

**Technical Data Sheet for AvK-Alternators**

FM 7.3-5

Date:	02/01/14	Customer:	GENERIC DATASHEET only
Project No.:		AvK Reference:	dsg07412_8_60_690_A048M966

Object data:

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

Generator data:

Generator:	DSG 74 L2/8	Poles:	8	Standards:	IEC 60034
Rated power:	1050 kVA	840 kWe	892 kWm		
Power factor:	0.80				
Power at pf 1,0	858 kVA	858 kWe	892 kWm		
Rated voltage:	0.69 kV				
Speed:	900 1/min				
Frequency:	60 Hz			Voltage range / frequency range:	
Rated current:	878.6 A			Zone A according IEC 60034-1 (dU = +/-5%, df = +/-2%)	

Winding pitch:	ca. 5/6
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Insulation class:	Stator: Class H	Rotor: Class H	Temperature rise:	H
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Ambient temperature:	40 ° C	Environment:	Standard environment
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Site altitude:	1000 m		
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Enclosure:	IP23	Filter:	
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Cooling:	IC 01 - Open-circuit ventilation
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Coolant:	Ambient Air	Temperature	40 ° C	Temperature Air inlet	40 ° C
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		Coolant:		generator:	
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		Cooling air vol.:	1.4 m³/s	Cooling water quantity:	n/a
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Moment of inertia (I):	56.4 kgm²	Weight:	3825 Kg	Losses (environment):	52 KW
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				Losses (cooling):	n/a
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Wires:	4 terminals, starpoint connected in terminal box
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Operation mode:	Single mode
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Regulators:	
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Voltage regulator:	DECS 100
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Electrical data: (acc. IEC)

Efficiencies:	110%	100%	75%	50%	25%
Power factor 0.8	93,89	94,18	94,88	95,07	93,71
Power factor 0.9	94,94	95,18	95,66	95,65	94,1
Power factor 1.0	95,98	96,17	96,43	96,22	94,5

Reactances and time constants

	unsaturated	saturated		unsaturated	saturated					
X_d	2.02	1.82 p.u.	X_q	0.95	0.93 p.u.	$T_{d0'}$	1.79088 s	$T_{d0''}$	0.02084 s	
X_d'	0.262	0.262 p.u.	X_q'	0.95	0.93 p.u.	$T_{d'}$	0.24 s	$T_{q0'}$	0.2052 s	
X_d''	0.142	0.129 p.u.	X_q''	0.158	0.158 p.u.	$T_{d''}$	0.01026 s	$T_{q0''}$	0.12338 s	
X_2	0.157	0.143 p.u.	X_0	0.047	0.043 p.u.	T_a	0.0218 s	$T_{q'}$	0.2052 s	
X_{1s}	n.a.	0.077 p.u.						$T_{q''}$	0.02052 s	

Short circuit ratio saturated:	0.55	Z_n	0.453 Ohm
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Short circuit data:

Initial short circuit current (3-phase):	I_k''	6811 A	
Max. peak current (3-phase):	I_s	17338 A	
Sustained short circuit current:	I_k	2636 A	Minimum 3 x rated current for max.10 s
Initial short circuit torque:	M_{k2}	112.3 kNm	
	M_{k3}	67.4 kNm	
Max. faulty synchron moment:	M_f	241.4 kNm	
Rated kVA torque:	M_{SN}	11.14 kNm	
Rated torque	M_N	8.91 kNm	
Shaft torque	M_{Sh}	9.46 kNm	

