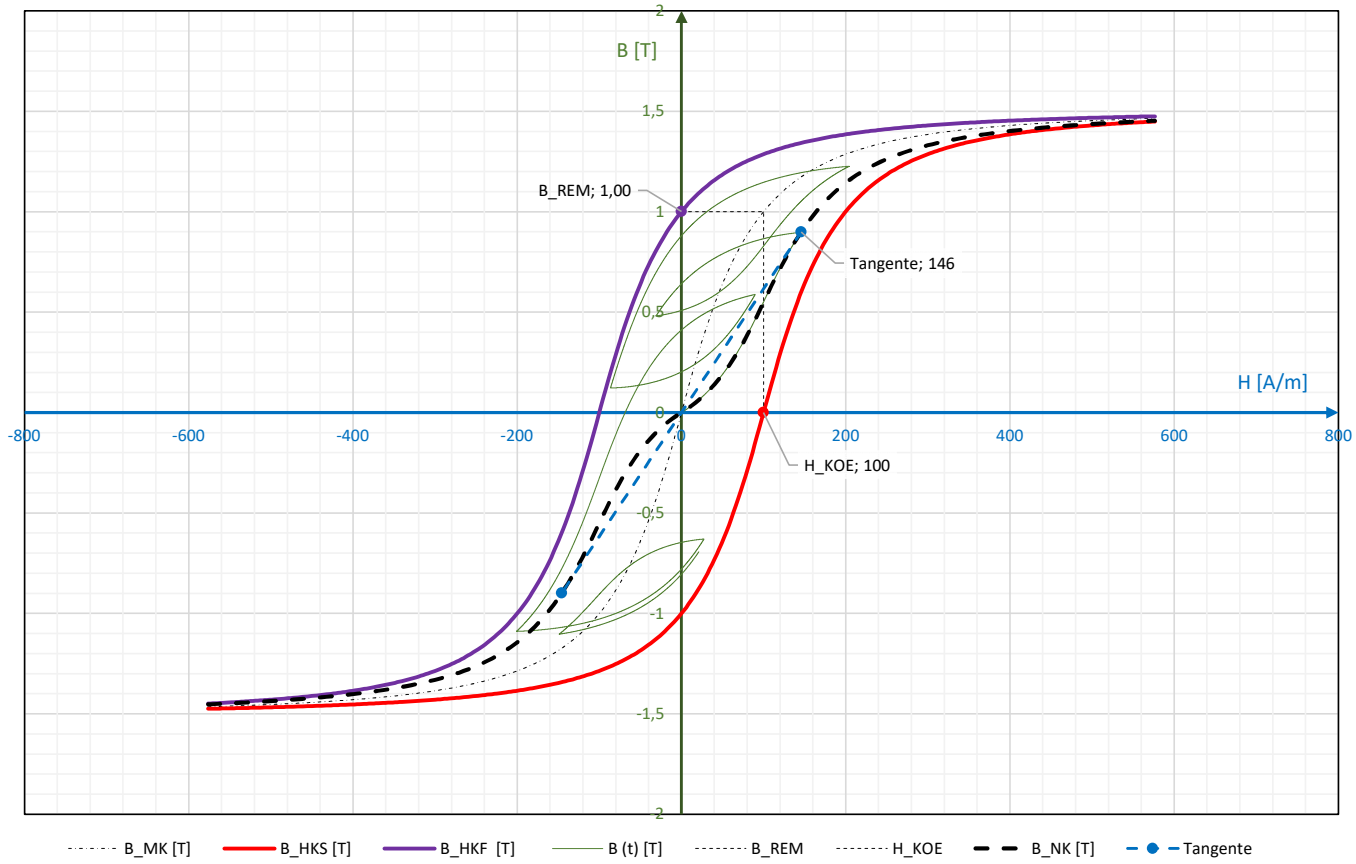
DEMO Mxxx-xxx

Magnetische Hysterese



Variablen:

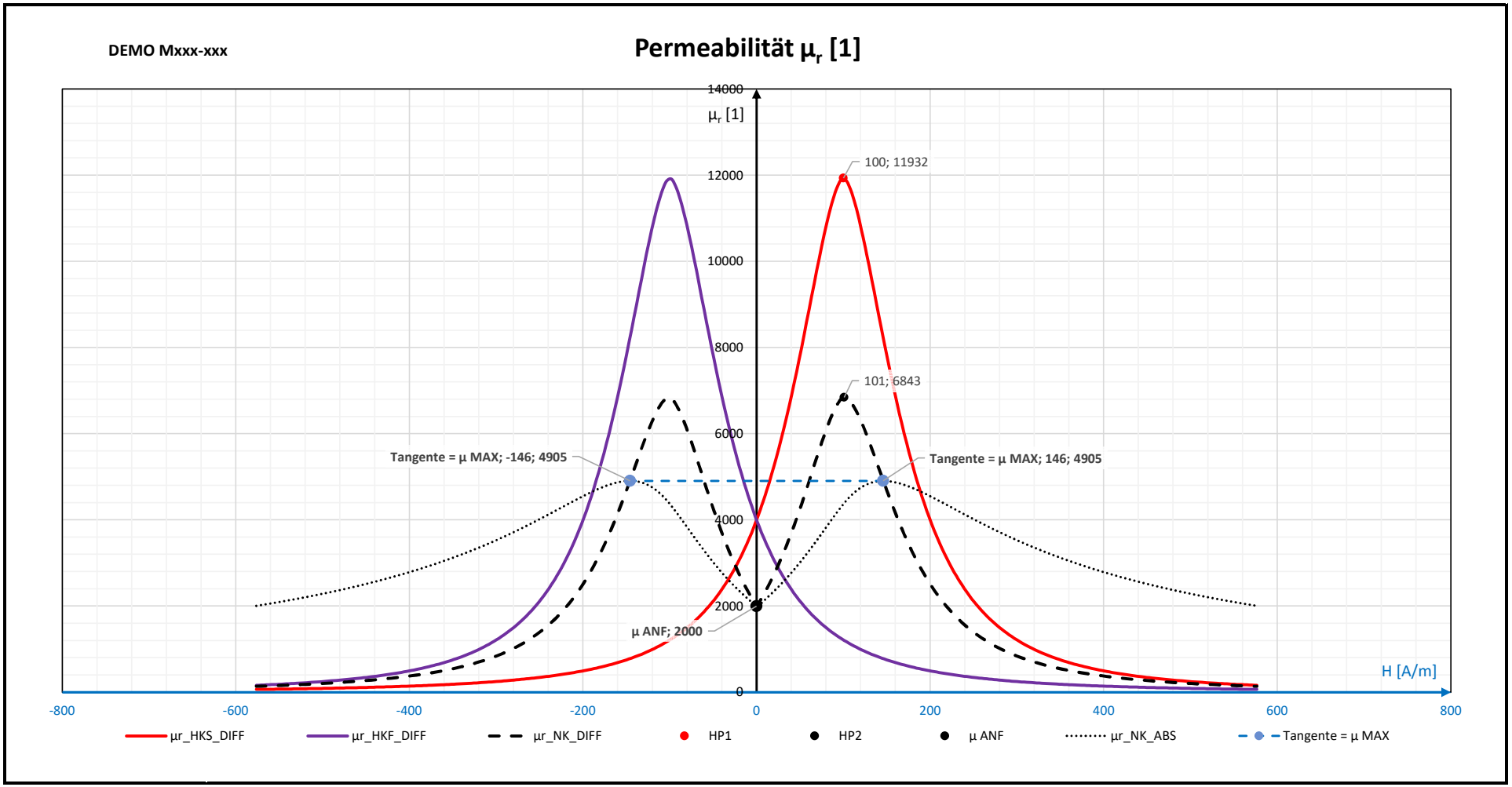
Amplitude H	576	[A/m]	49
H_KOE	100	[A/m]	
χ _HK_DIFF	11931	[1]	184
Exponent	1,7	[1]	17
M_SAT	1200000	[A/m]	###
Frequenz f	403	[Hz]	
Material	DEMO Mxxx-xxx		

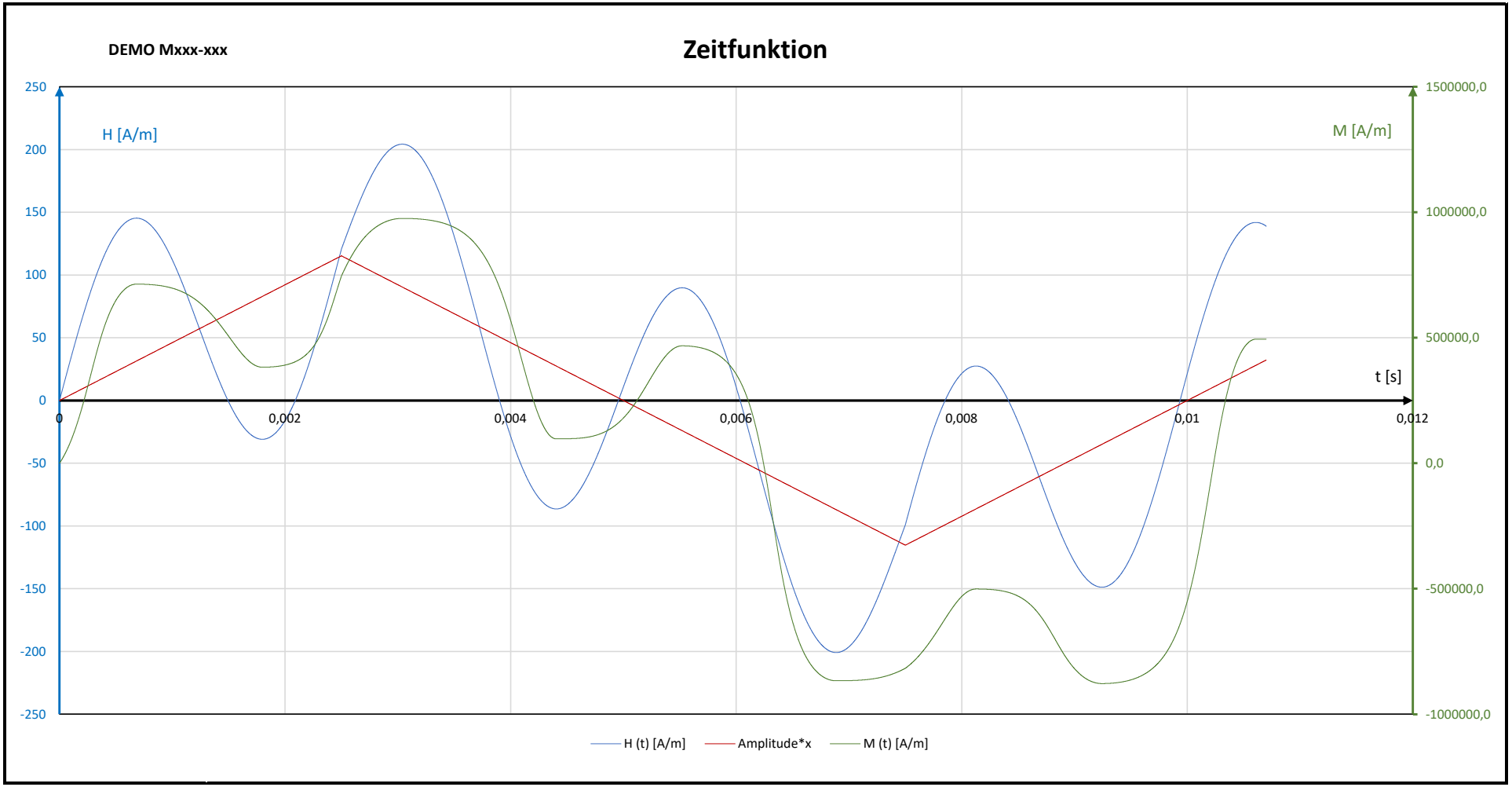
Konstanten & Ergebnisse:

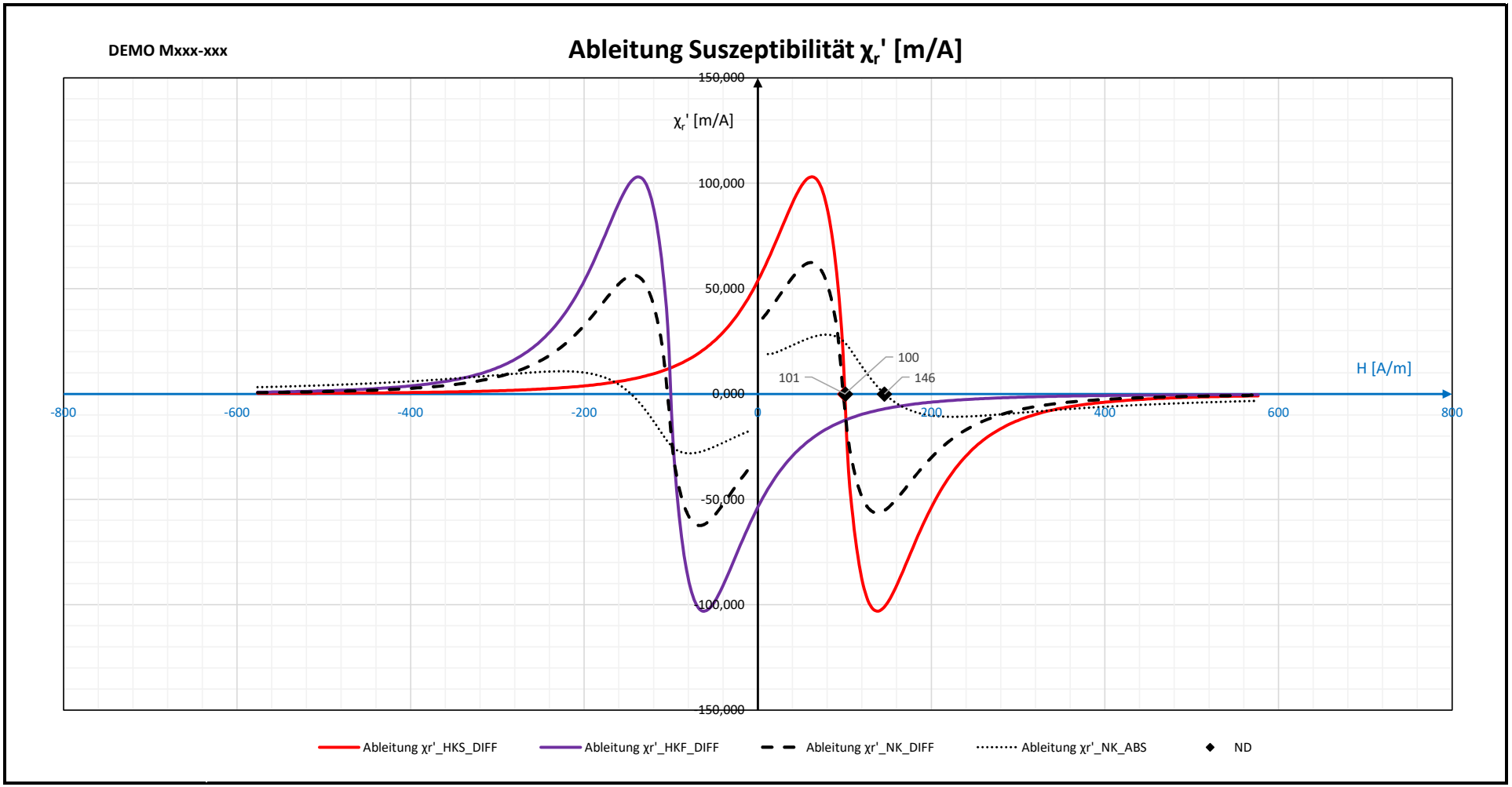
dt	Inkrement t	0,000001	[s]
μ_o	$4\pi*10^{-7}$	1,257E-06	[Vs/A/m]
μ_FE	Permeabilität	1,499E-02	[Vs/A/m]
ω [1/s]	2πf	2532	[1/s]
W_UMV	Fläche	585	[Ws/m³]
P_UMV_50Hz	Verlustziffer	3,8	[W/kg]
M_UMV/pp	Static Friction	0,075	[Nm/kg]
μ_ANF_DIFF	= μ_ANF_ABS	**2000**	[1]
μ_NK_MAX	μ im HP (ABS)	**4905**	[1]
H_NK_HP	H im HP	**146**	[A/m]

