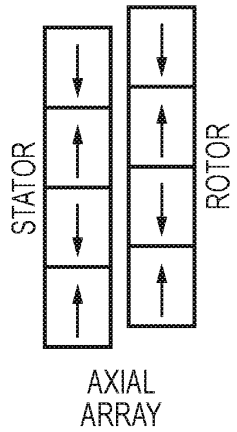

FIG. 1

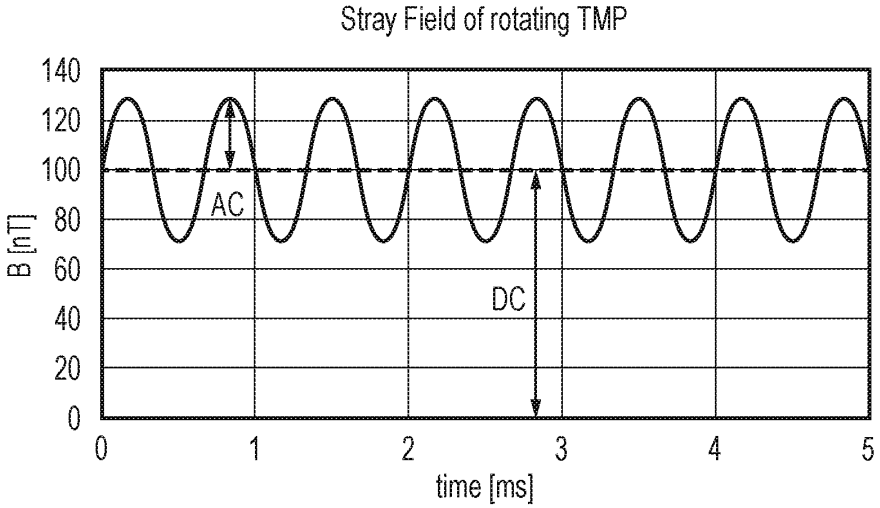

FIG. 2

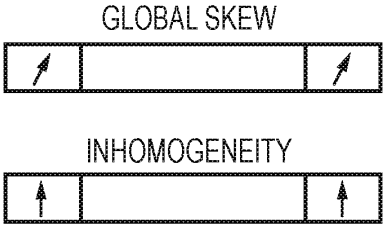

FIG. 3

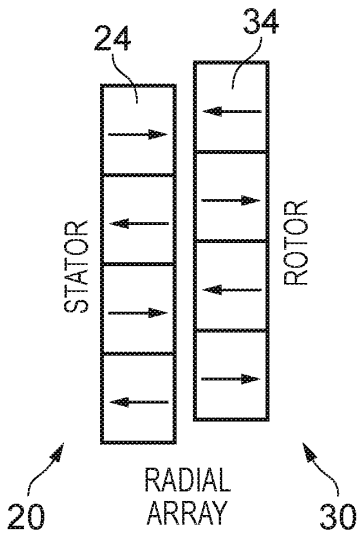
24
34
STATOR
ROTOR
20
RADIAL
ARRAY
30

FIG. 4

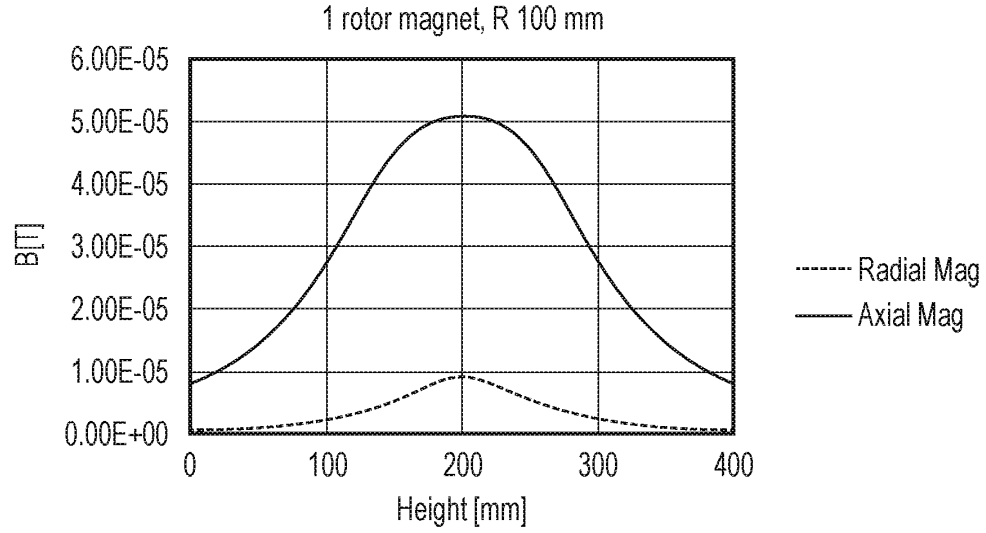
1 rotor magnet, R 100 mm
6.00E-05
5.00E-05
4.00E-05
3.00E-05
2.00E-05
1.00E-05
0.00E+00
B[T]
0
100
200
300
400
Height [mm]
Radial Mag
Axial Mag

