling):	n/a

Wires:	4 terminals, starpoint connected in terminal box
Operation mode:	Single mode
Regulators:	
Voltage regulator:	DECS 100

<b>Electrical data: (acc. IEC)</b>					
Efficiencies:	110%	100%	75%	50%	25%
Power factor 0.8	93,82	94,12	94,11	93,35	89,75
Power factor 0.9	94,6	94,86	94,7	93,78	90,02
Power factor 1.0	95,37	95,59	95,29	94,21	90,29

<b>Reactances and time constants</b>											
	unsaturated		saturated			unsaturated		saturated			
$X_d$	2.60	2.34	p.u.	$X_q$	1.20	1.18	p.u.	$T_{d0'}$	2.07474 s	$T_{d0''}$	0.01692 s
$X_d'$	0.223	0.223	p.u.	$X_q'$	1.20	1.18	p.u.	$T_{d'}$	0.18 s	$T_{q0'}$	0.176 s
$X_d''$	0.128	0.116	p.u.	$X_q''$	0.142	0.142	p.u.	$T_{d''}$	0.0088 s	$T_{q0''}$	0.14873 s
$X_2$	0.142	0.129	p.u.	$X_0$	0.055	0.050	p.u.	$T_a$	0.0182 s	$T_{q'}$	0.176 s
$X_{1s}$	n.a.	0.070	p.u.							$T_{q''}$	0.0176 s
Short circuit ratio saturated:	0.43				$Z_n$	0.292	Ohm				

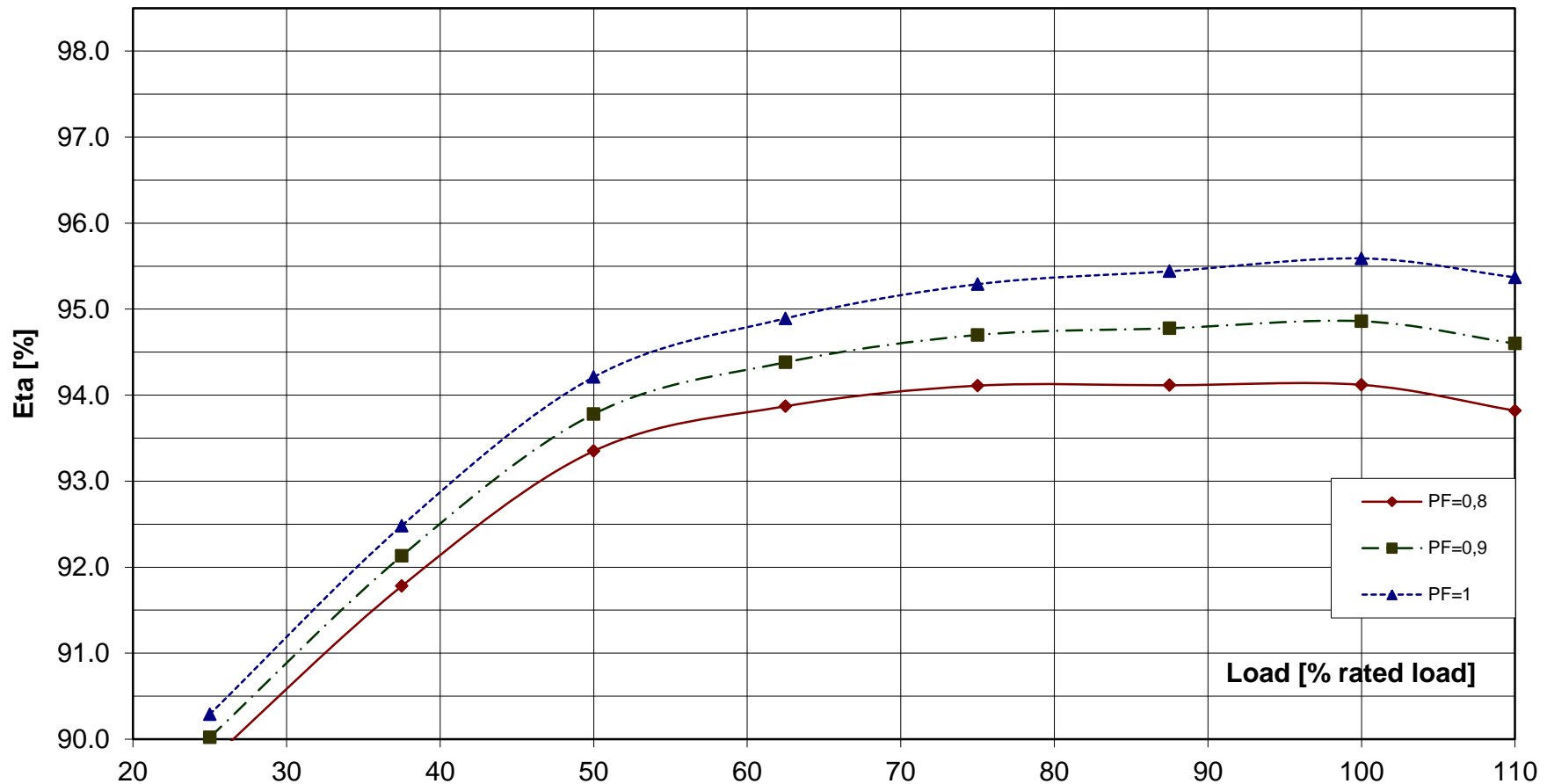
<b>Short circuit data:</b>			
Initial short circuit current (3-phase):	$I_k''$	8192 A	
Max. peak current (3-phase):	$I_s$	20853 A	
Sustained short circuit current:	$I_k$	2851 A	Minimum 3 x rated current for max.10 s
Initial short circuit torque:	$M_{k2}$	47.0 kNm	
	$M_{k3}$	28.2 kNm	
Max. faulty synchron moment:	$M_f$	101.1 kNm	
Rated kVA torque:	$M_{SN}$	4.19 kNm	
Rated torque	$M_N$	3.35 kNm	
Shaft torque	$M_{Sh}$	3.56 kNm	