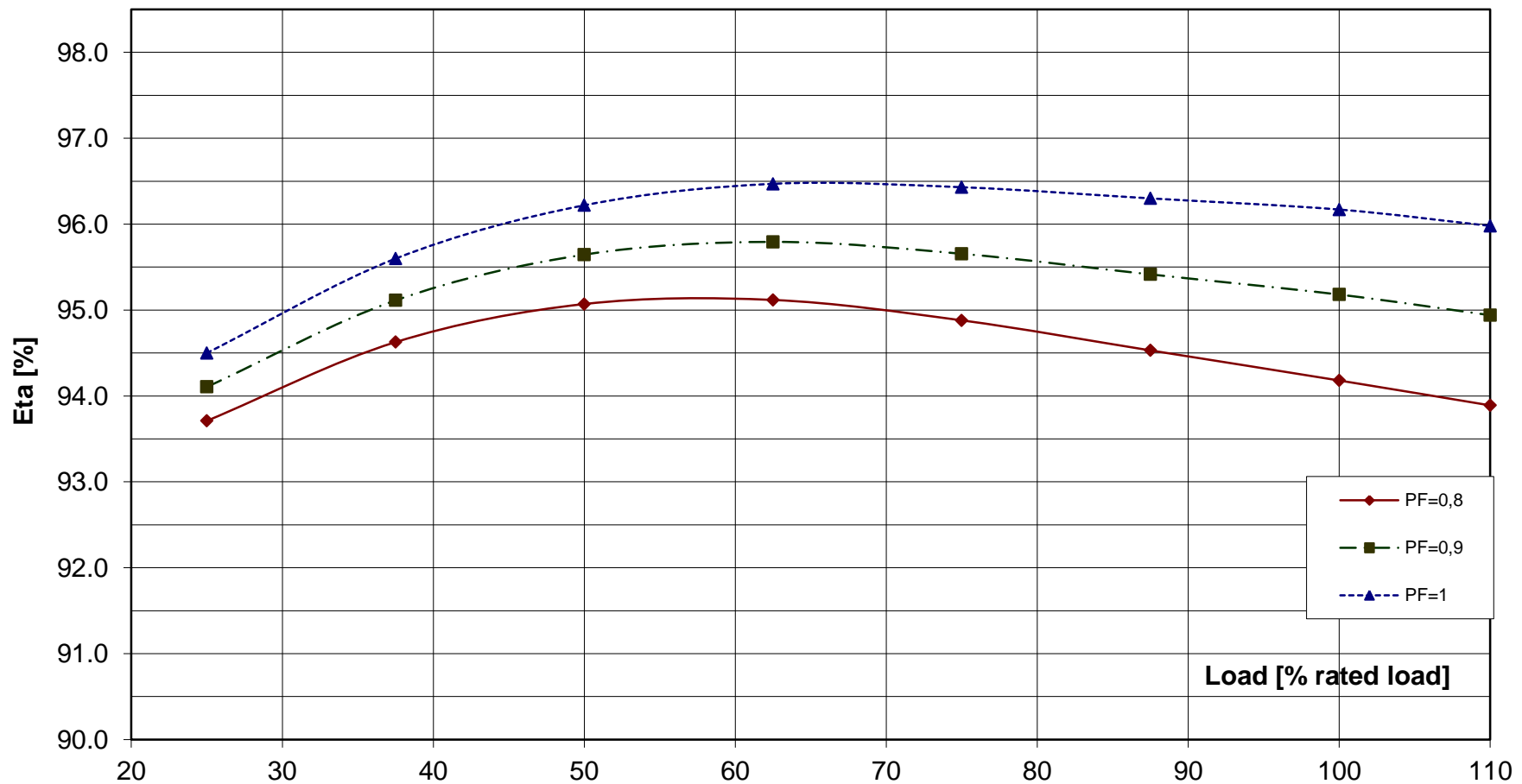
Load application:

max. load application: 601 kVA (corresponds to 57,25 % from 1050 kVA) for Power factor 0.4 15% transient voltage drop	Power: 1050 kVA Power factor: 0.8 transient voltage drop: -20.8 %
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Remarks:

Alternator :	DSG 74 L2/8			
Rated output [kVA]	1050	Rated power factor:	0.8	Rated voltage [kV]: 0.69
Rated frequency [Hz]	60	Rated speed [rpm]	900	

