

**Technical Data Sheet for AvK-Alternators**

FM 7.3-5

Date:	20/12/13	Customer:	GENERIC DATASHEET only
Project No.:		AvK Reference:	DSG074L1_8_50_690_A048M911

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

<b>Generator data:</b>					
Generator:	DSG 74 L1/8	Poles:	8	Standards: IEC 60034	
Rated power:	800 kVA	640 kWe	685 kWm		
Power factor:	0.80				
Power at pf 1,0	656 kVA	656 kWe	685 kWm		
Rated voltage:	0.69 kV				
Speed:	750 1/min				
Frequency:	50 Hz	Voltage range / frequency range:			
Rated current:	669.4 A	Zone A according IEC 60034-1 (dU = +/-5%, df = +/-2%)			
Winding pitch:	ca. 5/6				
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.:	1.2 m³/s	Cooling water quantity:	n/a
Moment of inertia (I):	52.8 kgm²	Weight:	3675 Kg	Losses (environment):	45 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	93,04	93,37	94,37	94,92	94,03
Power factor 0.9	94,28	94,55	95,29	95,58	94,45
Power factor 1.0	95,52	95,73	96,2	96,24	94,87

<b>Reactances and time constants</b>										
	unsaturated		saturated			unsaturated		saturated		
X <sub>d</sub>	2.12	1.91	p.u.	X <sub>q</sub>	0.99	0.97	p.u.	T <sub>d0'</sub>	1.82963	s
X <sub>d'</sub>	0.286	0.286	p.u.	X <sub>q'</sub>	0.99	0.97	p.u.	T <sub>d'</sub>	0.25	s
X <sub>d''</sub>	0.163	0.148	p.u.	X <sub>q''</sub>	0.179	0.179	p.u.	T <sub>d''</sub>	0.01111	s
X <sub>2</sub>	0.179	0.163	p.u.	X <sub>0</sub>	0.062	0.056	p.u.	T <sub>a</sub>	0.02311	s
X <sub>1s</sub>	n.a.	0.089	p.u.					T <sub>q'</sub>	0.2222	s
								T <sub>q''</sub>	0.02222	s
Short circuit ratio saturated: 0.52					Z <sub>n</sub> 0.595 Ohm					

<b>Short circuit data:</b>		
Initial short circuit current (3-phase):	I <sub>k''</sub>	4523 A
Max. peak current (3-phase):	I <sub>s</sub>	11514 A
Sustained short circuit current:	I <sub>k</sub>	2008 A
		Minimum 3 x rated current for max.10 s
Initial short circuit torque:	M <sub>k2</sub>	89.5 kNm
	M <sub>k3</sub>	53.7 kNm
Max. faulty synchron moment:	M <sub>f</sub>	192.4 kNm
Rated kVA torque:	M <sub>SN</sub>	10.19 kNm
Rated torque	M <sub>N</sub>	8.15 kNm
Shaft torque	M <sub>Sh</sub>	8.73 kNm

