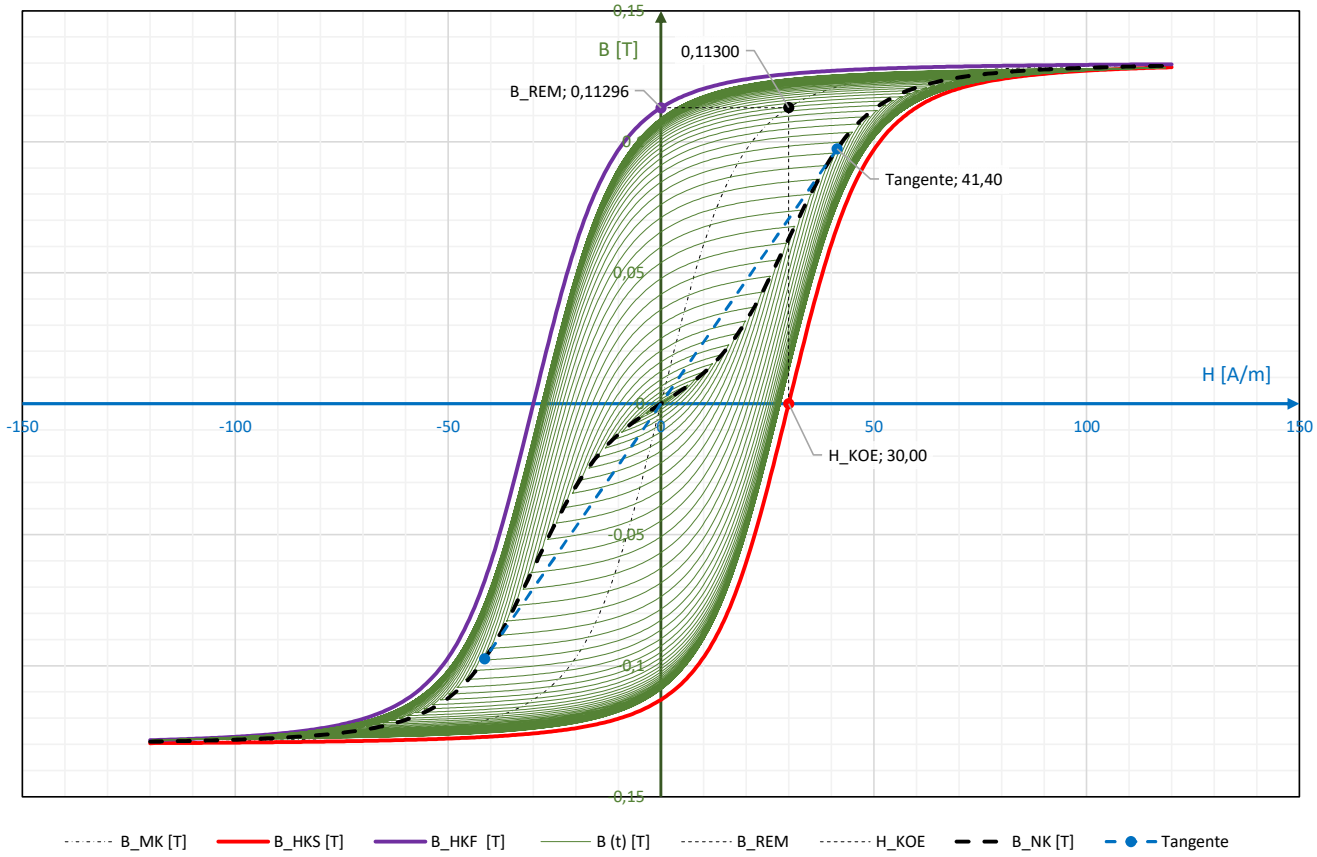
DEMO M xxx-xx

# Magnetische Hysterese




**Variablen:**

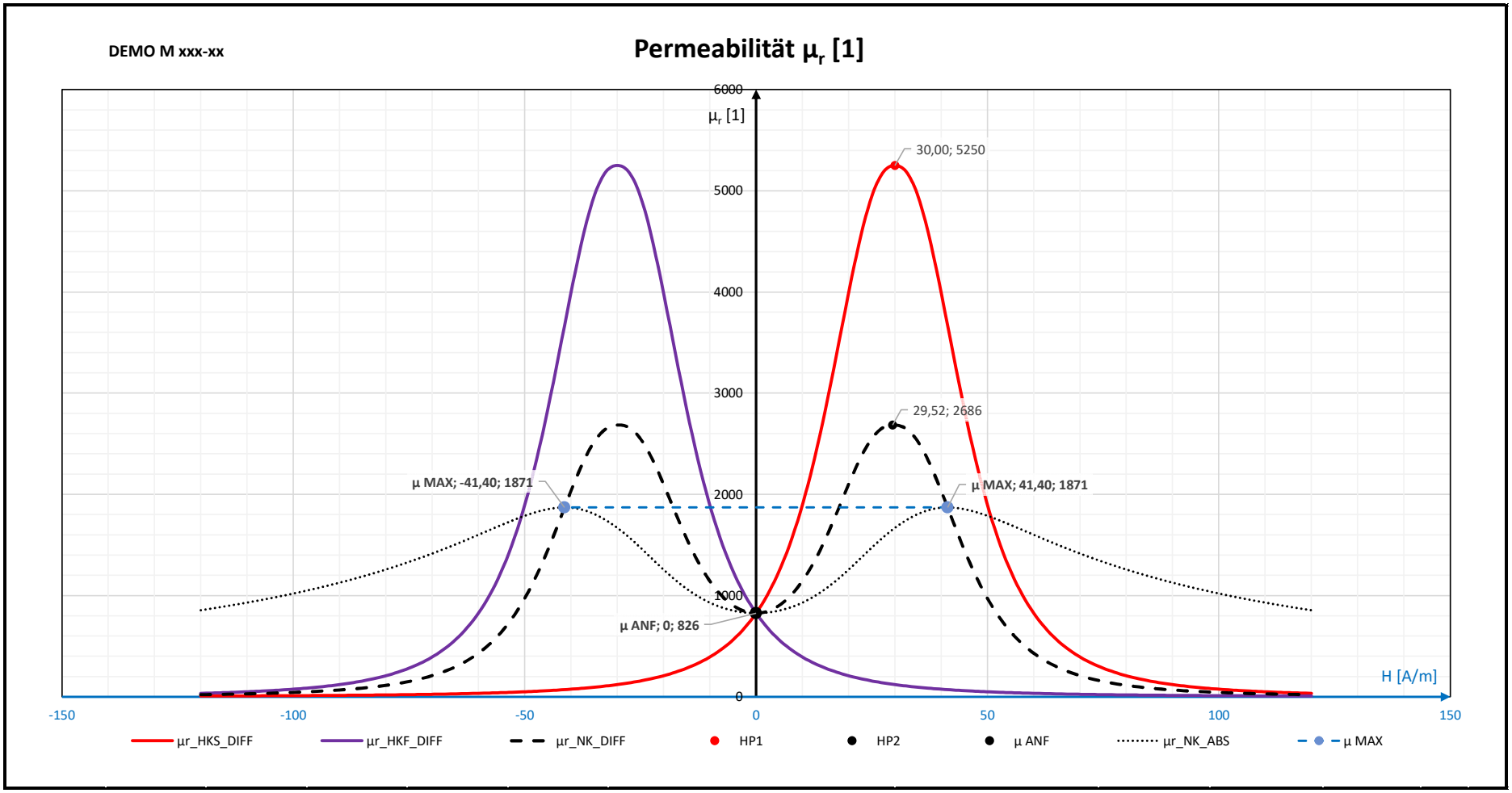
| | | | |
|---|---|---|---|
| Amplitude H | 120 | [A/m] | |
| H_KOE | 30,00 | [A/m] | |
| χ _SUS | 5249 | [1] | ### |
| Exponent | 2,3 | [1] | 23 |
| M_SAT | 103410 | [A/m] | ### |
| Frequenz f | 6200 | [Hz] | |
| Material | DEMO M xxx-xx | | |

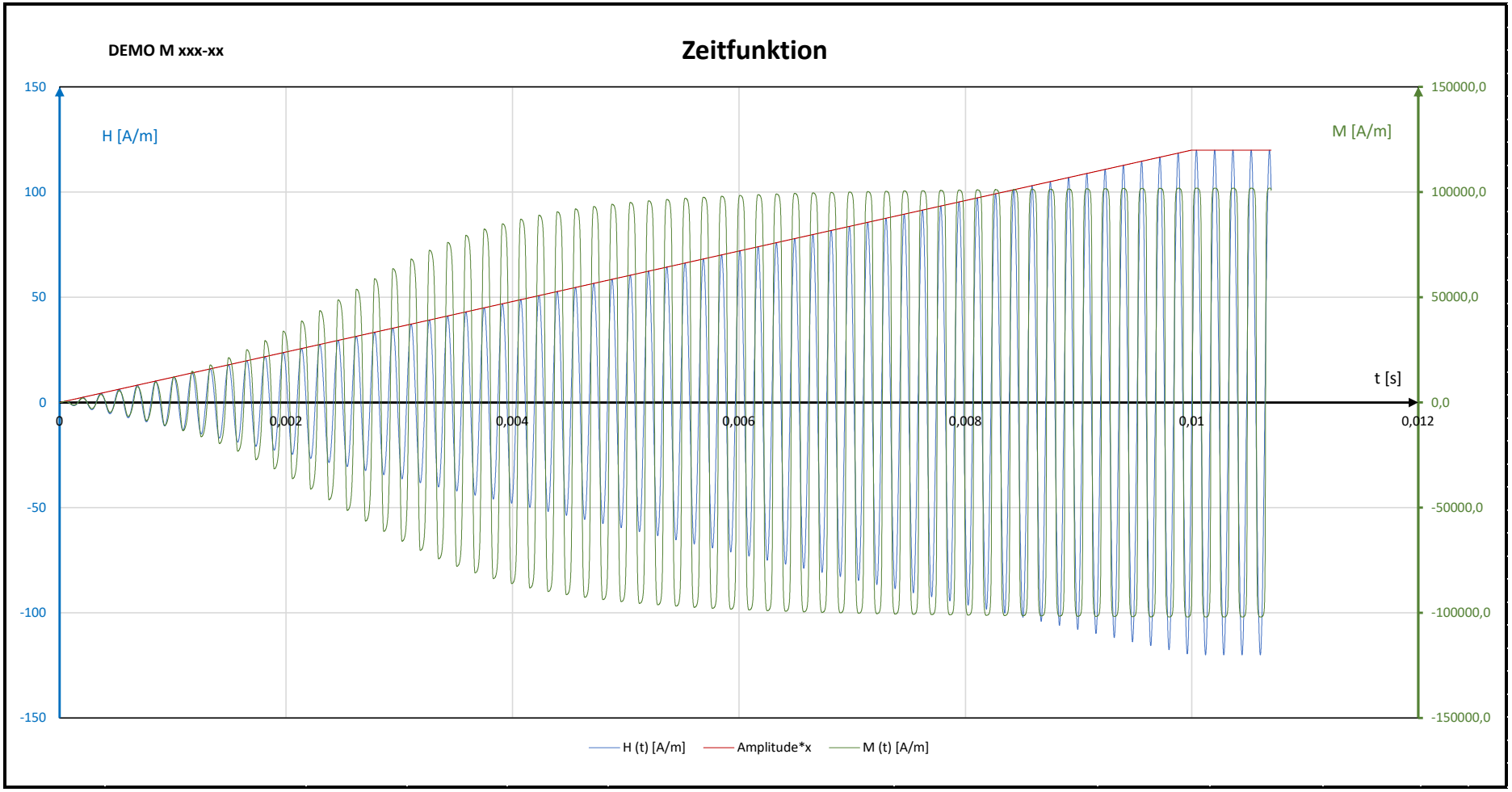
**Konstanten & Ergebnisse:**

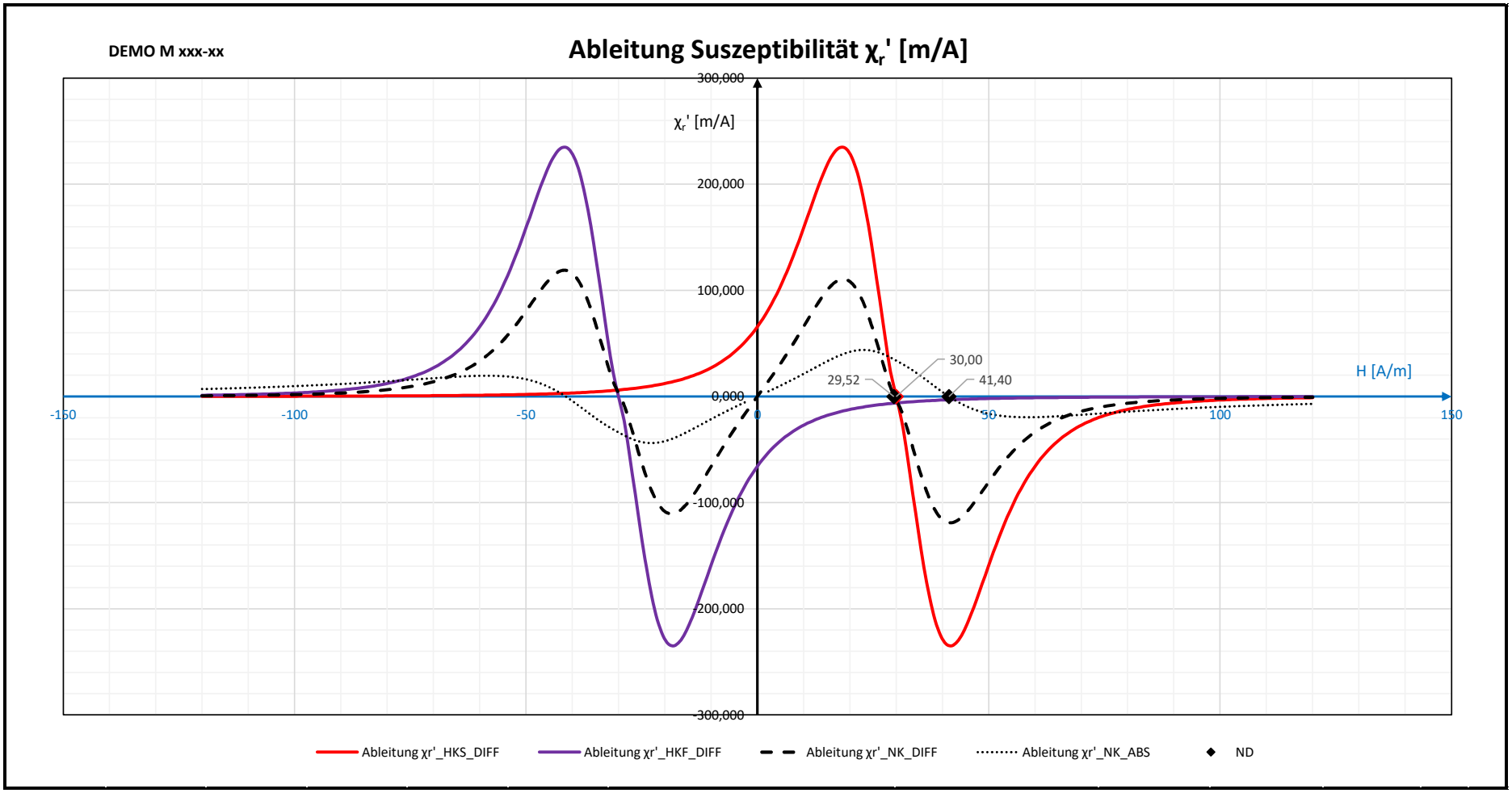
| | | | |
|---|---|---|---|
| dt | Inkrement t | 0,000001 | [s] |
| μ_o | $4\pi*10^{-7}$ | 1,257E-06 | [Vs/A/m] |
| μ_FE | Permeabilität | 6,597E-03 | [Vs/A/m] |
| ω [1/s] | 2πf | 38956 | [1/s] |
| W_UMV | Fläche | 30,89 | [Ws/m³] |
| P_UMV_50Hz | Verlustziffer | 0,198 | [W/kg] |
| M_UMV/pp | Static Friction | 0,0040 | [Nm/kg] |
| **μ_ANF_DIFF** | = μ_ANF_ABS | **826** | [1] |
| **μ_NK_MAX** | μ im HP ABS | **1871** | [1] |
| **H_NK_HP** | H im HP | **41,40** | [A/m] |