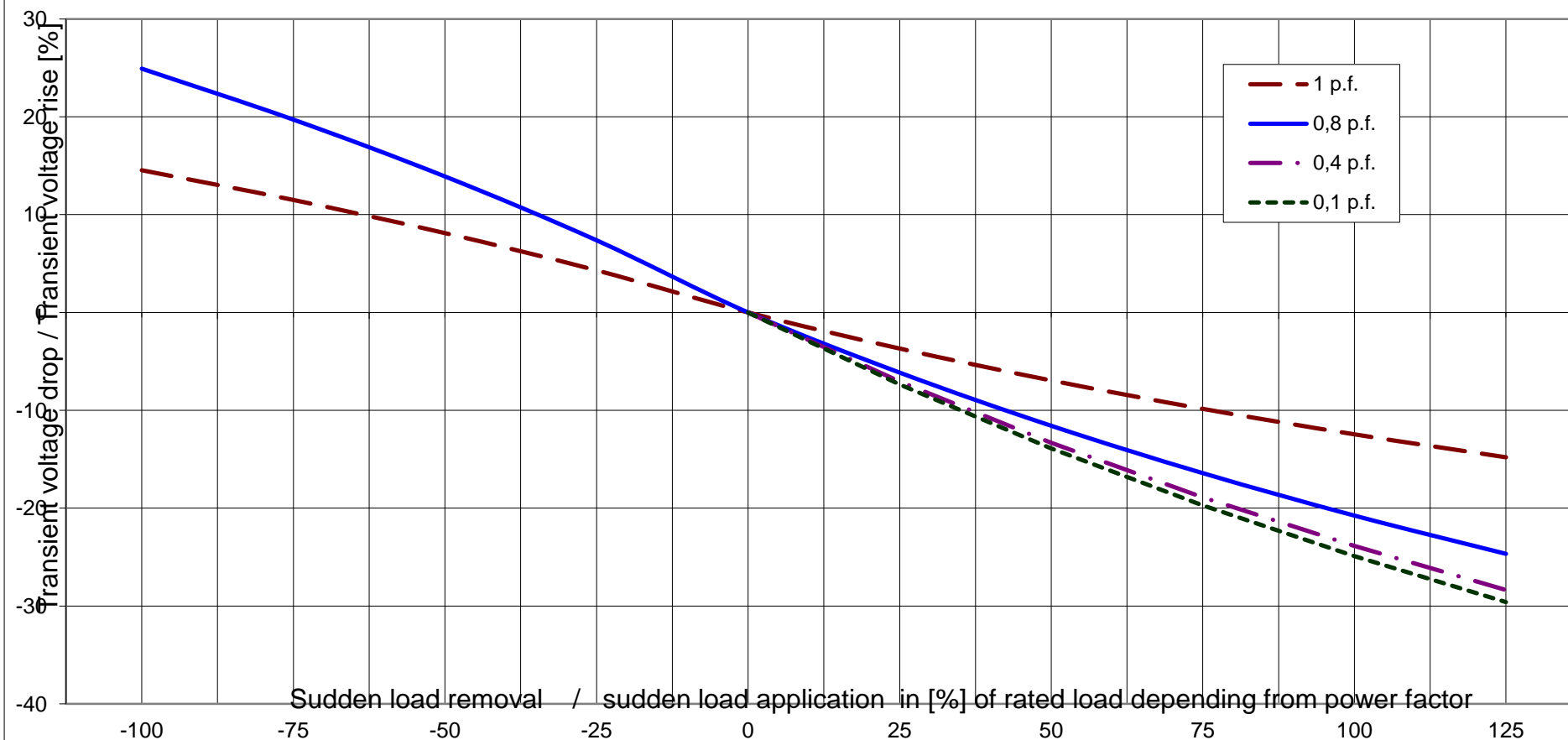
Wirkungsgrad-Kennlinie - Efficiency Curve