<b>Load application:</b>	
max. load application: 531 kVA (corresponds to 67,27 % from 790 kVA) for Power factor 0.4 15% transient voltage drop	Power: 790 kVA Power factor: 0.8 transient voltage drop: -18.2 %

**Remarks:**

<b>Alternator :</b>	<b>DSG 62 M1/4</b>			
Rated output [kVA]	790	Rated power factor:	0.8	Rated voltage [kV]: 0.48
Rated frequency [Hz]	60	Rated speed [rpm]	1800	

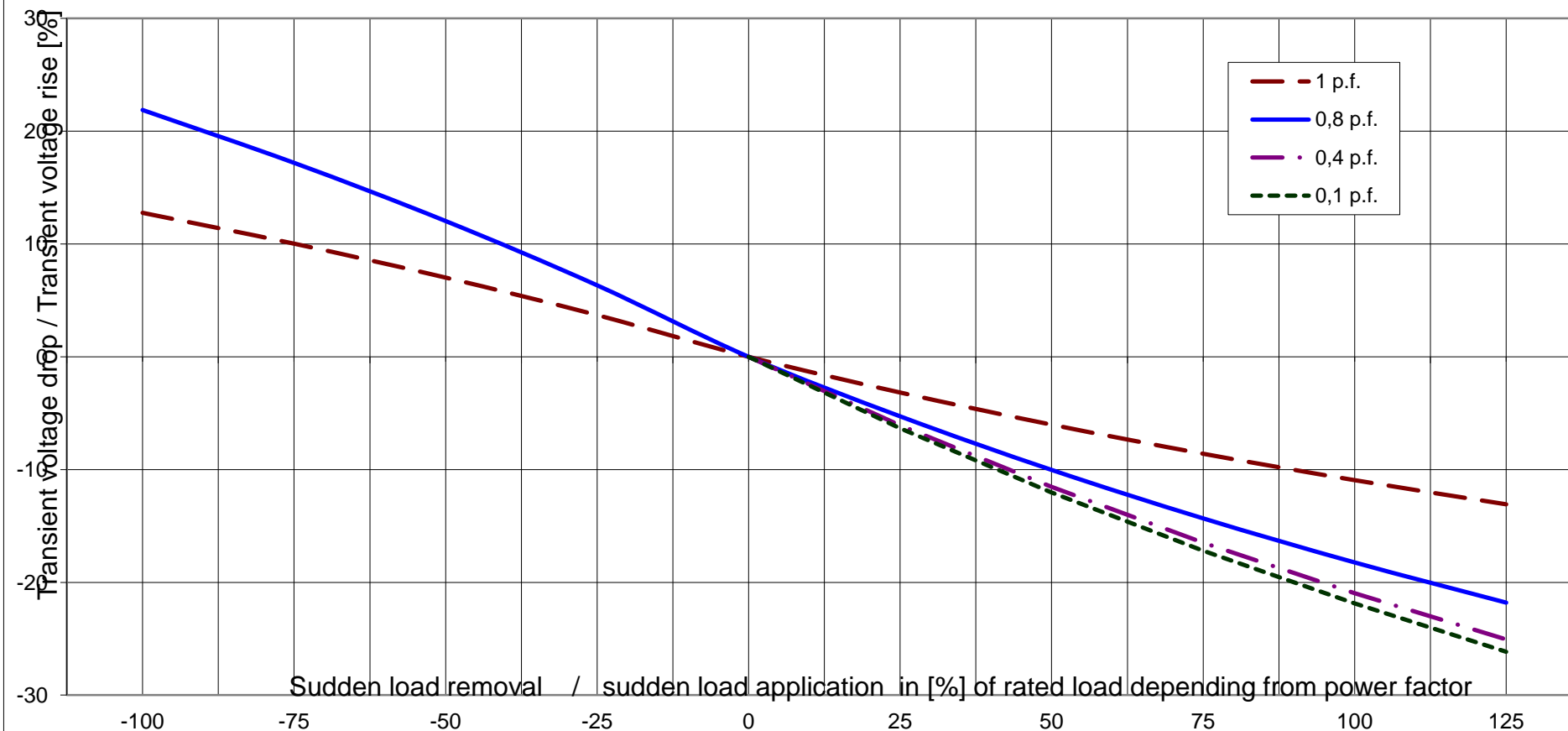
### Wirkungsgrad-Kennlinie - Efficiency Curve



**Alternator : DSG 62 M1/4**

Rated output [kVA]	790	Rated power factor:	0.8	Rated voltage [kV]:	0.48
Rated frequency [Hz]	60	Rated speed [rpm]	1800		