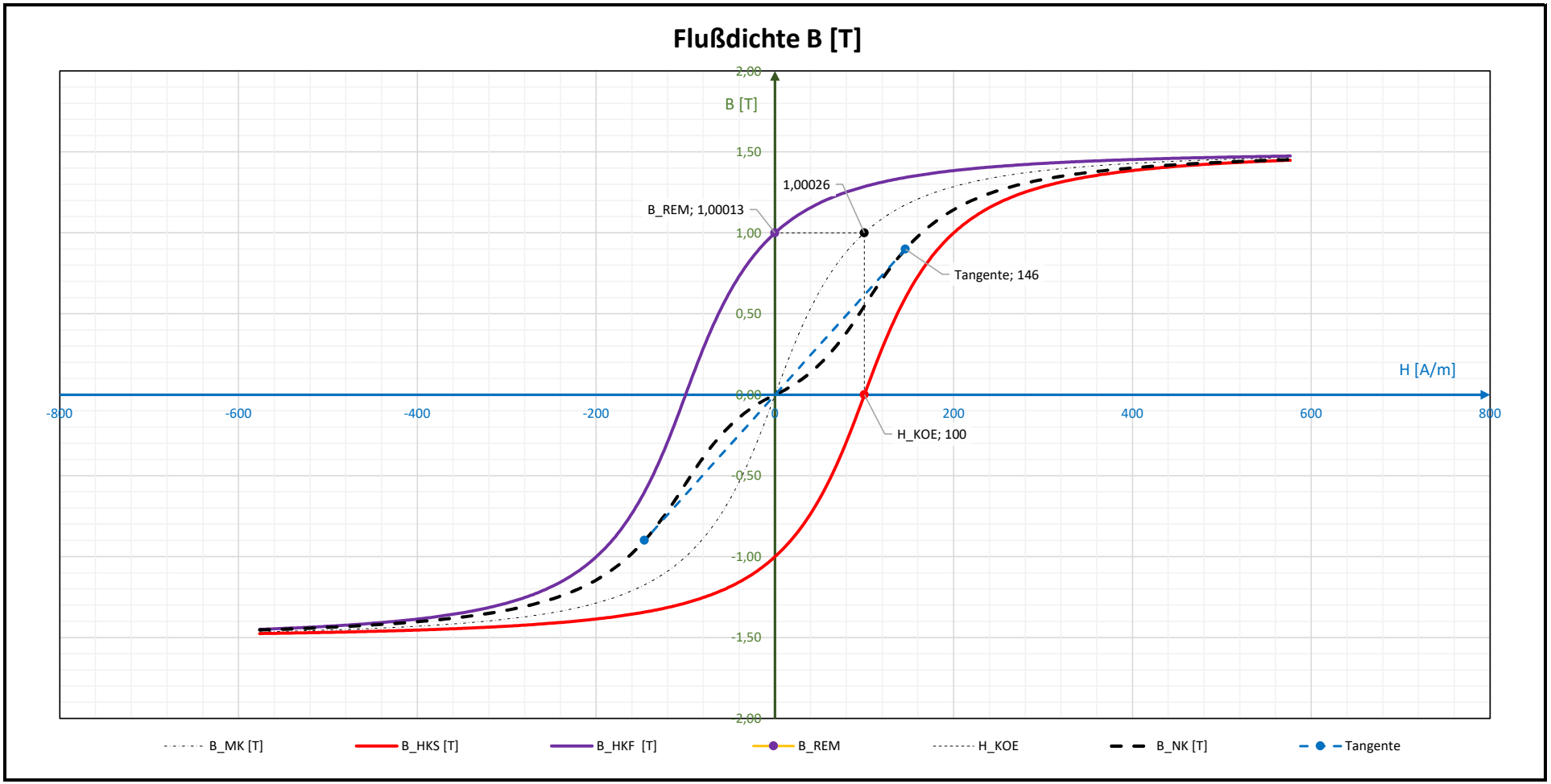
Legende:

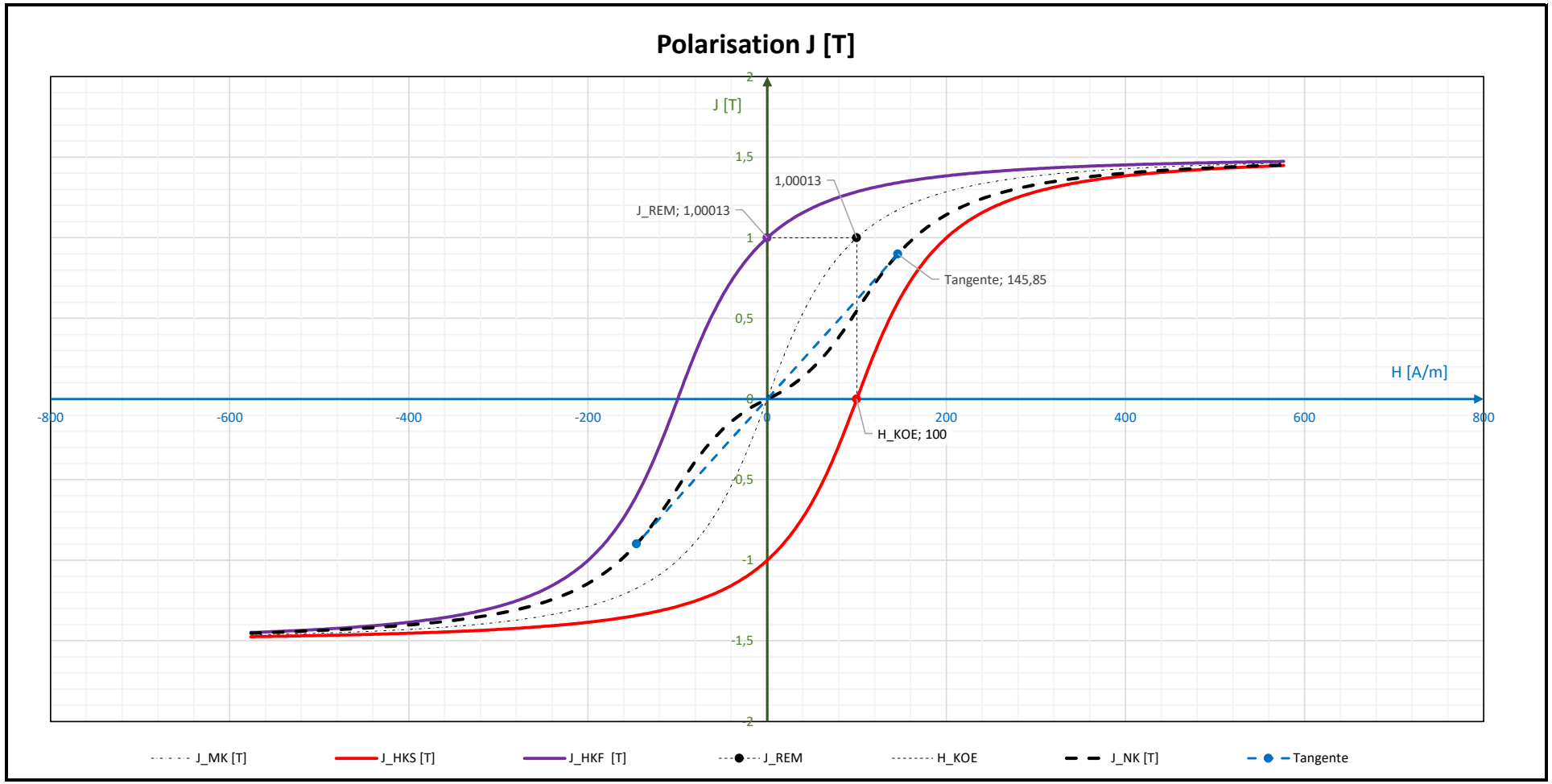
MK	Mittenkurve
HKS	Hüllkurve steigend
HKF	Hüllkurve fallend
NK	Neukurve
HP	Hochpunkt
ND	Nulldurchgang

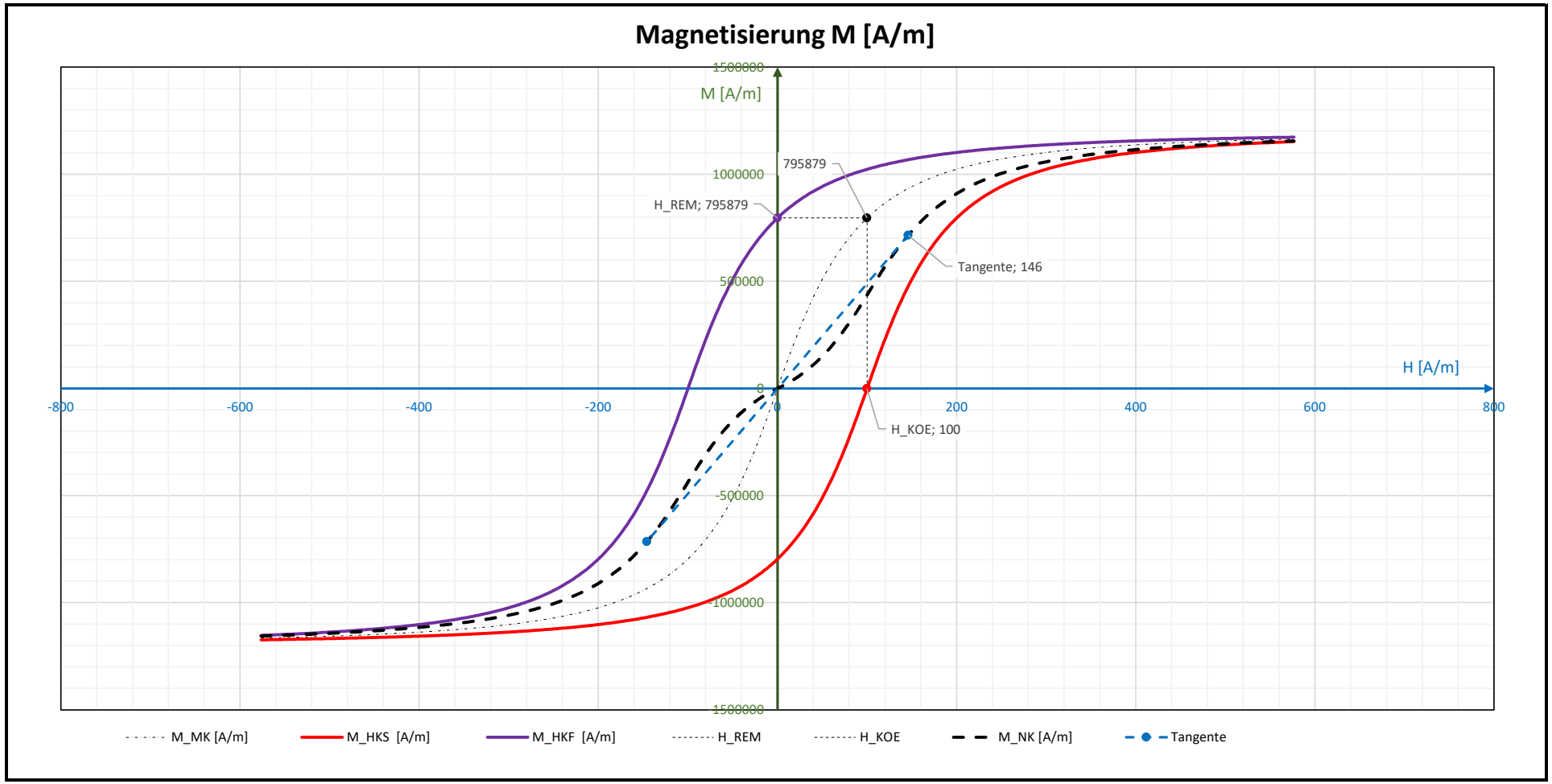

DEMO Mxxx-xxx
Permeabilität μr [1]
μr [1]
14000
12000
10000
8000
6000
4000
2000
0
100; 11932
101; 6843
Tangente = μ MAX; -146; 4905
Tangente = μ MAX; 146; 4905
μ ANF; 2000
H [A/m]
-800
-600
-400
-200
0
200
400
600
800
μr_HKS_DIFF
μr_HKF_DIFF
μr_NK_DIFF
HP1
HP2
μ ANF
μr_NK_ABS
Tangente = μ MAX

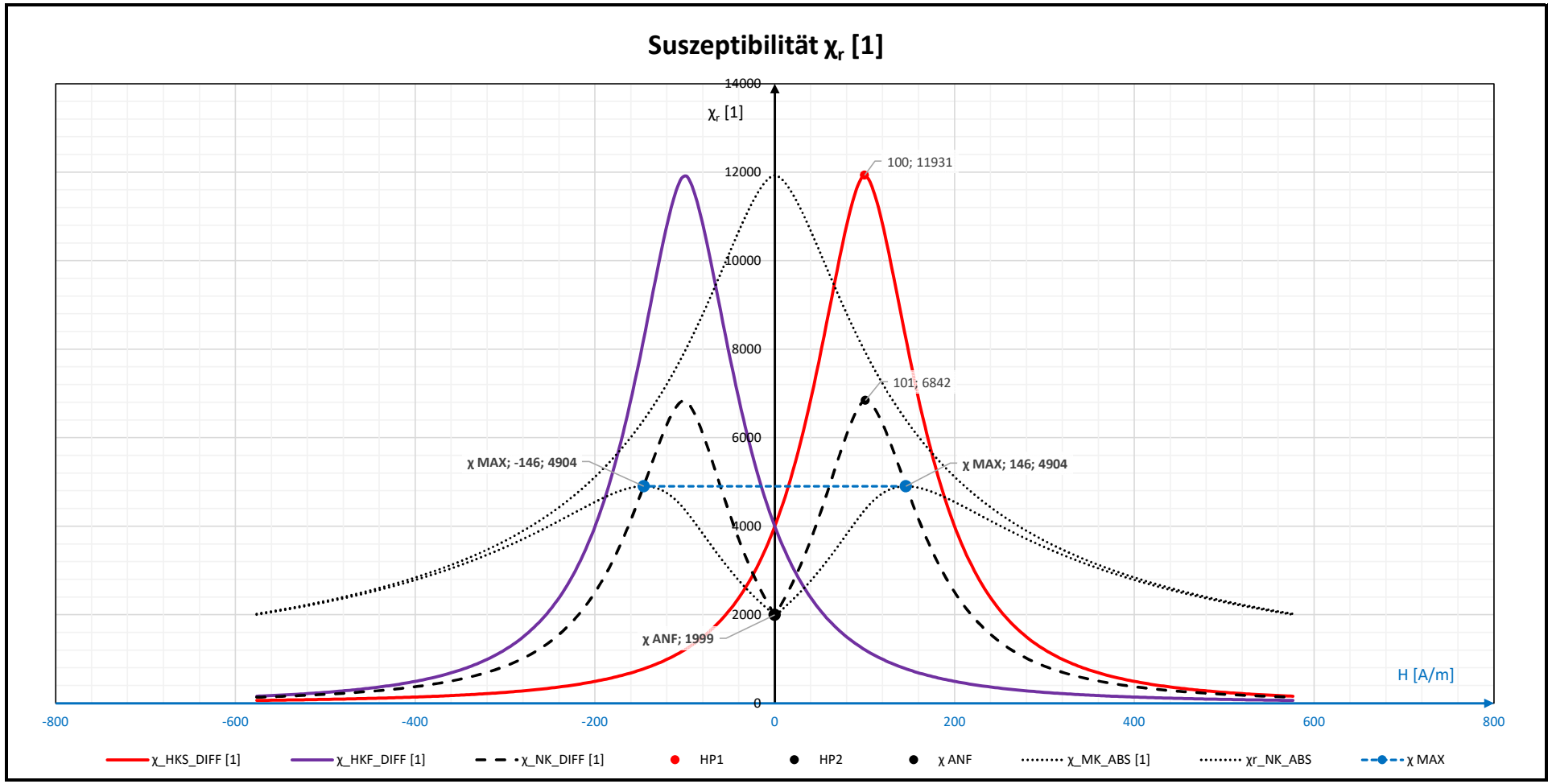

DEMO Mxxx-xxx
Zeitfunktion
H [A/m]
M [A/m]
t [s]
250
200
150
100
50
0
-50
-100
-150
-200
-250
1500000,0
1000000,0
500000,0
0,0
-500000,0
-1000000,0
0
0,002
0,004
0,006
0,008
0,01
0,012
H (t) [A/m]
Amplitude*x
M (t) [A/m]

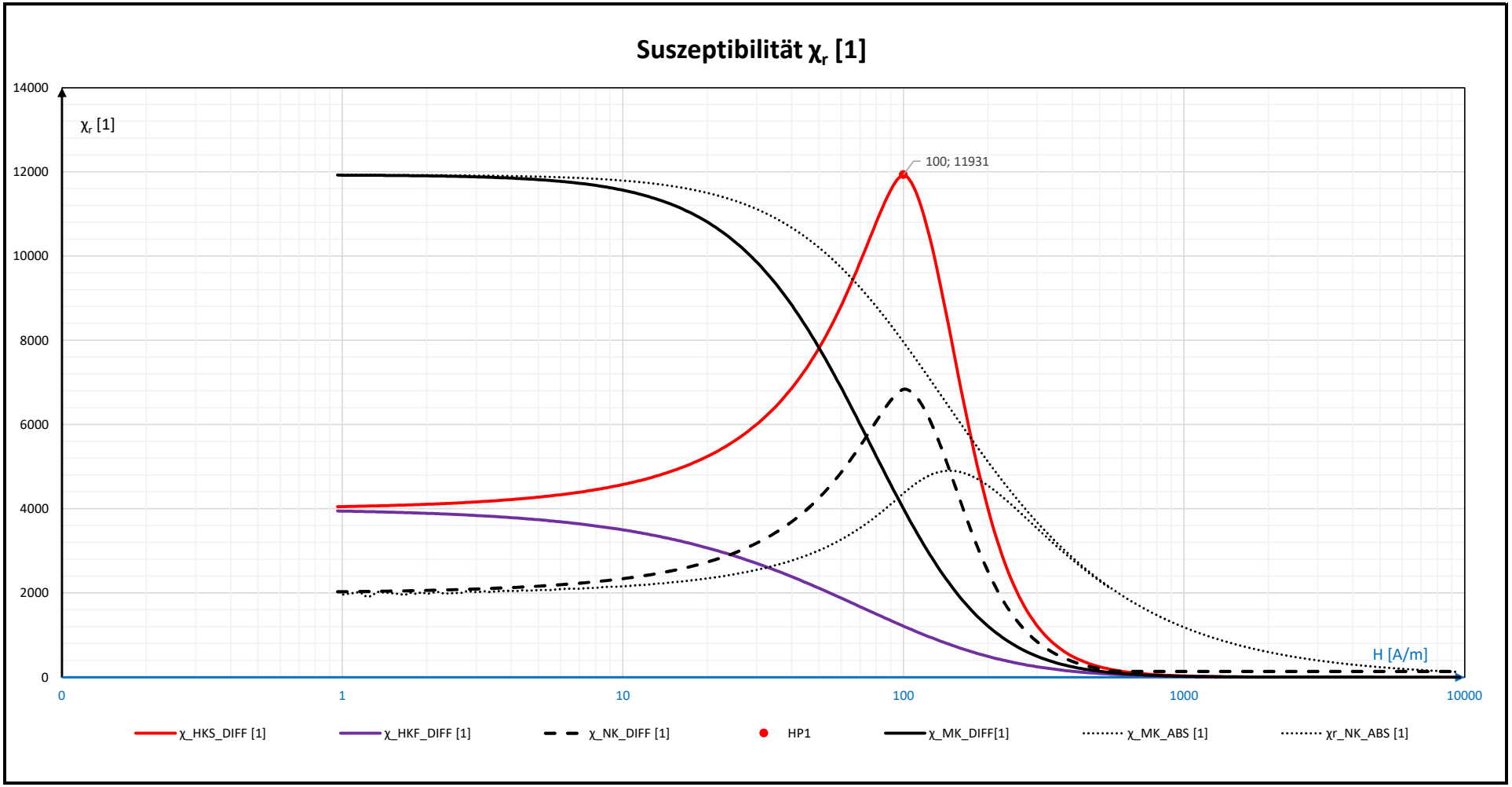

DEMO Mxxx-xxx
Ableitung Suszeptibilität χr' [m/A]
χr' [m/A]
150,000
100,000
50,000
0,000
-50,000
-100,000
-150,000
-800
-600
-400
-200
0
200
400
600
800
H [A/m]
100
101
146
Ableitung χr'_HKS_DIFF
Ableitung χr'_HKF_DIFF
Ableitung χr'_NK_DIFF
Ableitung χr'_NK_ABS
ND

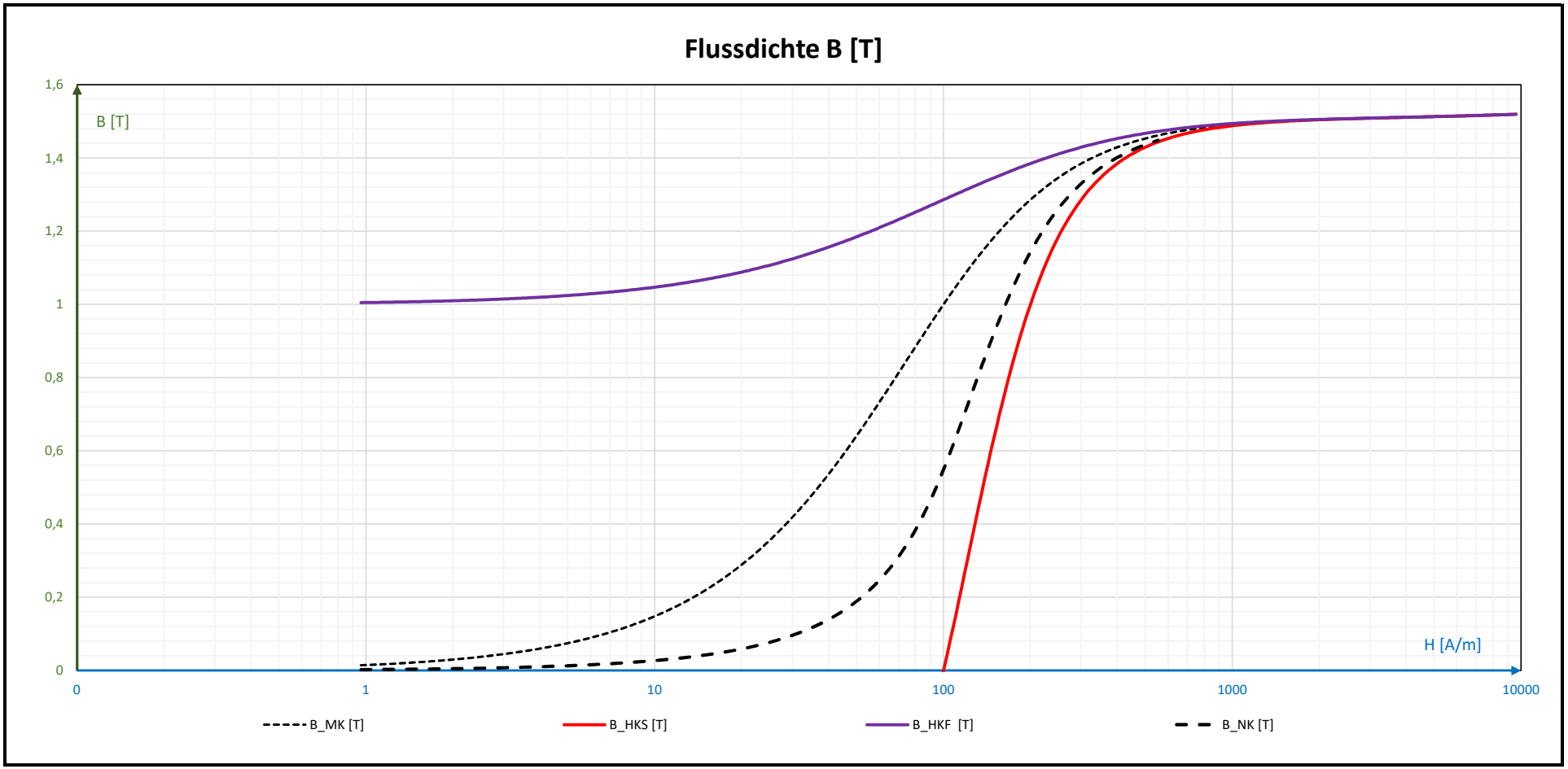

Flußdichte B [T]
B [T]
H [A/m]
2,00
1,50
1,00
0,50
0,00
-0,50
-1,00
-1,50
-2,00
-800
-600
-400
-200
0
200
400
600
800
1,00026
B_REM; 1,00013
Tangente; 146
H_KOE; 100
B_MK [T]
B_HKS [T]
B_HKF [T]
B_REM
H_KOE
B_NK [T]
Tangente


Polarisation J [T]
J [T]
H [A/m]
2
1,5
1
0,5
0
-0,5
-1
-1,5
-2
-800
-600
-400
-200
0
200
400
600
800
1,00013
J_REM; 1,00013
Tangente; 145,85
H_KOE; 100
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]
1500000
1000000
500000
0
-500000
-1000000
-1500000
-800
-600
-400
-200
0
200
400
600
800
795879
H_REM; 795879
Tangente; 146
H_KOE; 100
M_MK [A/m]
M_HKS [A/m]
M_HKF [A/m]
H_REM
H_KOE
M_NK [A/m]
Tangente


Suszeptibilität χr [1]
χr [1]
14000
12000
10000
8000
6000
4000
2000
0
100; 11931
101; 6842
χ MAX; -146; 4904
χ MAX; 146; 4904
χ ANF; 1999
H [A/m]
-800
-600
-400
-200
0
200
400
600
800
χ_HKS_DIFF [1]
χ_HKF_DIFF [1]
χ_NK_DIFF [1]
HP1
HP2
χ ANF
χ_MK_ABS [1]
χr_NK_ABS
χ MAX


Suszeptibilität χr [1]
χr [1]
14000
12000
10000
8000
6000
4000
2000
0
0
1
10
100
1000
10000
H [A/m]
100; 11931
χ_HKS_DIFF [1]
χ_HKF_DIFF [1]
χ_NK_DIFF [1]
HP1
χ_MK_DIFF[1]
χ_MK_ABS [1]
χr_NK_ABS [1]


Flussdichte B [T]
B [T]
1,6
1,4
1,2
1
0,8
0,6
0,4
0,2
0
H [A/m]
0
1
10
100
1000
10000
B_MK [T]
B_HKS [T]
B_HKF [T]
B_NK [T]