Alternator : DSG 74 L2/8

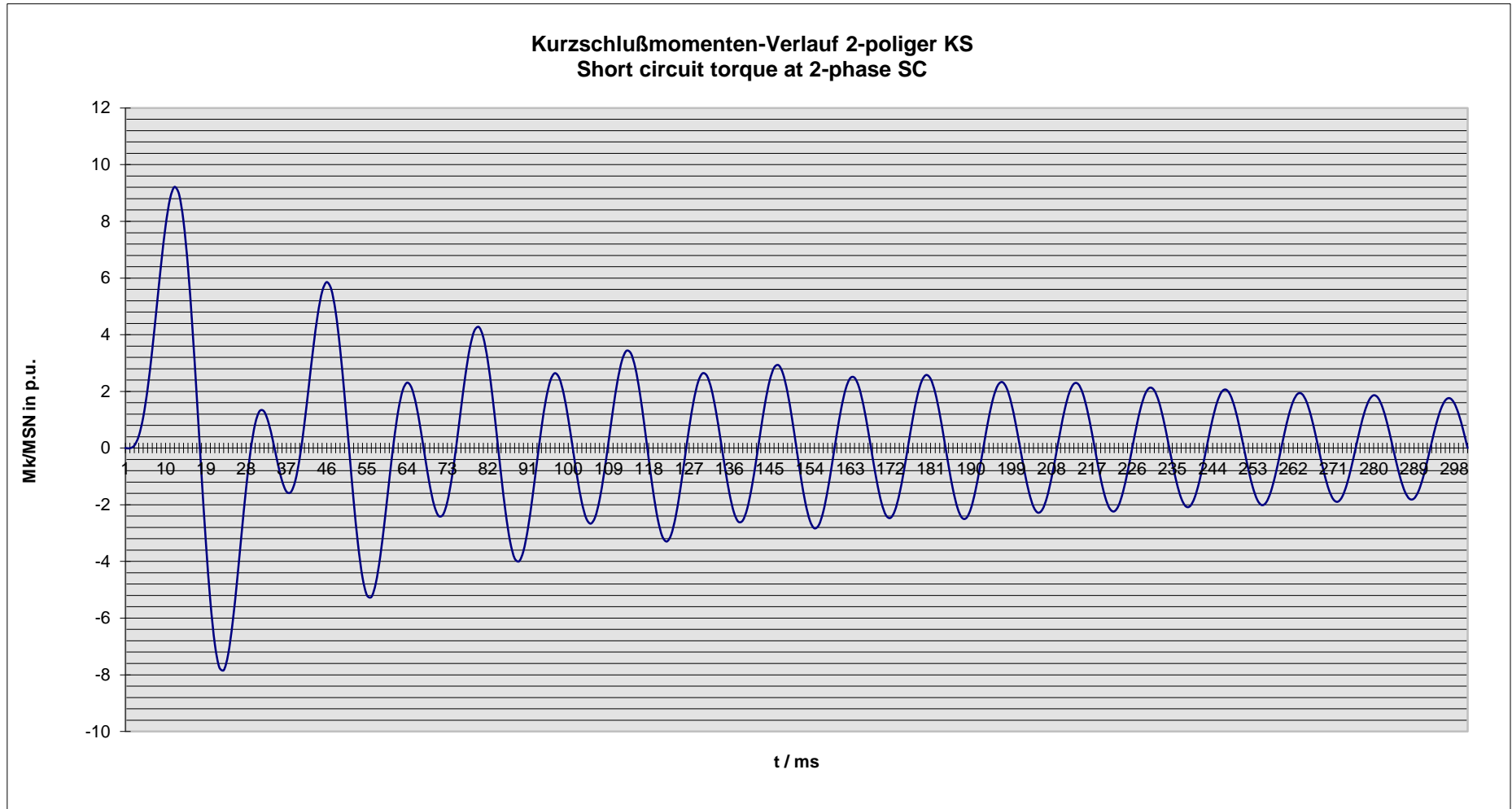
Rated output [kVA]	1050	Rated power factor:	0.8	Rated voltage [kV]:	0.69
Rated frequency [Hz]	60	Rated speed [rpm]	900		

Transient Voltage rise or drop for sudden load removal or application



Alternator :	DSG 74 L2/8			
Rated output [kVA]	1050	Rated power factor:	0.8	Rated voltage [kV]: 0.69
Rated frequency [Hz]	60	Rated speed [rpm]	900	MSN related to kVA: 11.14 KNm

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



Nenn Daten / nominal data

DSG 74 L2/8

Leistung S_N : **1050** kVA

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

Rating

p.f.