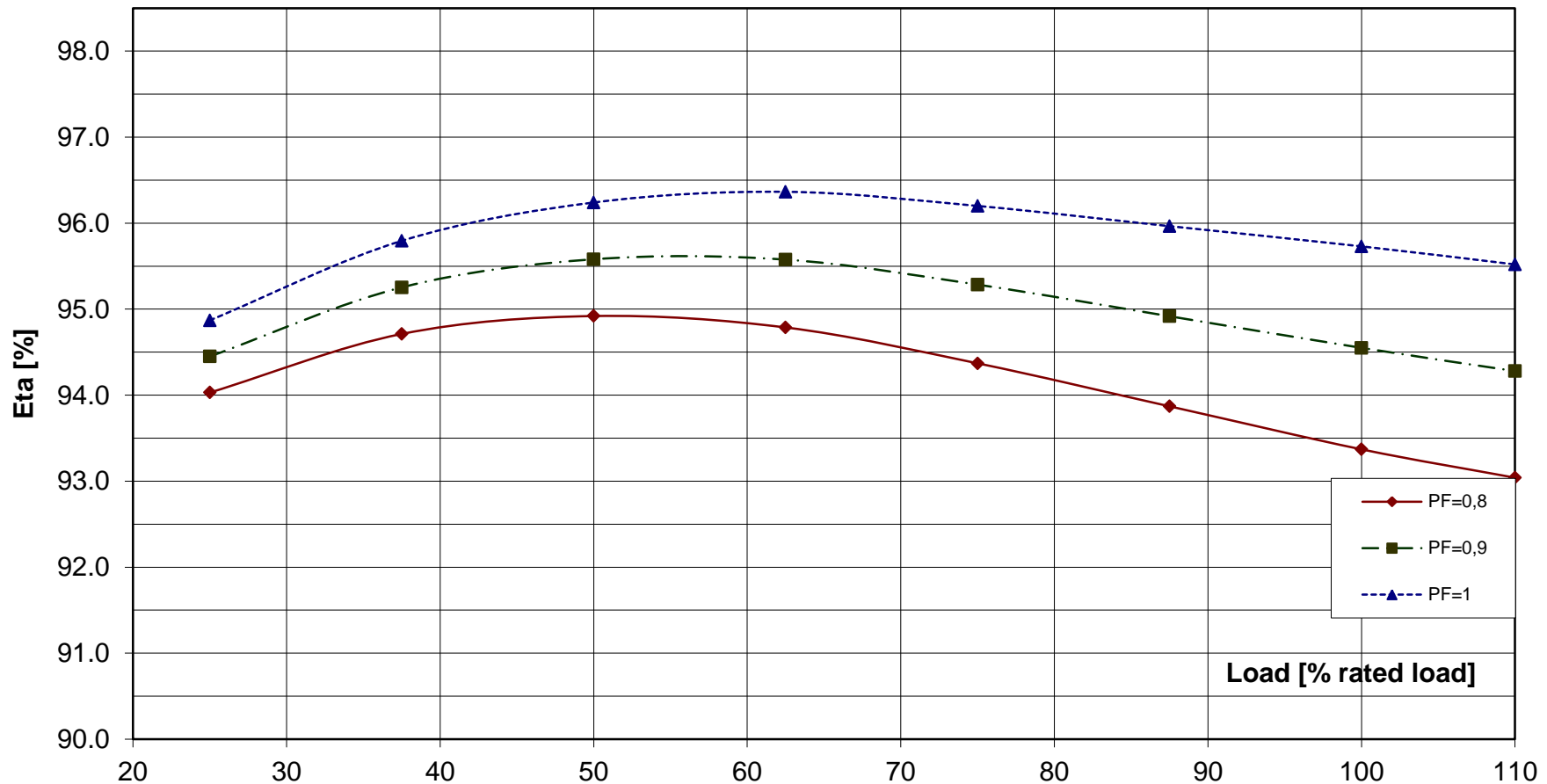
<b>Load application:</b>	
max. load application: 420 kVA (corresponds to 52,45 % from 800 kVA) for Power factor 0.4	Power: 800 kVA
15% transient voltage drop	Power factor: 0.8
	transient voltage drop: -22.2 %

**Remarks:**

**Alternator :** DSG 74 L1/8

Rated output [kVA]	800	Rated power factor:	0.8	Rated voltage [kV]: 0.69
Rated frequency [Hz]	50	Rated speed [rpm]	750	