**Transient Voltage rise or drop for sudden load removal or application**



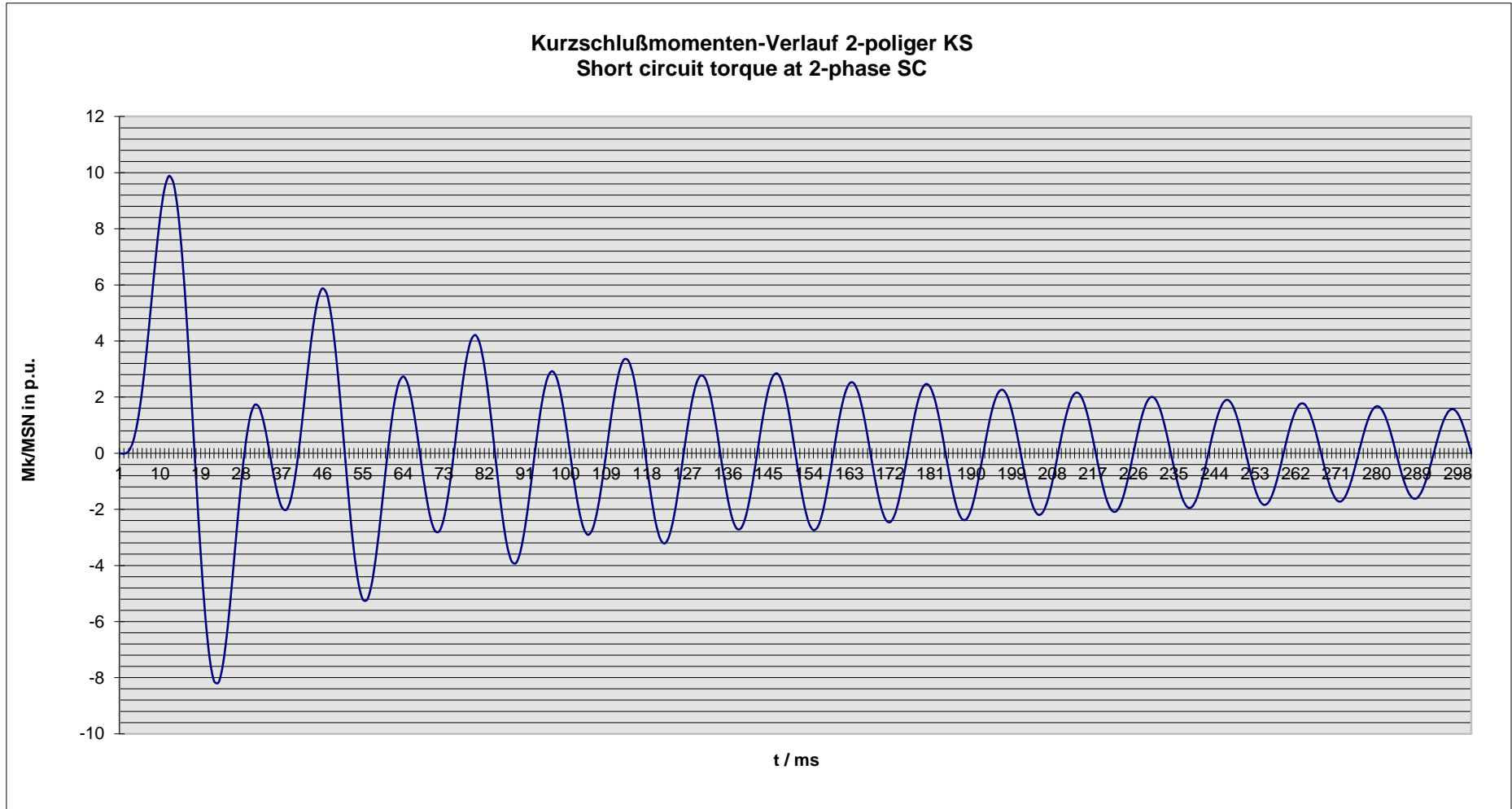


Technisches Datenblatt - Diagramme  
Technical data sheet - Diagrams

ING-FCD-0112

<b>Alternator :</b>	<b>DSG 62 M1/4</b>			
Rated output [kVA]	790	Rated power factor:	0.8	Rated voltage [kV]: 0.48
Rated frequency [Hz]	60	Rated speed [rpm]	1800	MSN related to kVA: 4.19 KNm

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



#### Nenn Daten / nominal data

DSG 62 M1/4

Leistung  $S_N$ : **790 kVA**

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

Rating

p.f.