Spannung U_N : **0.69** kV

Strom I_N : **879** A

Voltage

Current

Frequenz f : **60** Hz

Drehzahl n : **900** min^{-1}

Frequency

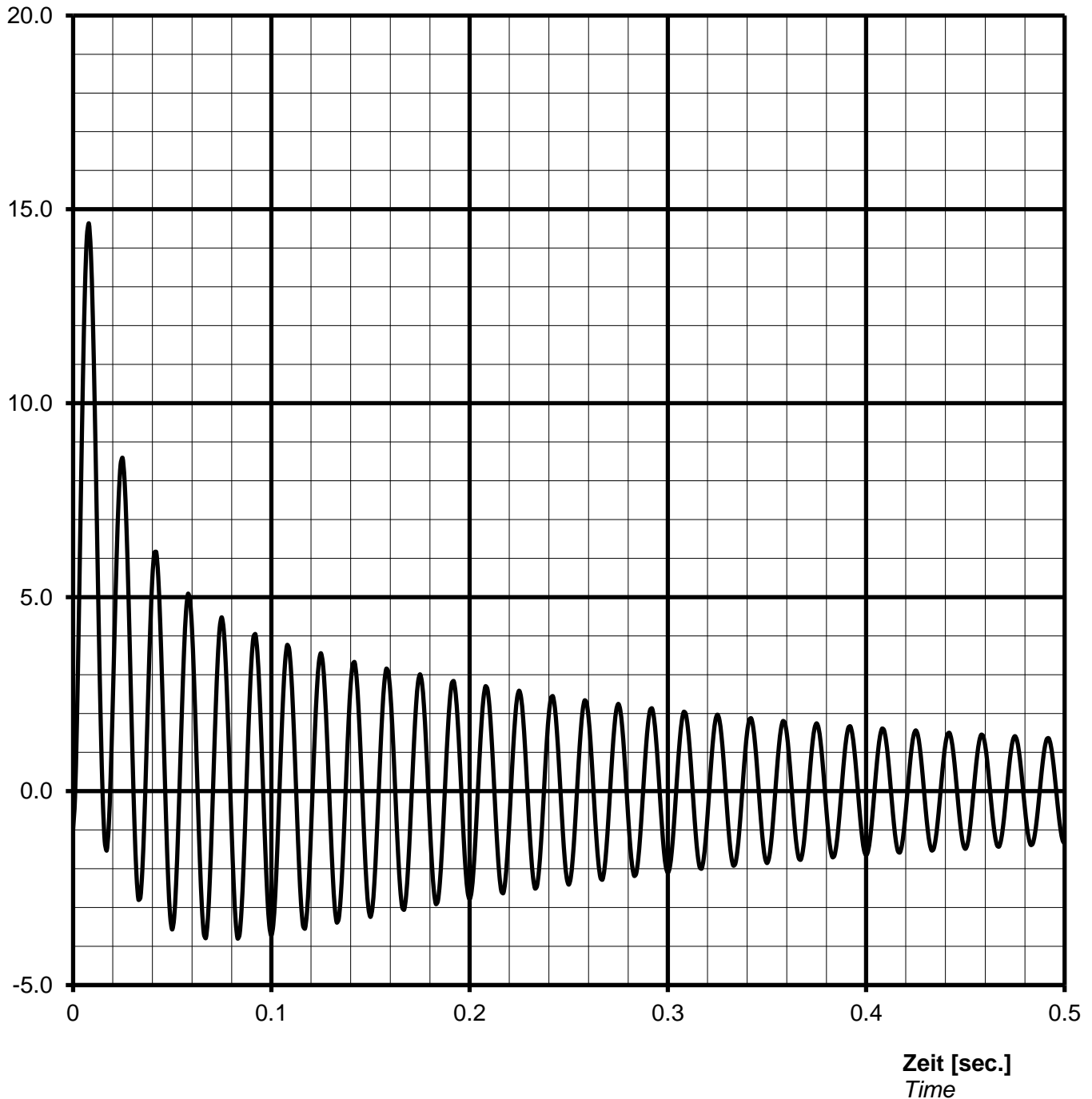
Speed

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

$I_{\text{peak}} =$ **12858** A or **14.64** p.u.

Nennwerte / nominal data

DSG 74 L2/8

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Voltage

Current

Frequenz f: **60 Hz**

Drehzahl n: **900 min⁻¹**

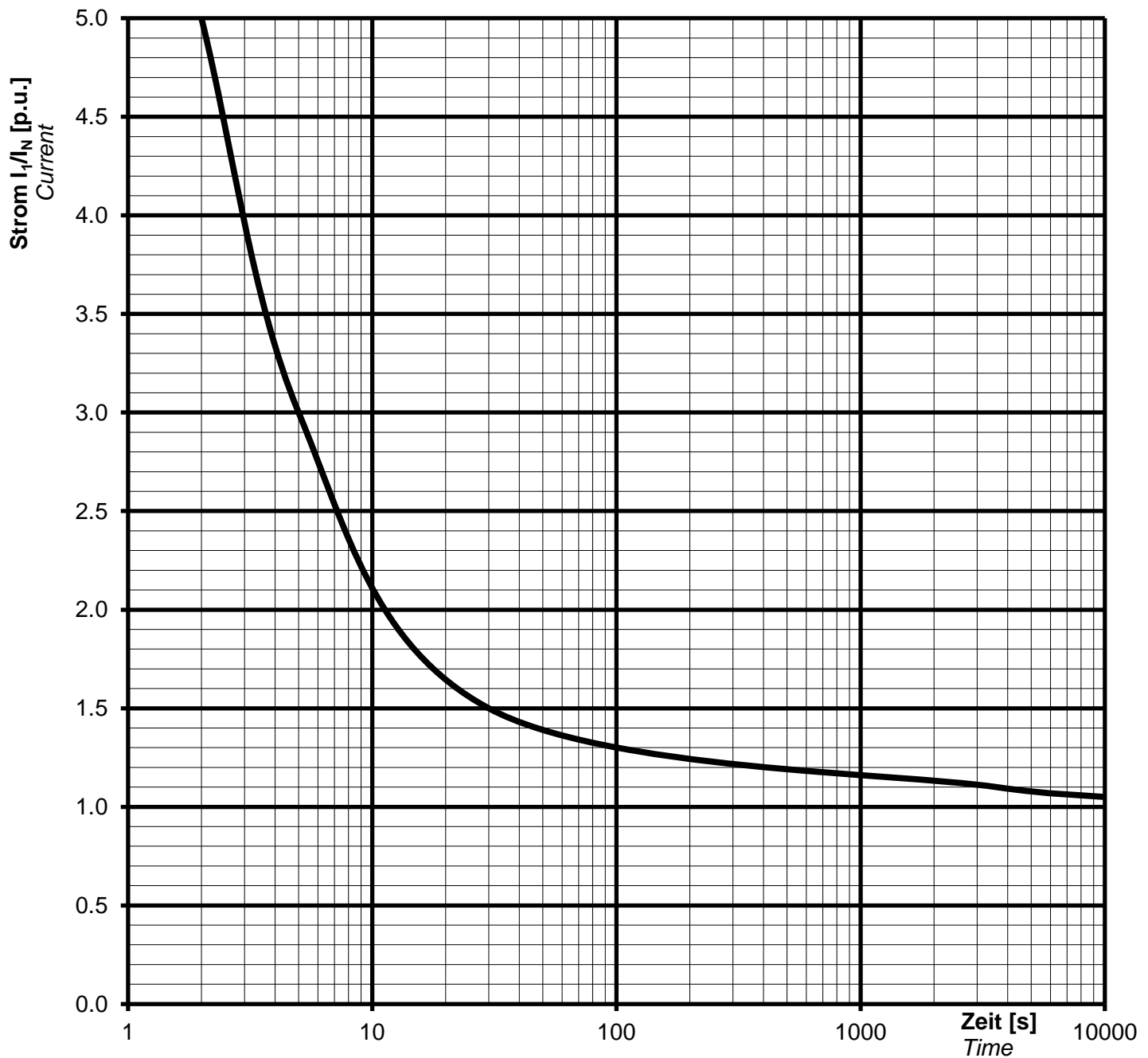
Frequency

Speed

Schutzart **IP23**

Protection

Überlast Kennlinie Overload capability



Notizen / remarks:

Strom / Zeit Kriterien:

$$(I / I_N)^2 \cdot t = 45s$$

Current/time characteristics:

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

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

Nenndaten / nominal data

DSG 74 L2/8

Rating S_N : **1050 kVA**

p.f. **0.80**

Bemessungsleistung

Leistungsfaktor $\cos \varphi$:

Nominal voltage U_N : **0.69 kV**

Nominal current I_N : **879 A**

Bemessungsspannung

Bemessungsstrom

Frequency f_N : **60 Hz**

Speed n : **900 min⁻¹**

Frequenz

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

ING-FCD-0112

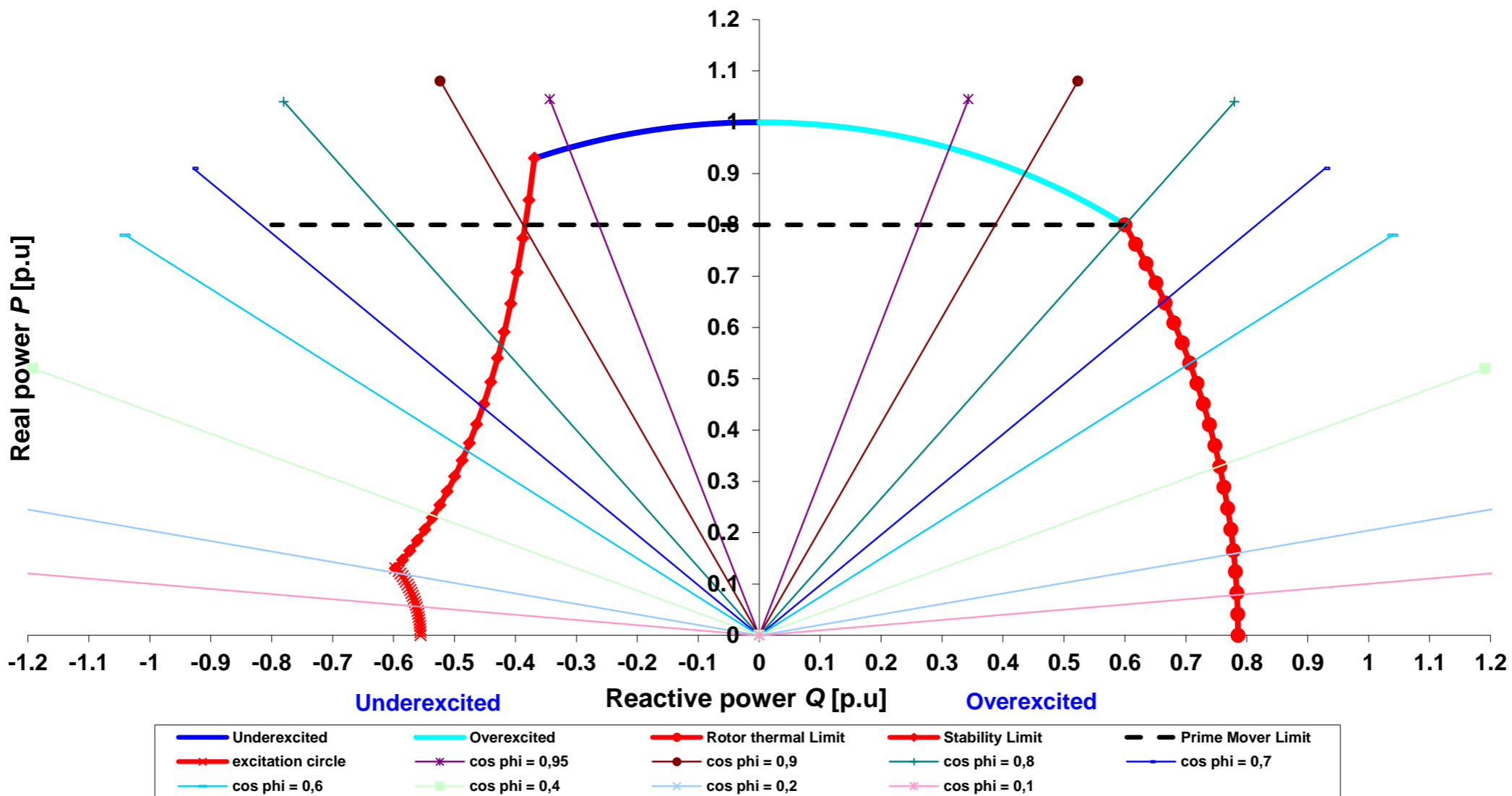
TYPE

DSG 74 L2/8

Projekt:

Order Nr.:

Capability (P-Q) Diagram

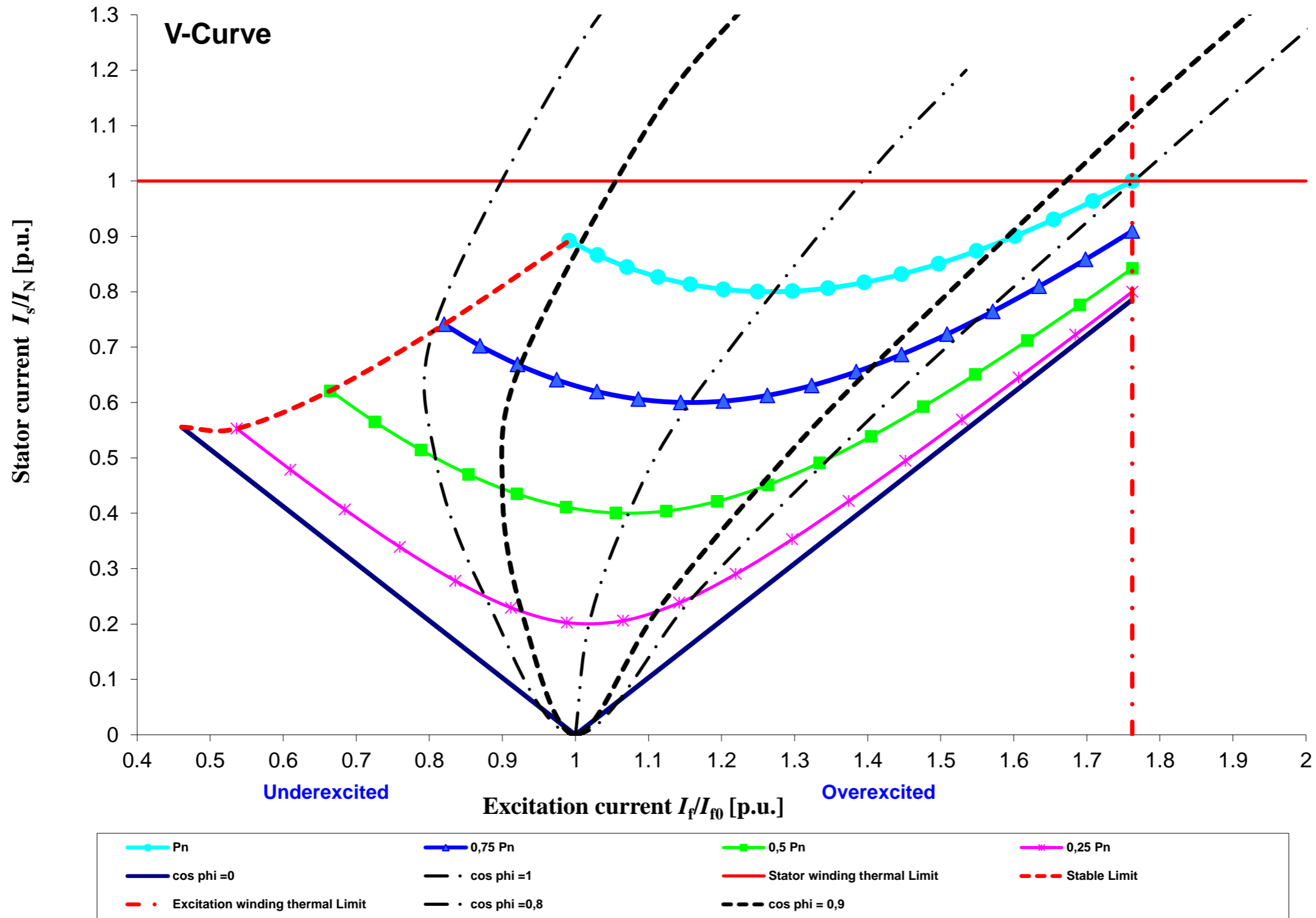


Cummins Generator Technologies

Datum / date:

03/01/2014

TYPE	DSG 74 L2/8	Projekt:		Order Nr.:	
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Cummins Generator Technologies	Datum / date:	
	03/01/2014	