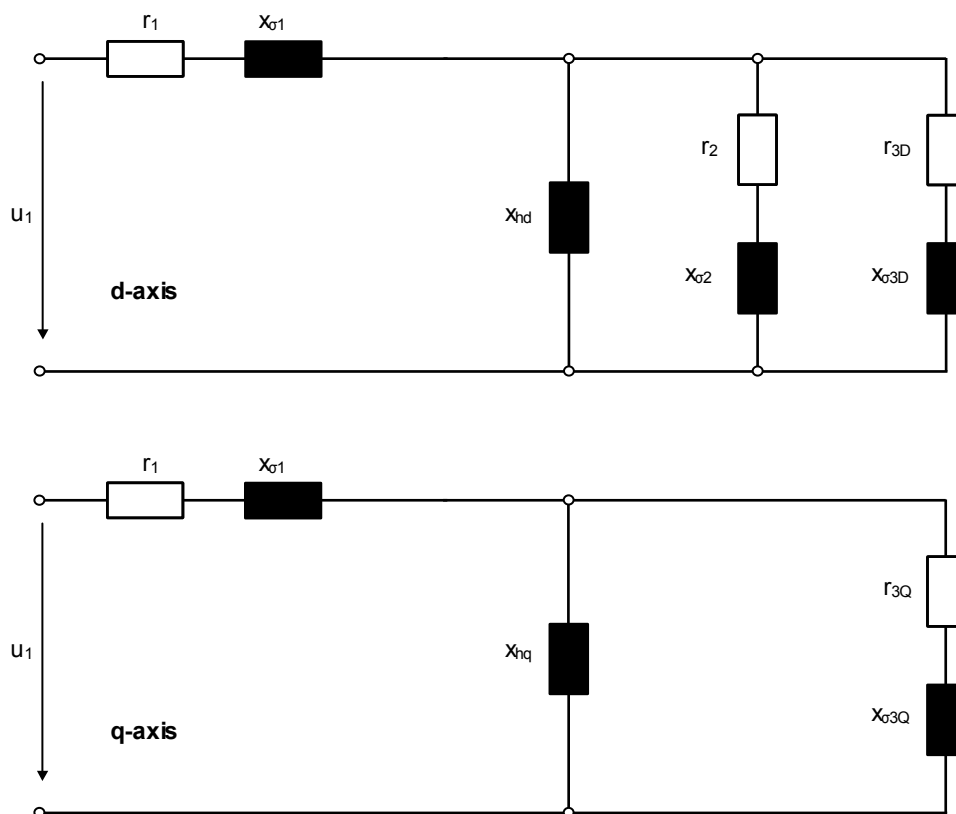


Three-Phase Synchronous Generator with Salient Pole Rotor (Solid Pole)			Order No. Order date 06.01.11 Manuf. No. D1131630101	
Type Unit	1DY1540-5AJ02-Z 1	Cooling System IC01 Ventilation System bilat. Type of Fan 2AX881-22	Mounting IM1001 Enclosure IP24 Ex-Protect -- Ex-Standard -- Insul. System Micalastic Thermal Class F Service Altitude ≤ 1000 m Over-Speed 2160.0 min⁻¹ Inertia Motor/Load 0.56 / 0.00 tm²	Drive n by Steam Turbine Type Dr.Mach. Shaft power 10256 kW Standard NEMA, API 546 Rotation cw Excitation brushless Type Exc.Mach. 1JG3300-7__06-Z
Remarks				
QS-Performance				
Enclosures				
Sheet : 2 Electrical Data Sheet : 3 Equivalent Circuit Diagram Sheet : 4 Air Gap Torque Pulsation During Sudden Short Circuit Sheet : 5 Efficiency Curve Sheet : 6 Axial Forces due to Rotor Displacement Sheet : 7 Circuit Diagram of Excitation				
I DT LD DW	Dep. FN1 Name Jungelnes Phone/Fax 28062 Date 10.02.11	Works No. 1316301 Code SI MAYRIV1 DI1385 K.16 DV -Freigabe	Electrical Data 4D3.0180-633515	Sheet 1 of 7 242051
Siemens AG				