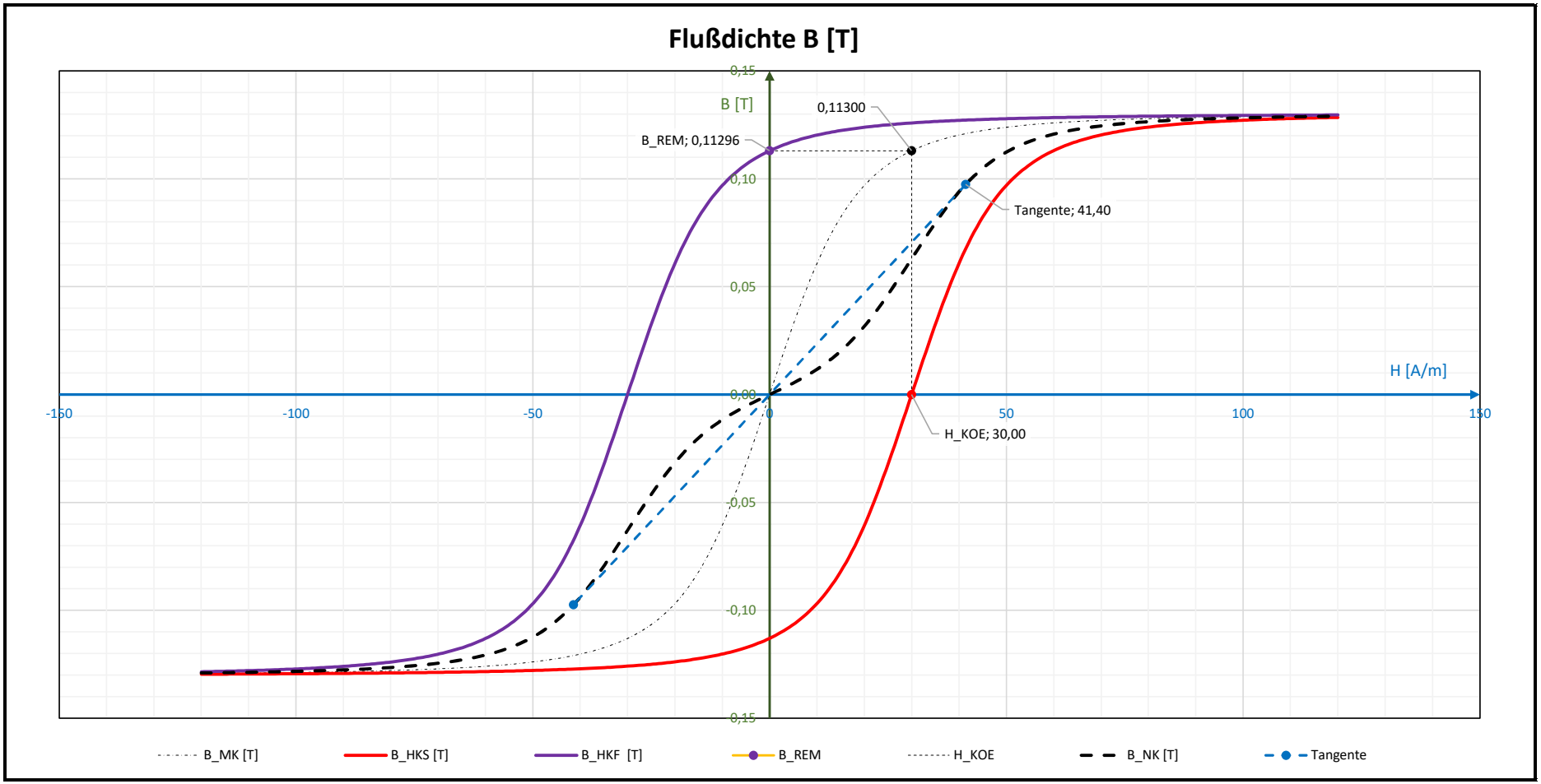
**Legende:**

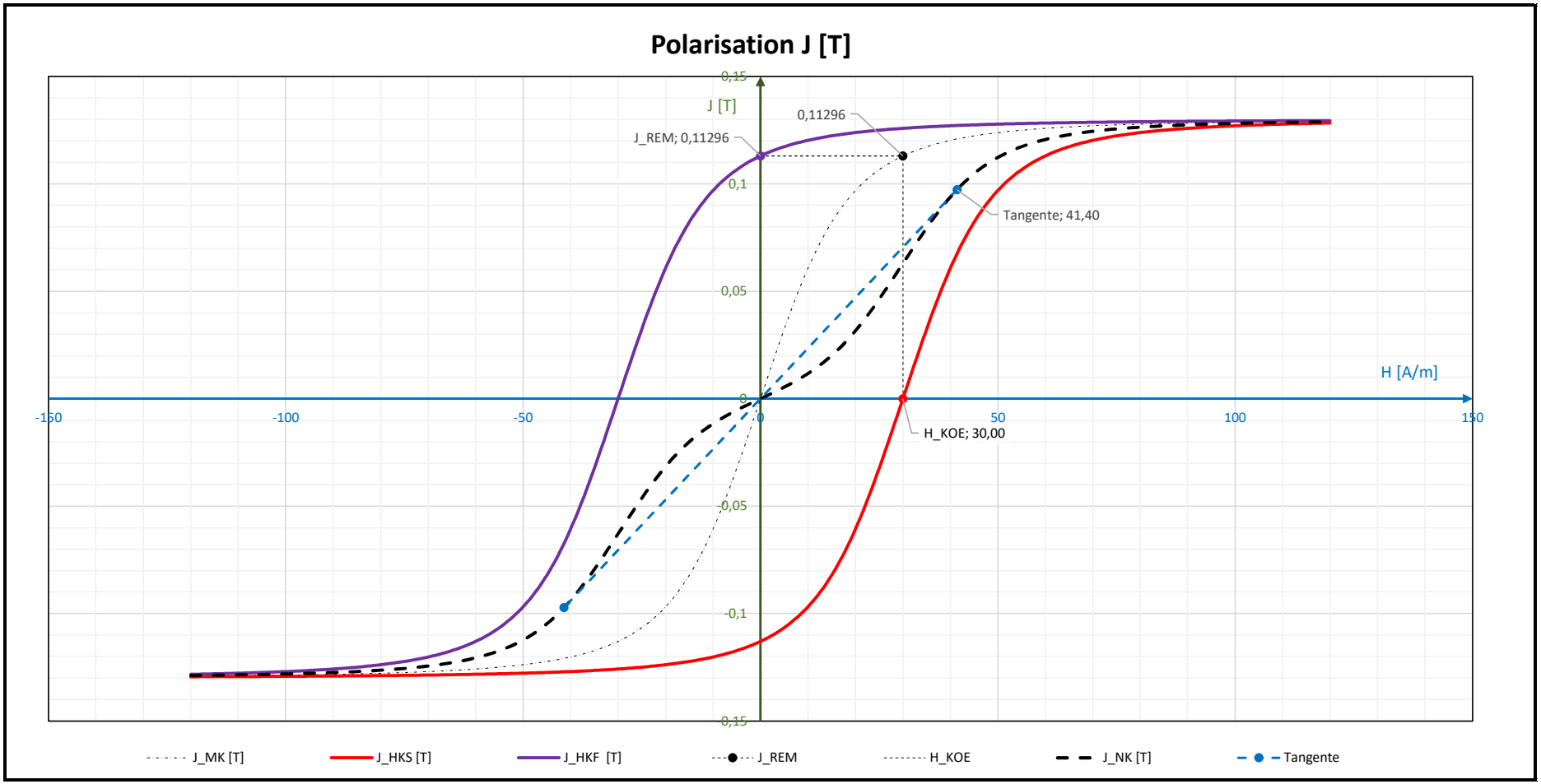
| | |
|---|---|
| MK | Mittenkurve |
| HKS | Hüllkurve steigend |
| HKF | Hüllkurve fallend |
| NK | Neukurve |
| HP | Hochpunkt |
| ND | Nulldurchgang |

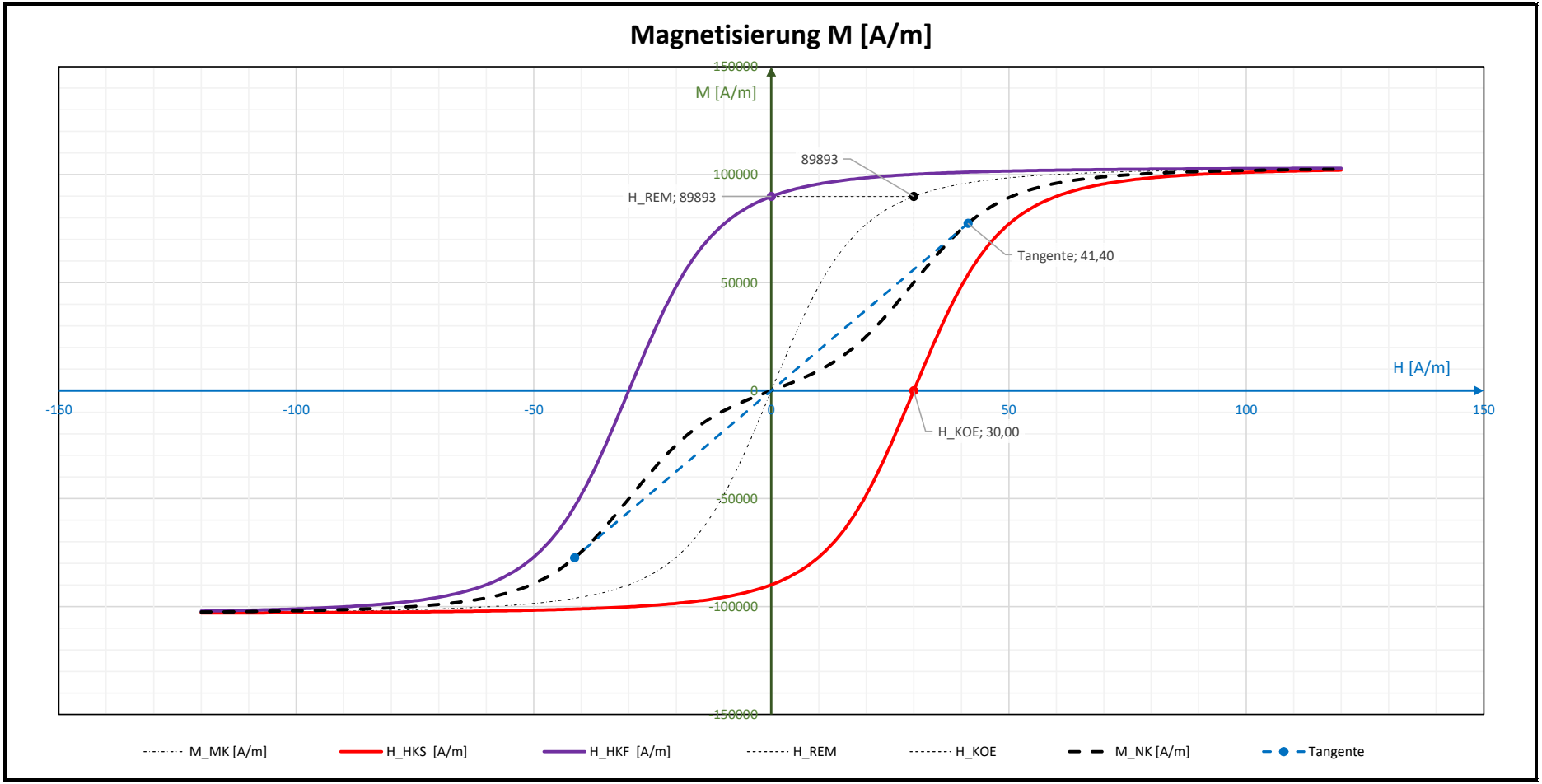

DEMO M xxx-xx
Permeabilität μr [1]
μr [1]
6000
5000
4000
3000
2000
1000
0
30,00; 5250
29,52; 2686
μ MAX; -41,40; 1871
μ MAX; 41,40; 1871
μ ANF; 0; 826
H [A/m]
-150
-100
-50
0
50
100
150
μr_HKS_DIFF
μr_HKF_DIFF
μr_NK_DIFF
HP1
HP2
μ ANF
μr_NK_ABS
μ MAX

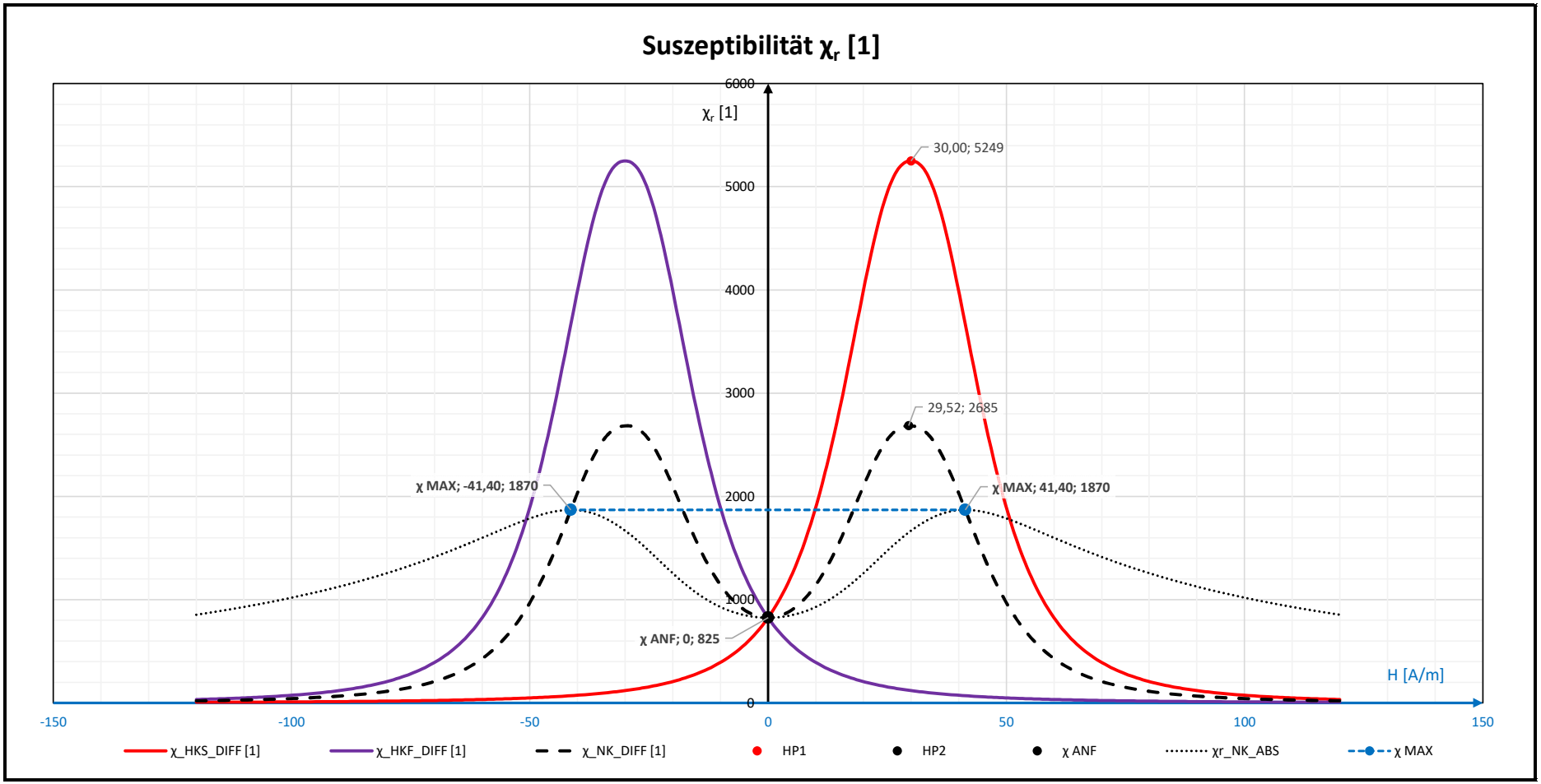

DEMO M xxx-xx
Zeitfunktion
H [A/m]
M [A/m]
t [s]
150
100
50
0
-50
-100
-150
150000,0
100000,0
50000,0
0,0
-50000,0
-100000,0
-150000,0
0
0,002
0,004
0,006
0,008
0,01
0,012
H (t) [A/m]
Amplitude*x
M (t) [A/m]


DEMO M xxx-xx
Ableitung Suszeptibilität χr' [m/A]
χr' [m/A]
300,000
200,000
100,000
0,000
-100,000
-200,000
-300,000
-150
-100
-50
0
50
100
150
H [A/m]
29,52
30,00
41,40
Ableitung χr'_HKS_DIFF
Ableitung χr'_HKF_DIFF
Ableitung χr'_NK_DIFF
Ableitung χr'_NK_ABS
ND


Flußdichte B [T]
B [T]
H [A/m]
0,15
0,10
0,05
0,00
-0,05
-0,10
-0,15
-150
-100
-50
0
50
100
150
0,11300
B_REM; 0,11296
Tangente; 41,40
H_KOE; 30,00
B_MK [T]
B_HKS [T]
B_HKF [T]
B_REM
H_KOE
B_NK [T]
Tangente


Polarisation J [T]
J [T]
H [A/m]
0,15
0,1
0,05
0
-0,05
-0,1
-0,15
-150
-100
-50
0
50
100
150
0,11296
J_REM; 0,11296
Tangente; 41,40
H_KOE; 30,00
J_MK [T]
J_HKS [T]
J_HKF [T]
J_REM
H_KOE
J_NK [T]
Tangente


Magnetisierung M [A/m]
M [A/m]
H [A/m]
150000
100000
50000
0
-50000
-100000
-150000
-150
-100
-50
0
50
100
150
89893
H_REM; 89893
Tangente; 41,40
H_KOE; 30,00
M_MK [A/m]
H_HKS [A/m]
H_HKF [A/m]
H_REM
H_KOE
M_NK [A/m]
Tangente


Suszeptibilität χr [1]
χr [1]
6000
5000
4000
3000
2000
1000
0
30,00; 5249
29,52; 2685
χ MAX; -41,40; 1870
χ MAX; 41,40; 1870
χ ANF; 0; 825
H [A/m]
-150
-100
-50
0
50
100
150
χ_HKS_DIFF [1]
χ_HKF_DIFF [1]
χ_NK_DIFF [1]
HP1
HP2
χ ANF
χr_NK_ABS
χ MAX