Spannung  $U_N$ : **0.48 kV**

Strom  $I_N$ : **950 A**

Voltage

Current

Frequenz  $f$ : **60 Hz**

Drehzahl  $n$ : **1,800 min<sup>-1</sup>**

Frequency

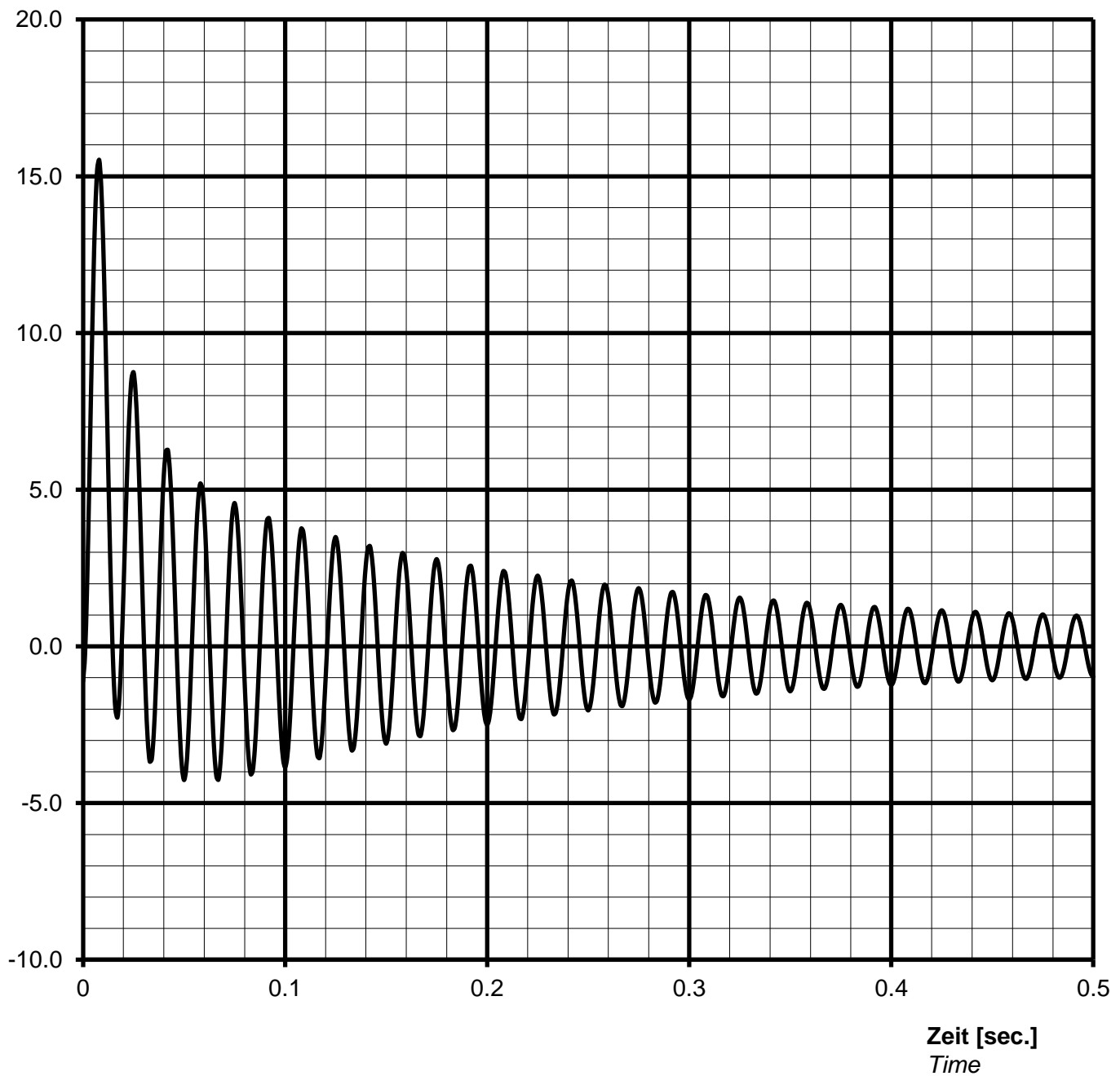
Speed

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

$I_{\text{peak}} =$  **14747 A** or **15.52 p.u.**

#### Nenndaten / nominal data

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Leistung  $S_N$ : **790 kVA**

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

Rating

p.f.