FIG. 5

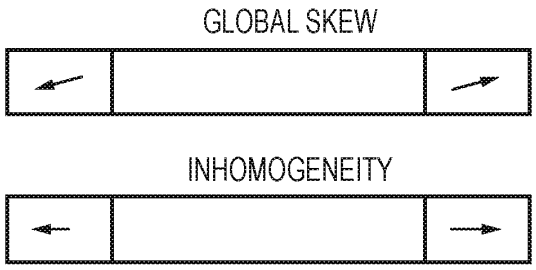
GLOBAL SKEW
INHOMOGENEITY

FIG. 6

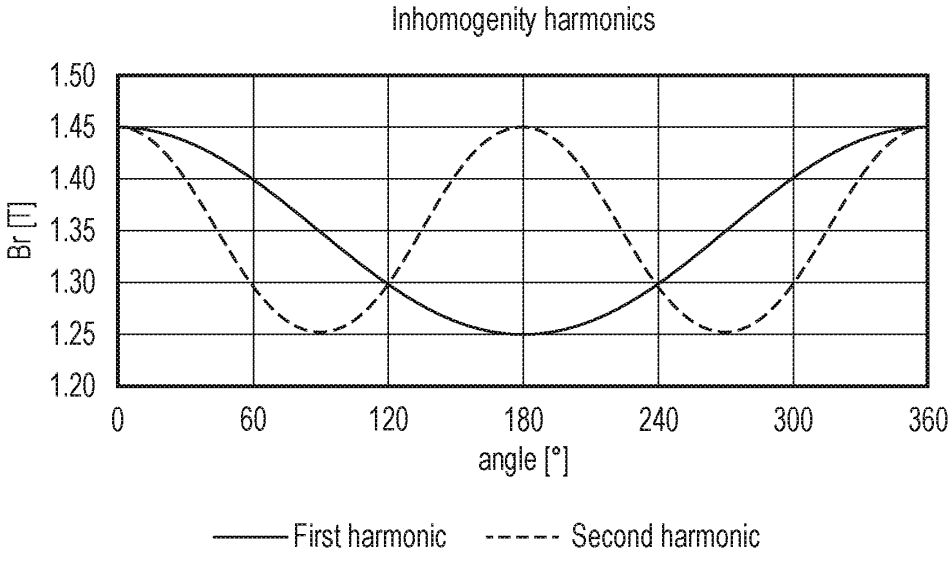
Inhomogenity harmonics
Br [T]
1.50
1.45
1.40
1.35
1.30
1.25
1.20
0
60
120
180
240
300
360
angle [°]
First harmonic
Second harmonic