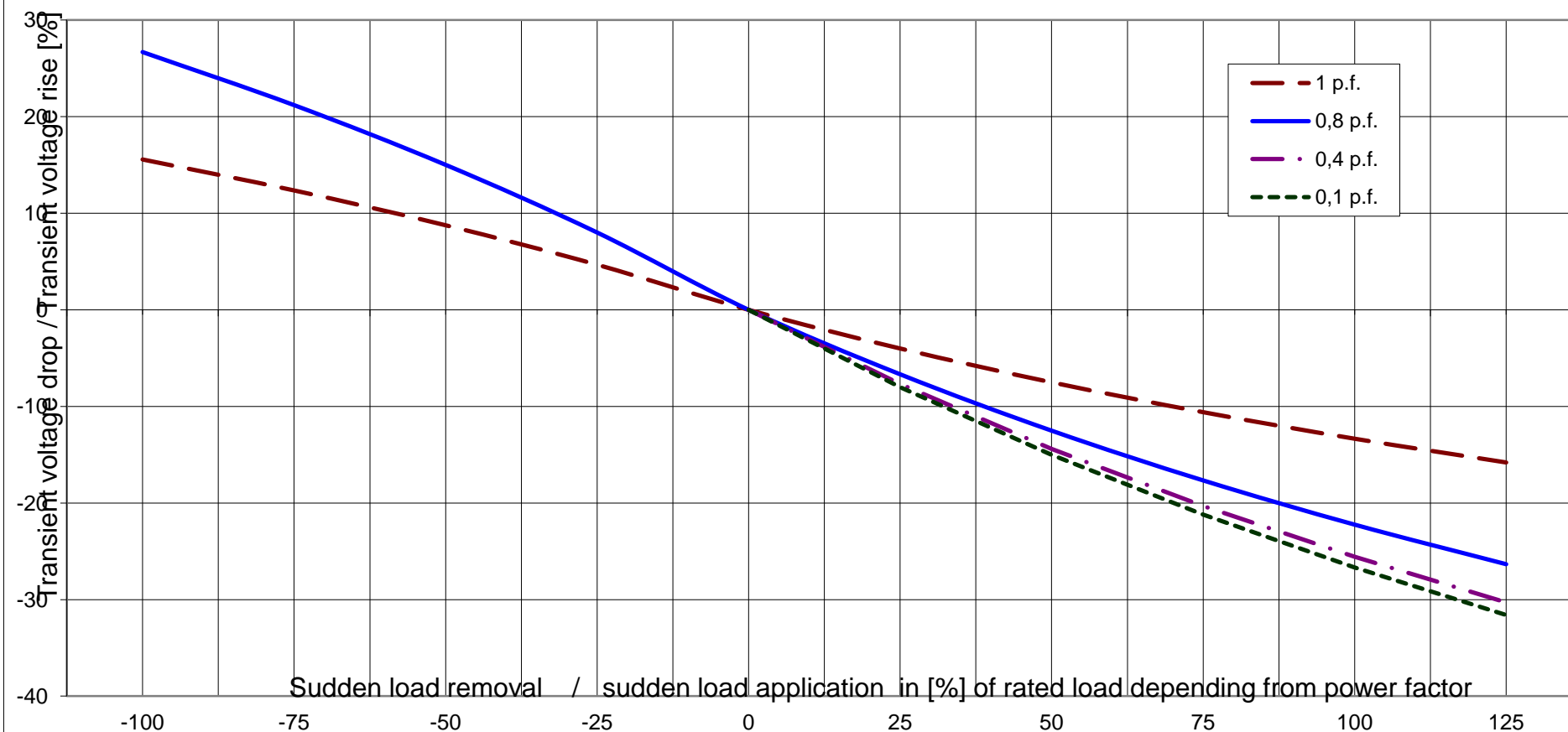
### Wirkungsgrad-Kennlinie - Efficiency Curve



**Alternator : DSG 74 L1/8**

Rated output [kVA]	800	Rated power factor:	0.8	Rated voltage [kV]:	0.69
Rated frequency [Hz]	50	Rated speed [rpm]	750		

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



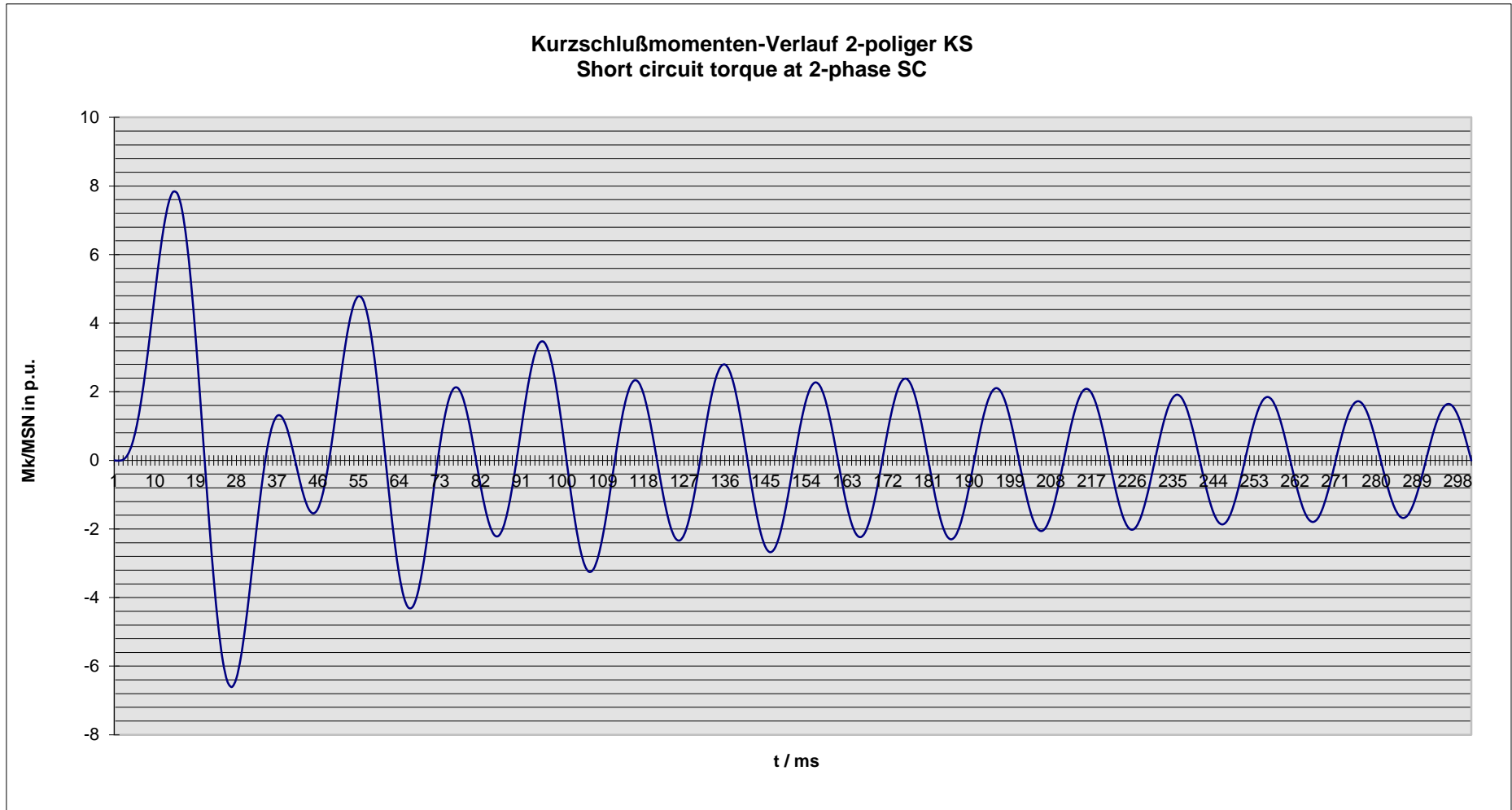


Technisches Datenblatt - Diagramme  
Technical data sheet - Diagrams

ING-FCD-0112

<b>Alternator :</b>	<b>DSG 74 L1/8</b>			
Rated output [kVA]	800	Rated power factor:	0.8	Rated voltage [kV]: 0.69
Rated frequency [Hz]	50	Rated speed [rpm]	750	MSN related to kVA: 10.19 KNm

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



#### Nenn Daten / nominal data

DSG 74 L1/8

Leistung  $S_N$ : **800 kVA**

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

Rating

p.f.

Spannung  $U_N$ : **0.69 kV**

Strom  $I_N$ : **669 A**

Voltage

Current

Frequenz  $f$ : **50 Hz**

Drehzahl  $n$ : **750 min<sup>-1</sup>**

Frequency

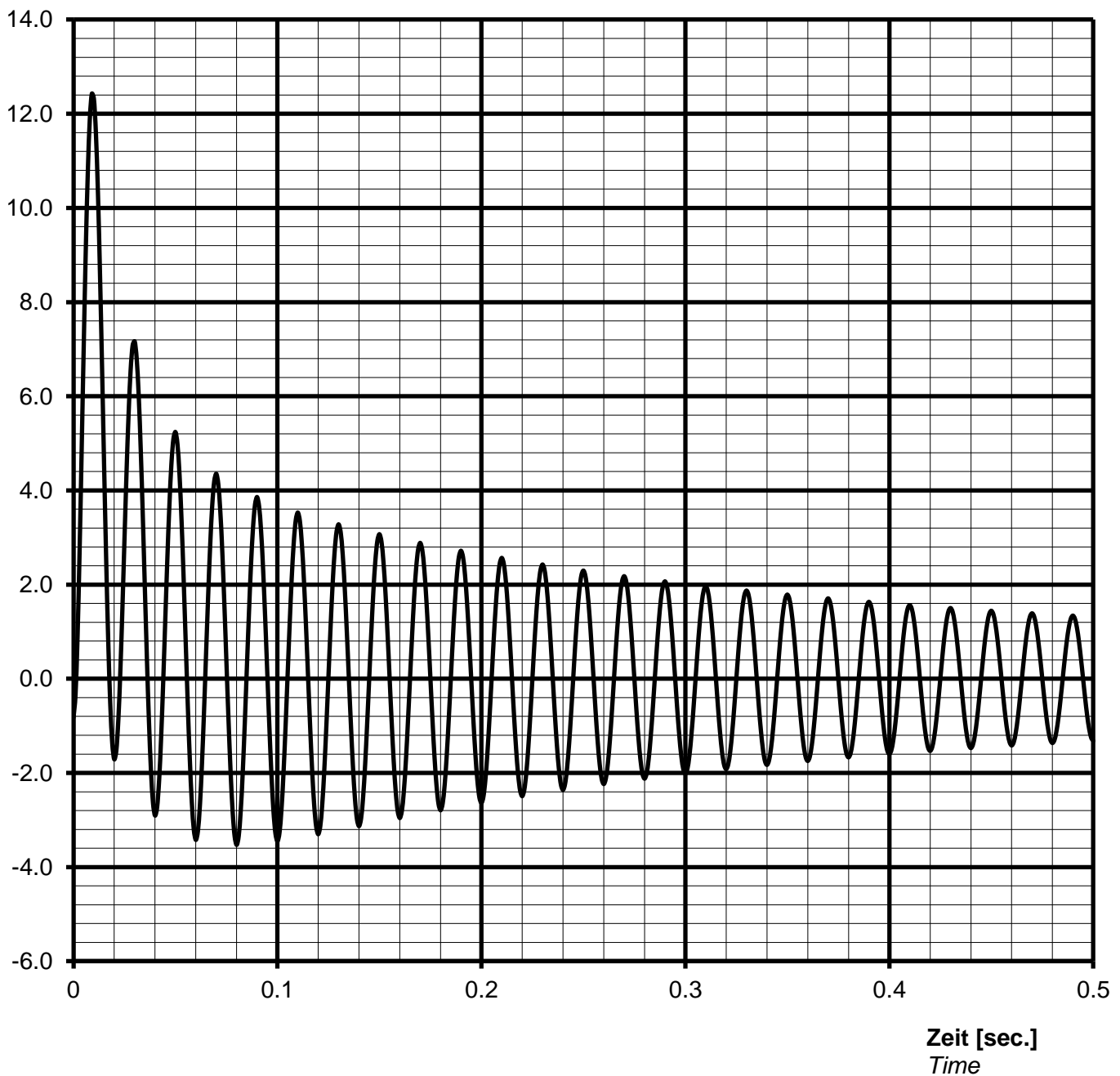
Speed

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

$I_{\text{speak}} =$  **8318 A** or **12.43 p.u.**

**Nenndaten / nominal data**

**DSG 74 L1/8**

Leistung  $S_N$ : **800 kVA**

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

*Rating*

*p.f.*

Spannung  $U_N$ : **0.69 kV**

Strom  $I_N$ : **669 A**

*Voltage*

*Current*

Frequenz  $f$ : **50 Hz**

Drehzahl  $n$ : **750 min<sup>-1</sup>**

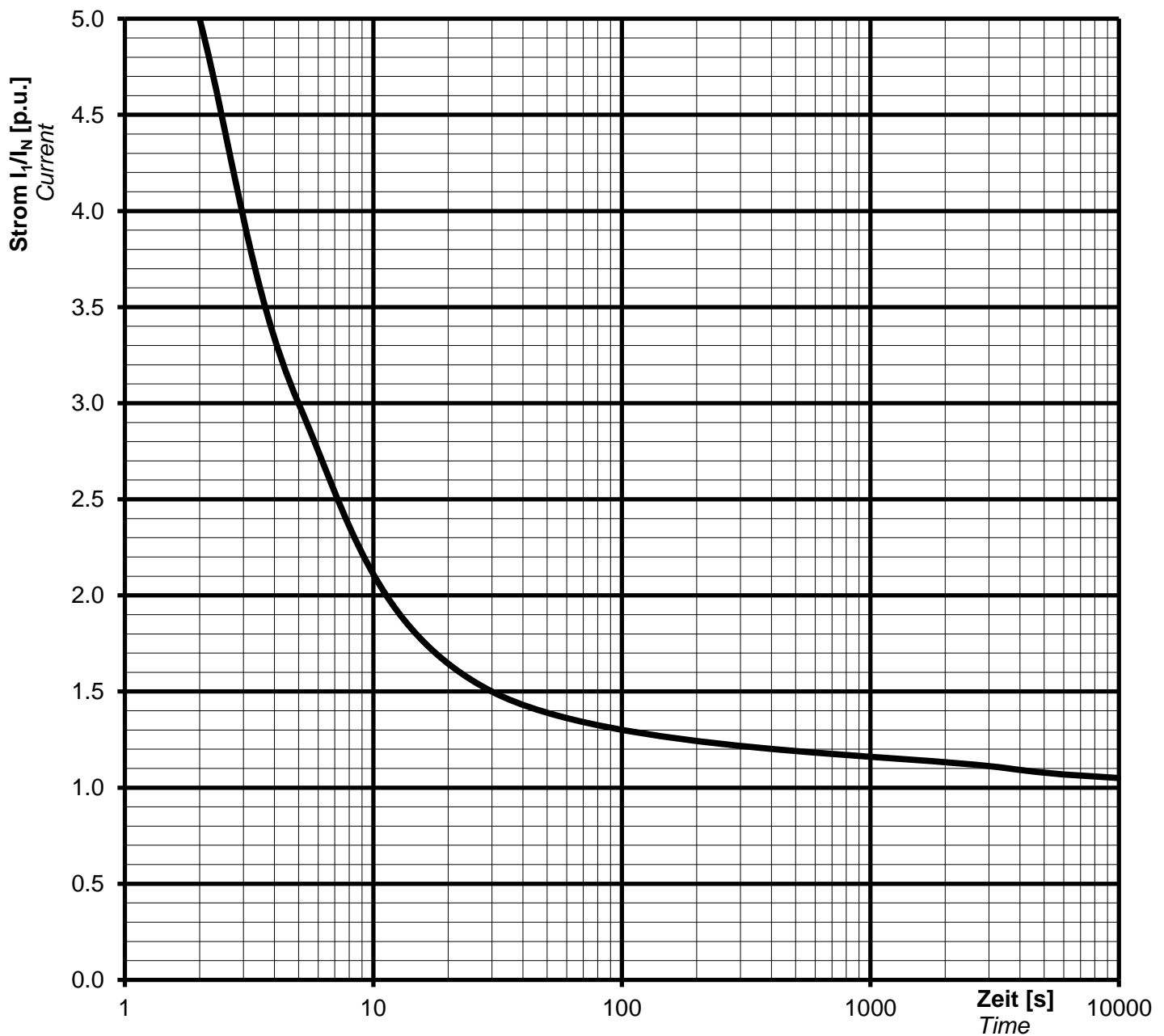
*Frequency*

*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 74 L1/8

Rating  $S_N$ : **800 kVA**

$p.f.$  **0.80**

Bemessungsleistung

Leistungsfaktor  $\cos \varphi$ :

Nominal voltage  $U_N$ : **0.69 kV**

Nominal current  $I_N$ : **669 A**

Bemessungsspannung

Bemessungsstrom

Frequency  $f_N$ : **50 Hz**

Speed  $n$ : **750 min<sup>-1</sup>**

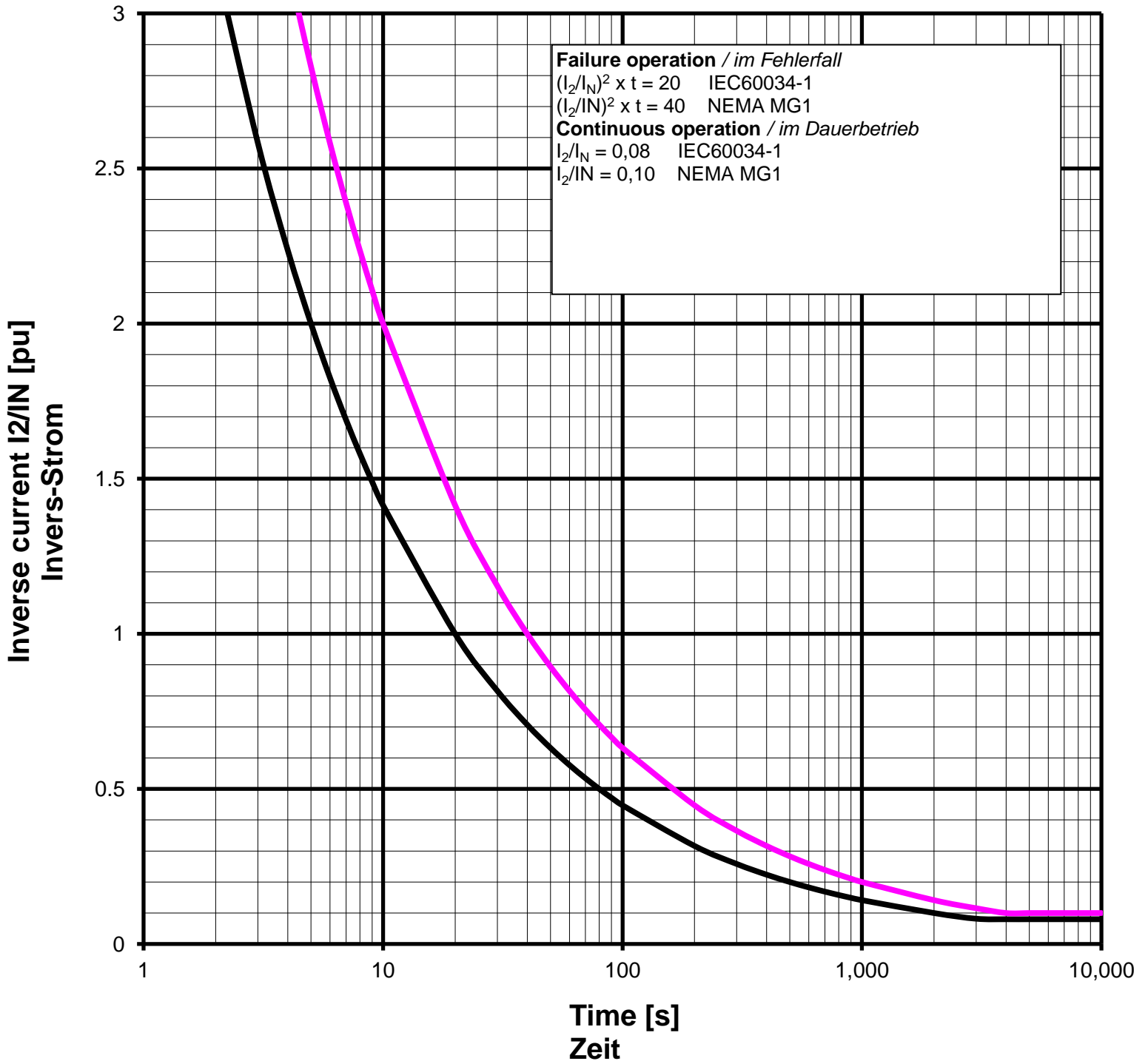
Frequenz

Drehzahl

Protection: **IP23**

Schutzart

#### Inverse current or unbalanced negative sequence current



Remarks / Notizen:

TYPE

DSG 74 L1/8

Projekt:

Order Nr.:

**Capability (P-Q) Diagram**