Spannung  $U_N$ : **0.48 kV**

Strom  $I_N$ : **950 A**

Voltage

Current

Frequenz  $f$ : **60 Hz**

Drehzahl  $n$ : **1800 min<sup>-1</sup>**

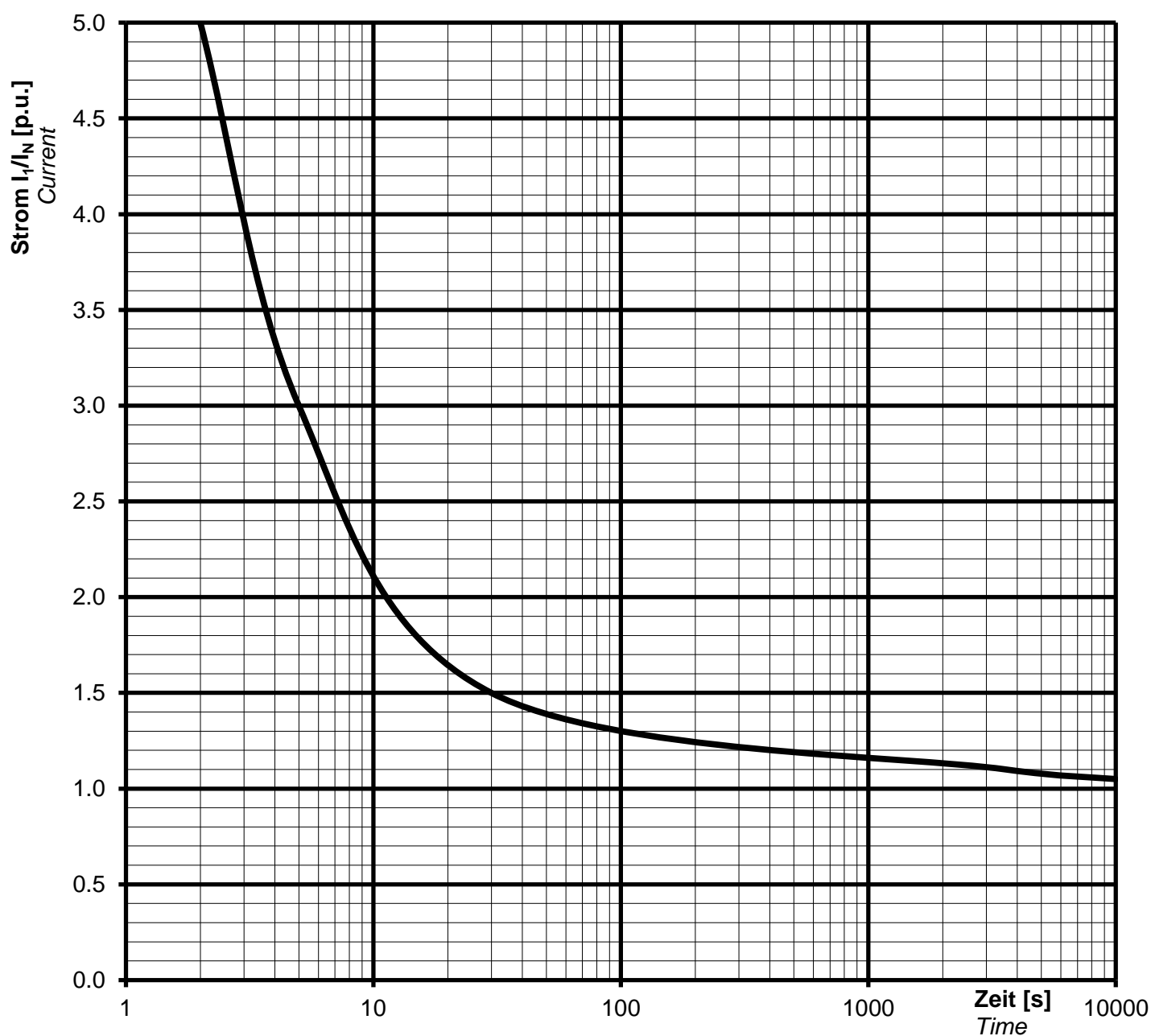
Frequency

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

#### Nenndaten / nominal data

DSG 62 M1/4

Rating  $S_N$ : **790 kVA**

$p.f.$  **0.80**

*Bemessungsleistung*  
Nominal voltage  $U_N$ : **0.48 kV**  
*Bemessungsspannung*