Basic circuit diagram of a 3 phase synchronous machine

$P_N = 11764 \text{ kW}$ $F_N = 60 \text{ Hz}$ $M_N = 62.4 \text{ kNm}$
 $U_{N1} = 4160 \text{ V}$ $N_N = 1800.0 \text{ min}^{-1}$
 $I_{N1} = 1633 \text{ A}$



Base value of motor impedance 1.471Ω ; Reference temperature 95°C

Synchronous resistances			Air gap reactances			Leakage reactances		
	unsaturated	saturated		unsaturated	saturated		unsaturated	saturated
r1	5.30 ‰		xhd	1.21 p.u.	1.06 p.u.	xσ1	0.14 p.u.	
r2	0.90 ‰		xhq	0.59 p.u.	p.u.	xσ2	0.13 p.u.	
r3D	217 ‰	62.5 ‰				xσ3D	0.29 p.u.	0.081 p.u.
r3Q	286 ‰	91.7 ‰				xσ3Q	0.29 p.u.	0.073 p.u.

Time constants						
TG	0.20 s		TQ''0	0.020 s	T(3K)	0.30 s
TD'0	4.0 s		TQ''	0.005 s	T(2K)	0.50 s
TD'	0.76 s					
TD''0	0.007 s					
TD''	0.005 s					

Air Gap Torque Pulsation during Sudden Short-Circuit

$P_N = 11764 \text{ kW}$ $M_N = 62.4 \text{ kNm}$ $N_N = 1800.0 \text{ min}^{-1}$

Air Gap Torque vs. Time during Three-Phase-Sudden Short-Circuit

$$m(t) = M_N \cdot m_{K(3)} \cdot [\exp(-t/T_G - t/T_{K(3)}) \cdot \sin(\omega \cdot t)] \quad [\text{kNm}]$$

$m_{K(3)} = 6.7 \text{ p.u.}$ $T_{K(3)} = 0.30 \text{ s}$ $T_G = 0.20 \text{ s}$

Air Gap Torque vs. Time during Line-to-Line-Sudden Short-Circuit

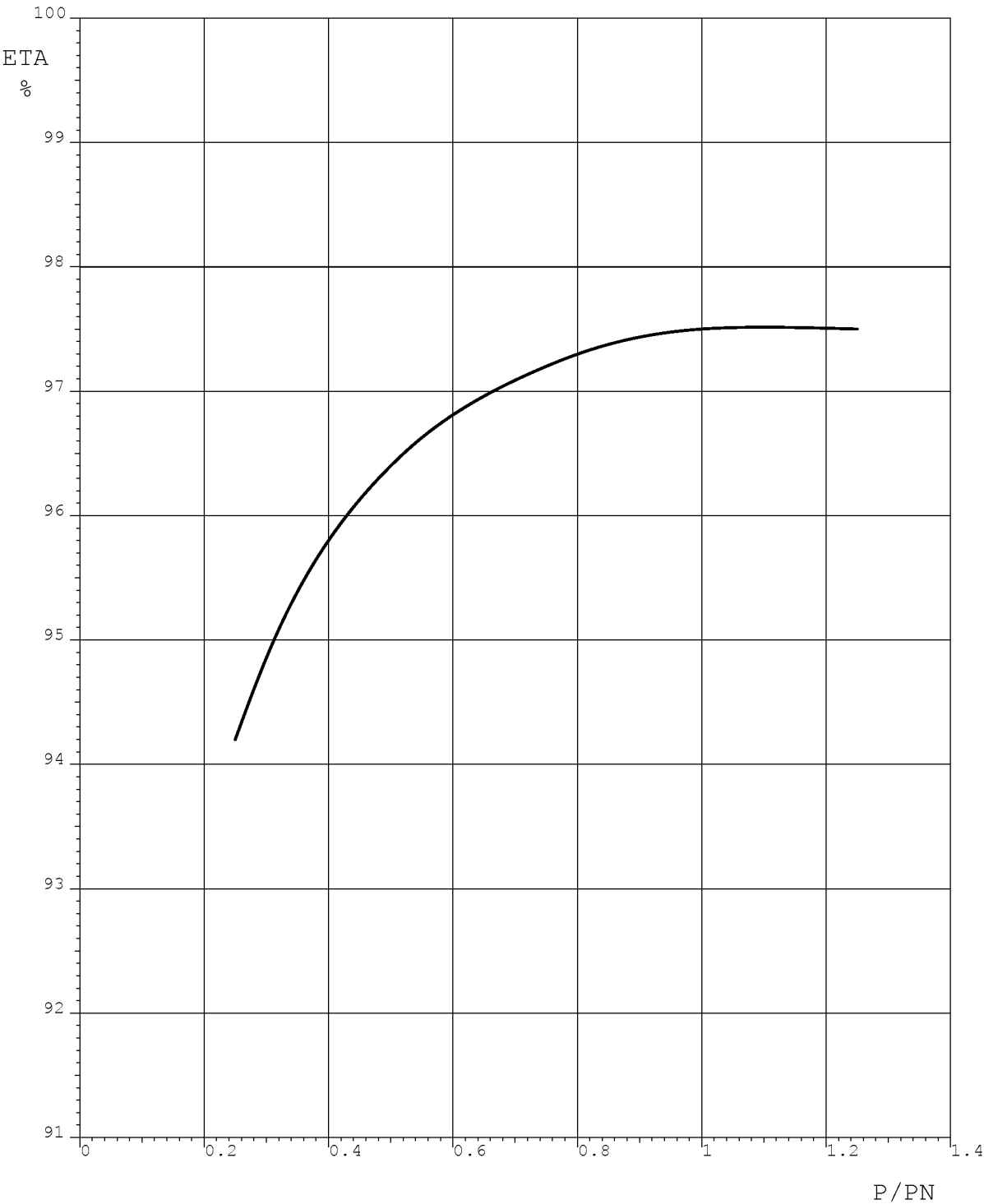
$$m(t) = M_N \cdot m_{K(3)} \cdot [\exp(-t/T_G - t/T_{K(2)}) \cdot \sin(\omega \cdot t) - 0.5 \cdot \exp(-2t/T_{K(2)}) \cdot \sin(2 \cdot \omega \cdot t)] \quad [\text{kNm}]$$

$m_{K(3)} = 6.7 \text{ p.u.}$ $T_{K(2)} = 0.50 \text{ s}$ $T_G = 0.20 \text{ s}$

EFFICIENCIES (GUARANTEED VALUES)

SN = 11764. KVA UN = 4160. V IN = 1633. A
FN = 60.0 HZ NN = 1800.0 RPM P.F. = 0.850

———— AT RATED POWER FACTOR



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I DT LD DW	Dep. FN1	Works No. 1316301	Code SI MAYRIV1	Electrical Data	Sheet 5 of 7
Siemens AG	Name Jungelnes	DI1385 K.16 DV-Freigabe		4D3.0180-633515	242051
	Phone/Fax 28062				
	Date 10.02.11				

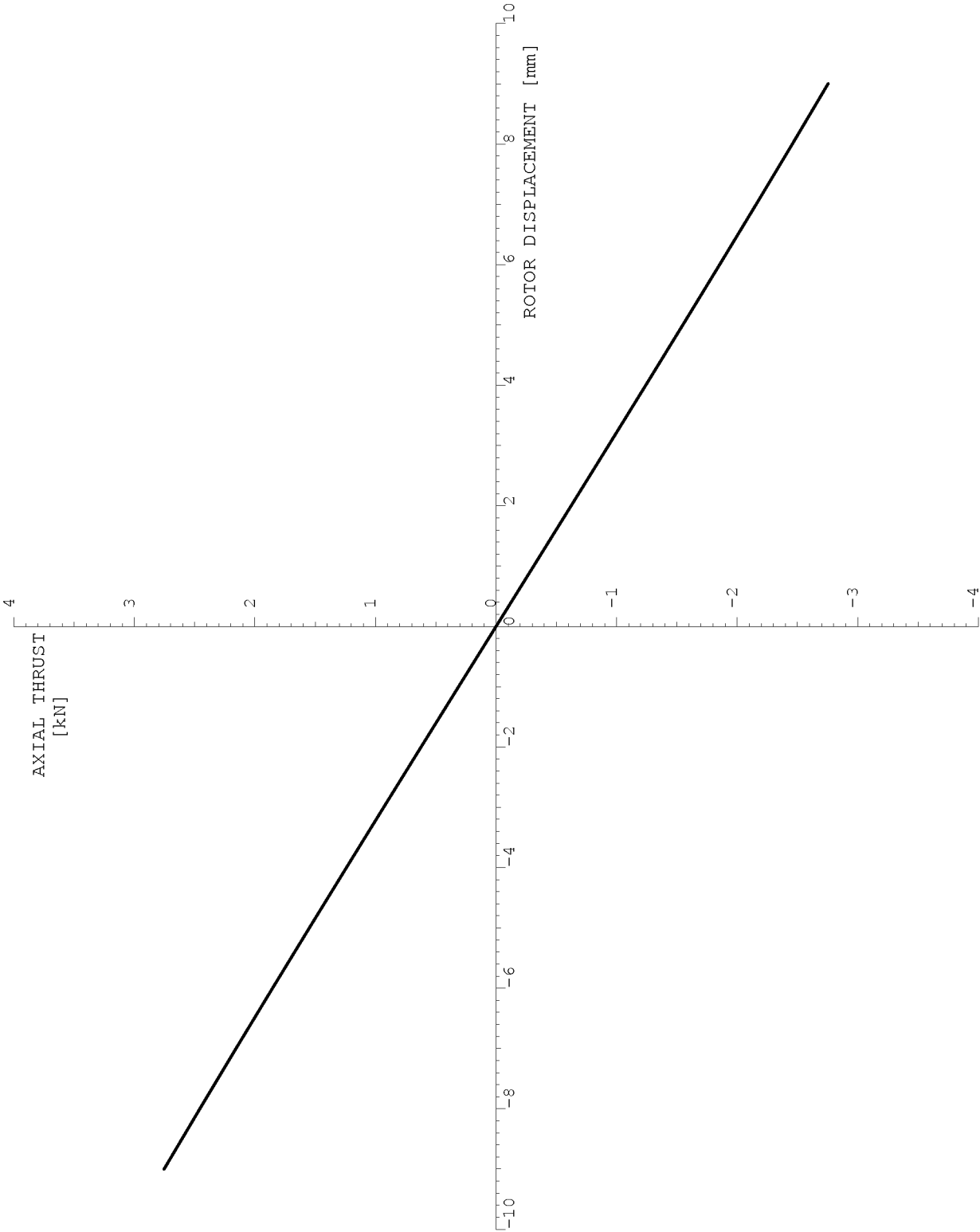
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Three-Phase Synchronous Generator with Salient Pole Rotor (Solid Pole)

Order No.
Order date 06.01.11
Manuf. No. D1131630101

AXIAL THRUST BY ROTOR DISPLACEMENT FROM MAGN. CENTRE

SN = 11764. KVA UN = 4160. V IN = 1633. A
FN = 60.0 HZ NN = 1800.0 RPM P.F. = 0.850



I DT LD DW	Dep.	FN1	Works No. 1316301	Code SI MAYRIV1	Electrical Data	Sheet 6 of 7
Siemens AG	Name	Jungelnes				
	Phone/Fax	28062				
	Date	10.02.11	DI1385 K.16 DV-Freigabe		4D3.0180-633515	242051

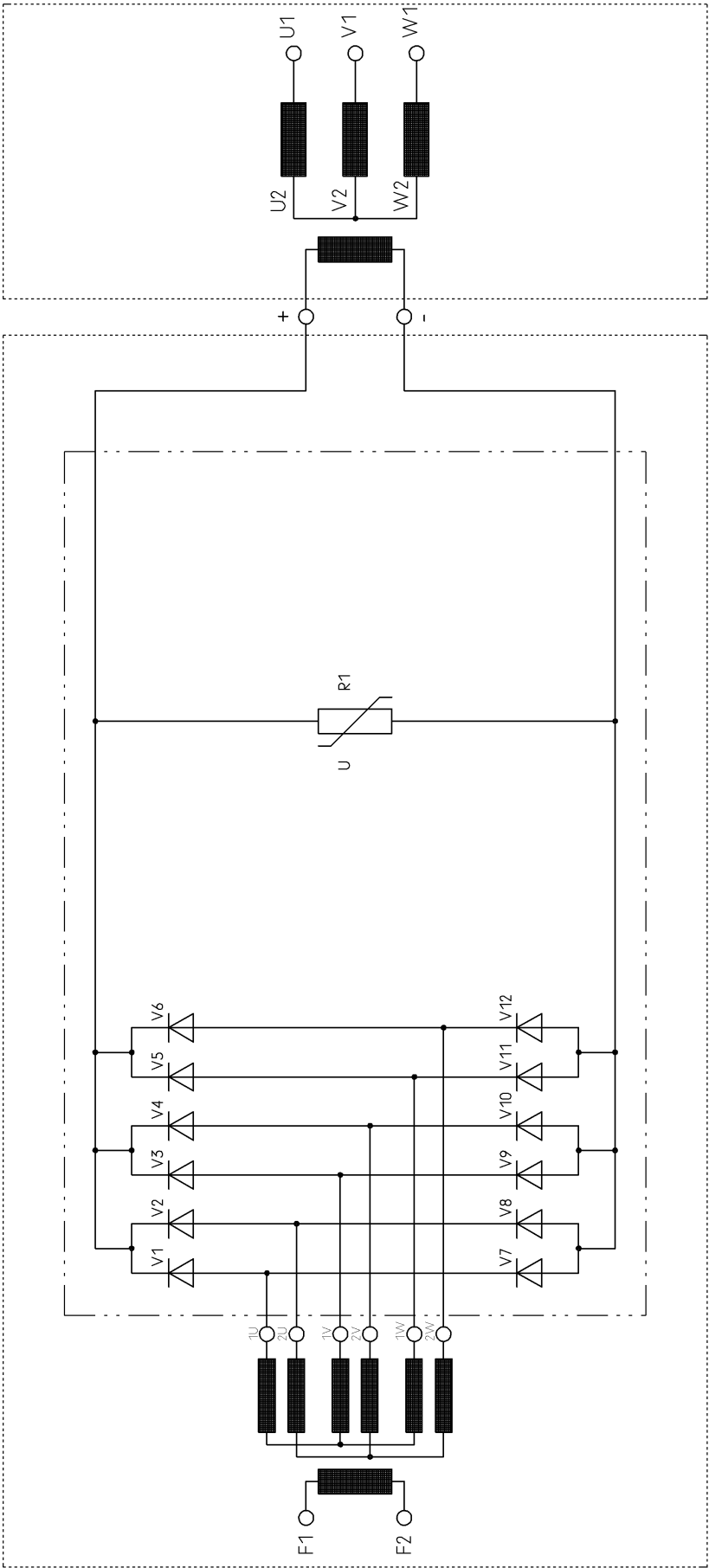
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Three-Phase Synchronous Generator with Salient Pole Rotor (Solid Pole)

Order No. 06.01.11
Order date D1131630101
Manuf. No.

Hauptmaschine
Main machine

Erregermaschine
Exciter



Gleichrichterrad
Rectifier wheel

Bezeichnung	Bezeichnung
Element	Designation
V1 - V12	Siliziumdiode / Silicon diode
R1	Varistor-Schutzwiderstand / Protective resistor

I DT LD DW	Dep. FN1	Works No. 1316301	Code SI MAYRIV1	Electrical Data	Sheet 7 of 7
Siemens AG	Name Jungelnes	Phone/Fax 28062	DI1385 K.16 DV-Freigabe	4D3.0180-633515	242051
	Date 10.02.11				