FIG. 7

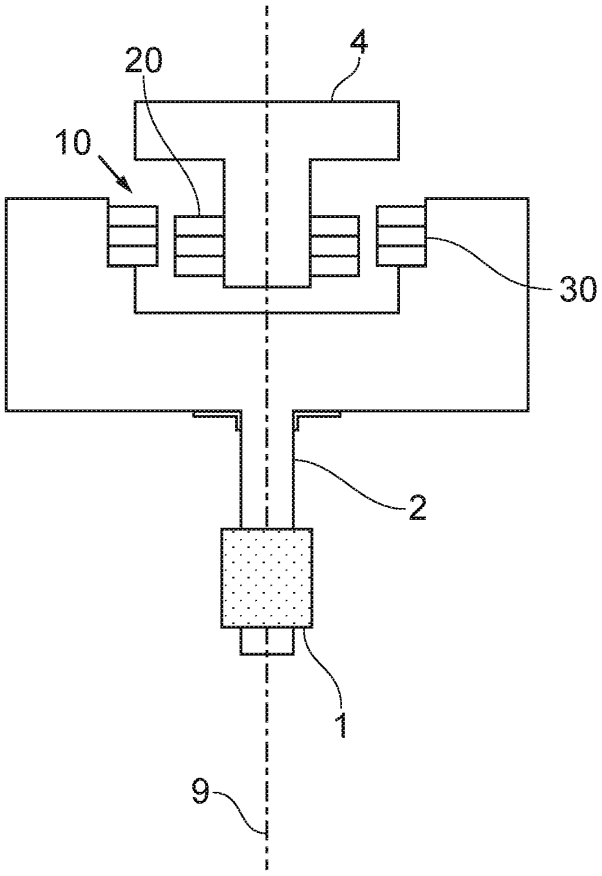

FIG. 8

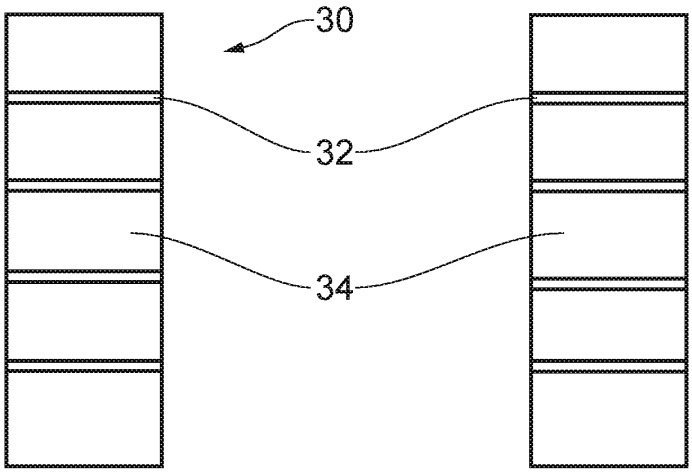
30
32
34

FIG. 9

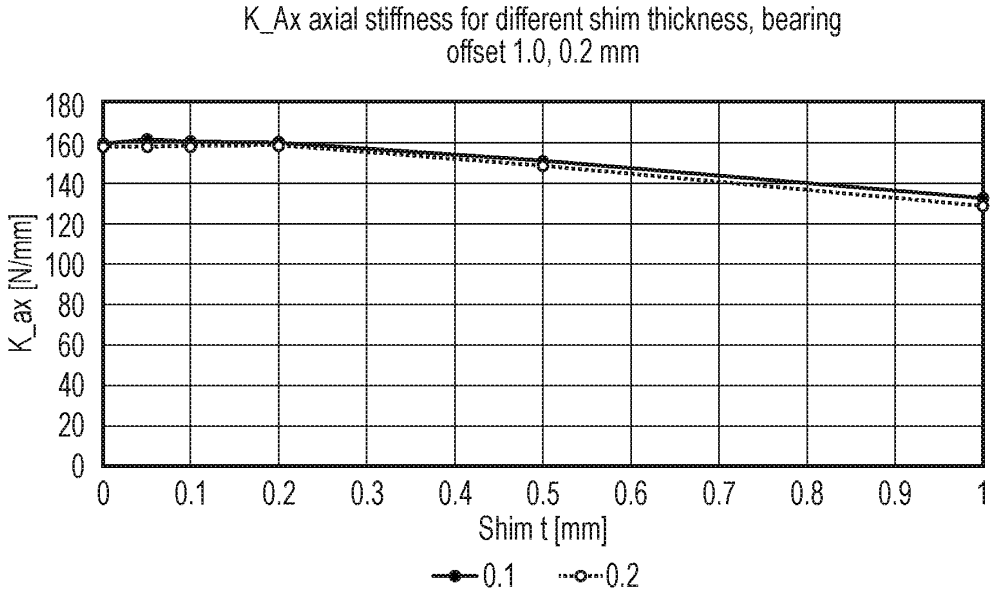
K_Ax axial stiffness for different shim thickness, bearing offset 1.0, 0.2 mm
K_ax [N/mm]
180
160
140
120
100
80
60
40
20
0
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
Shim t [mm]
0.1
0.2

FIG. 10

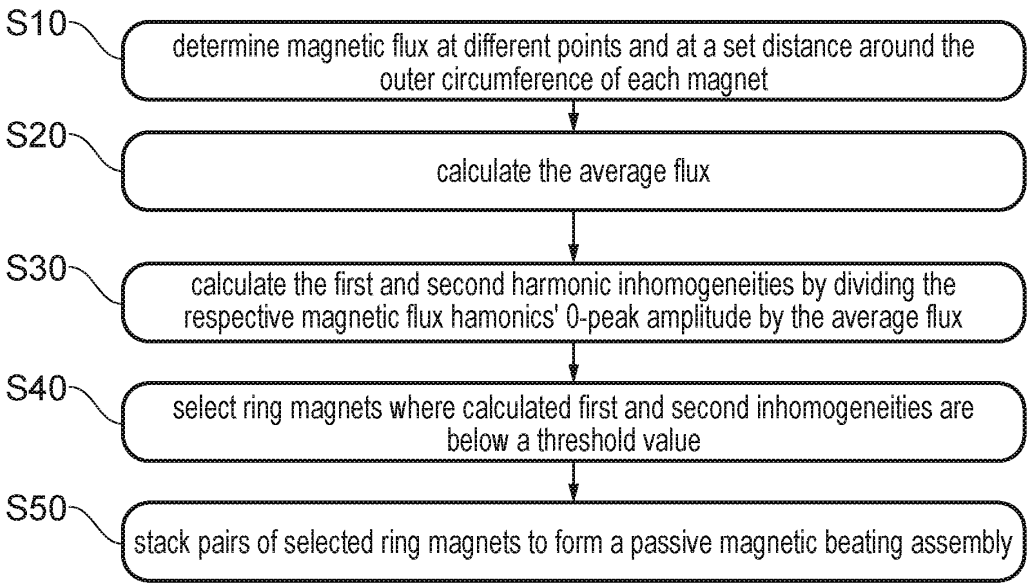
S10
determine magnetic flux at different points and at a set distance around the outer circumference of each magnet
S20
calculate the average flux
S30
calculate the first and second harmonic inhomogeneities by dividing the respective magnetic flux hamonics' 0-peak amplitude by the average flux
S40
select ring magnets where calculated first and second inhomogeneities are below a threshold value
S50
stack pairs of selected ring magnets to form a passive magnetic beating assembly

FIG. 11