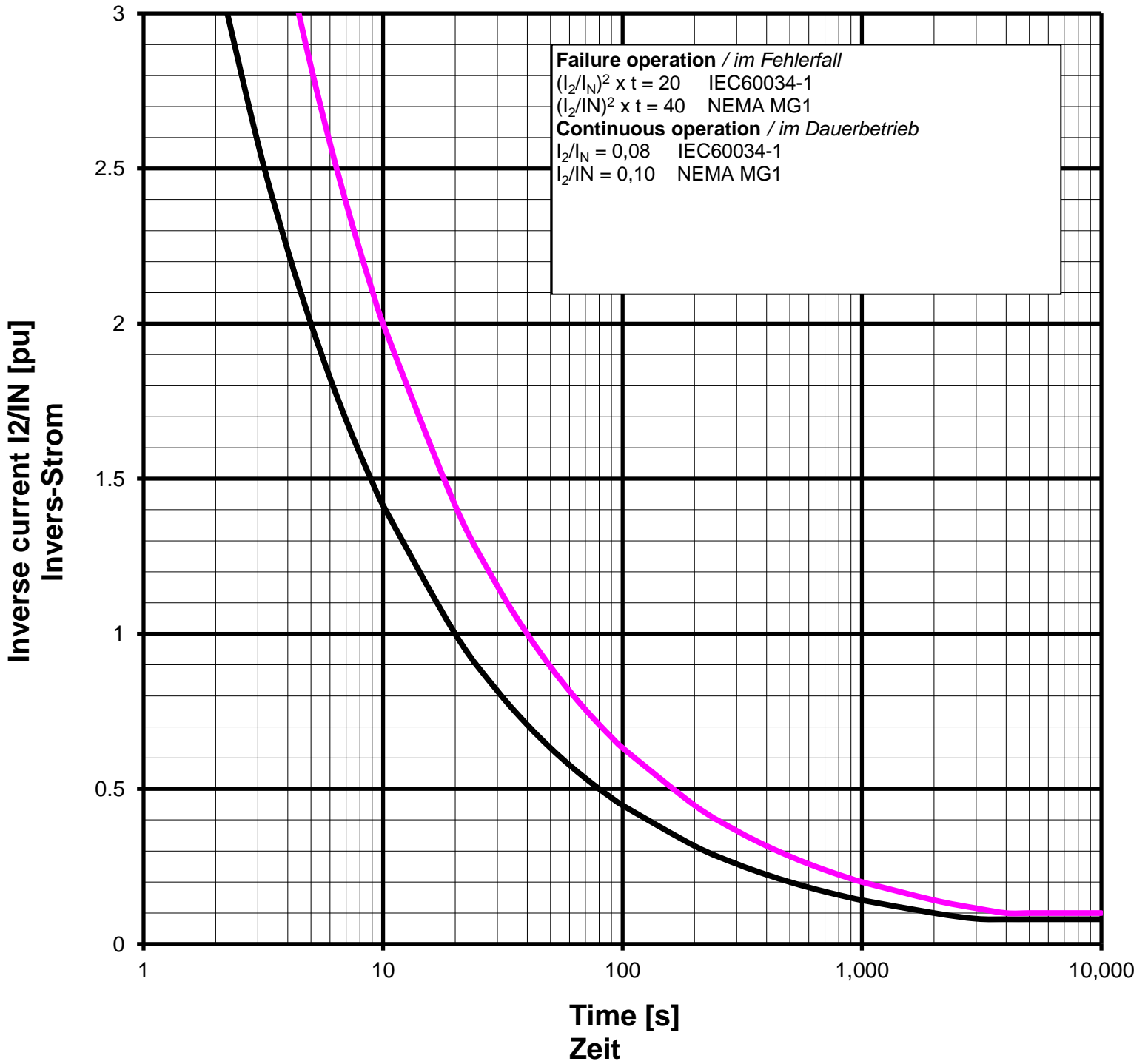
Leistungsfaktor  $\cos \varphi$ :  
Nominal current  $I_N$ : **950 A**

Frequency  $f_N$ : **60 Hz**  
*Frequenz*

Speed  $n$ : **1800 min<sup>-1</sup>**  
*Drehzahl*

Protection: **IP23**  
*Schutzart*

#### Inverse current or unbalanced negative sequence current



Remarks / Notizen:



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

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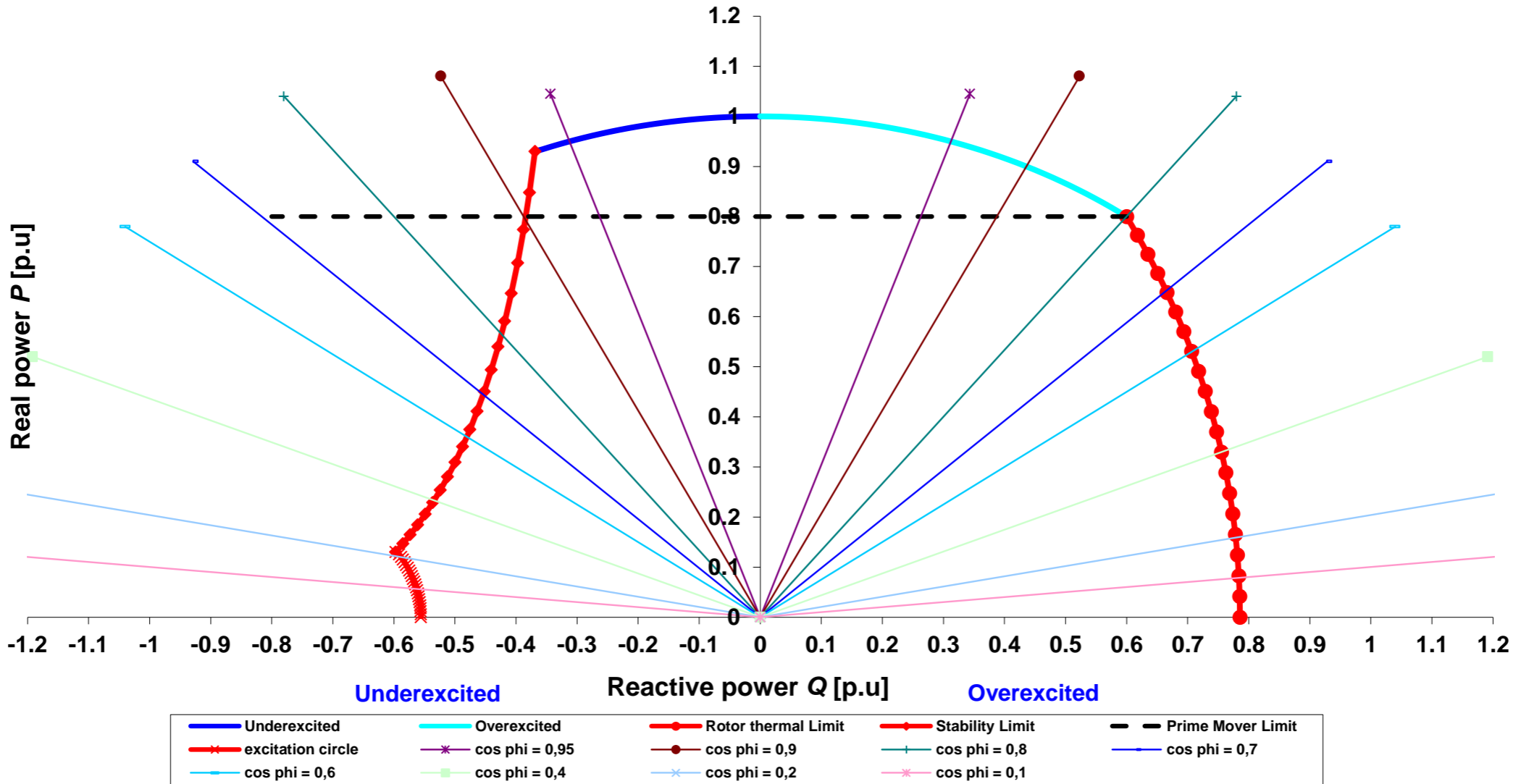
TYPE

DSG 62 M1/4

Projekt:

Order Nr.:

Capability (P-Q) Diagram



Cummins Generator Technologies

Datum / date:

26/09/2013



TYPE

DSG 62 M1/4

Projekt:

Order Nr.:

