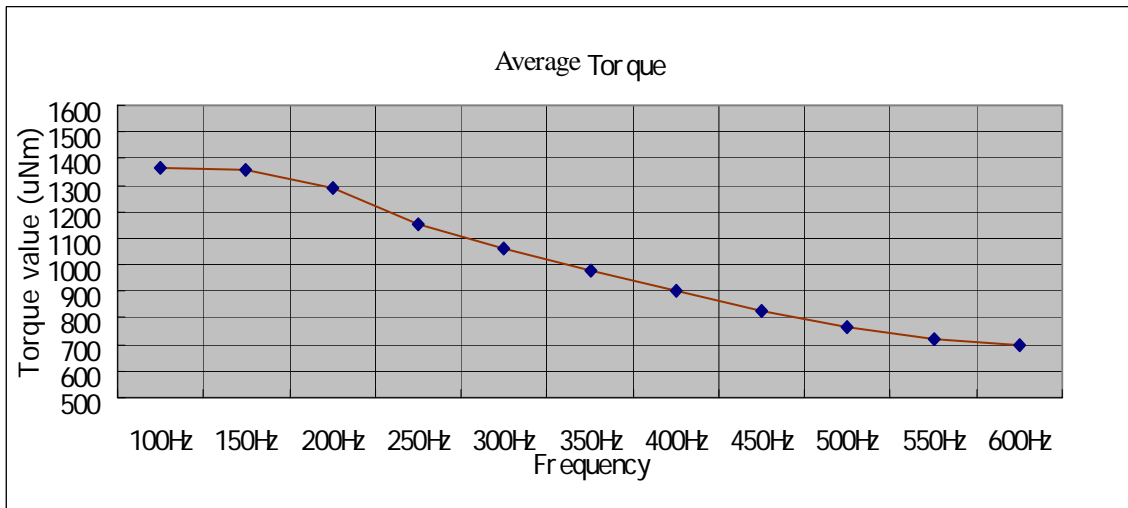




## Example of reset parameter calculation

See also our application note AN230405

### 1) During the reset the torque of the motor as to be lower as possible



Is necessary to work with a pointer speed between 450 and 550 deg/sec

### 2) The acceleration to reach this speed depends from the inertia of the pointer.

### 3) Example and method to calculate the acceleration.

Remarks:

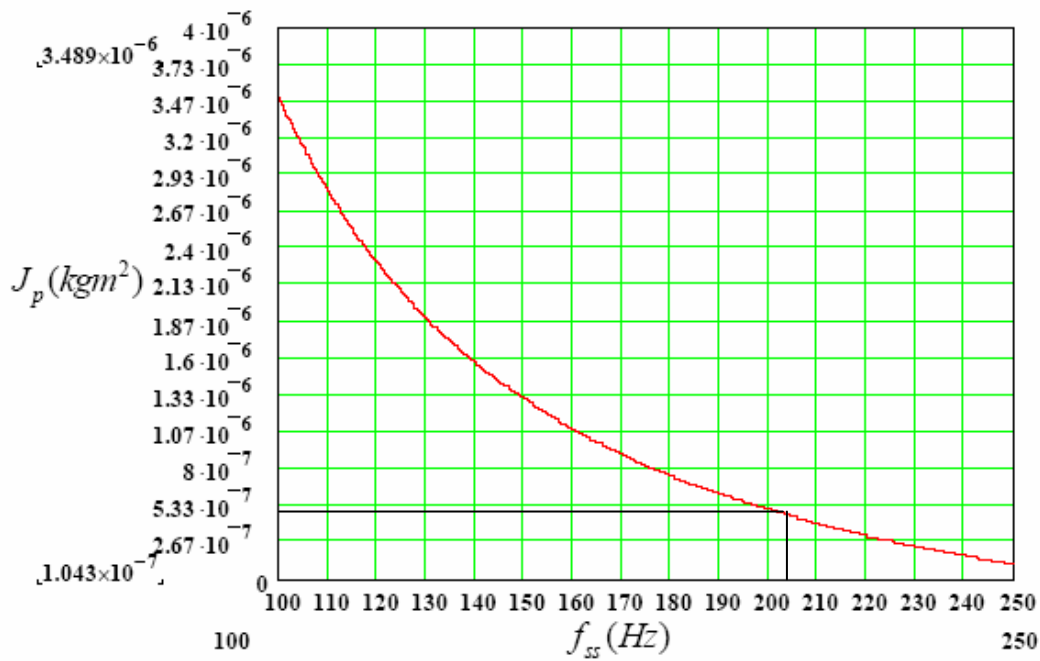
- 1 Hz = 1 deg/sec of the pointer = 180 deg/sec of the rotor

Suppose a pointer inertia of  $5 \cdot 10^{-7}$  Kgm<sup>2</sup>

#### a) Start stop frequency

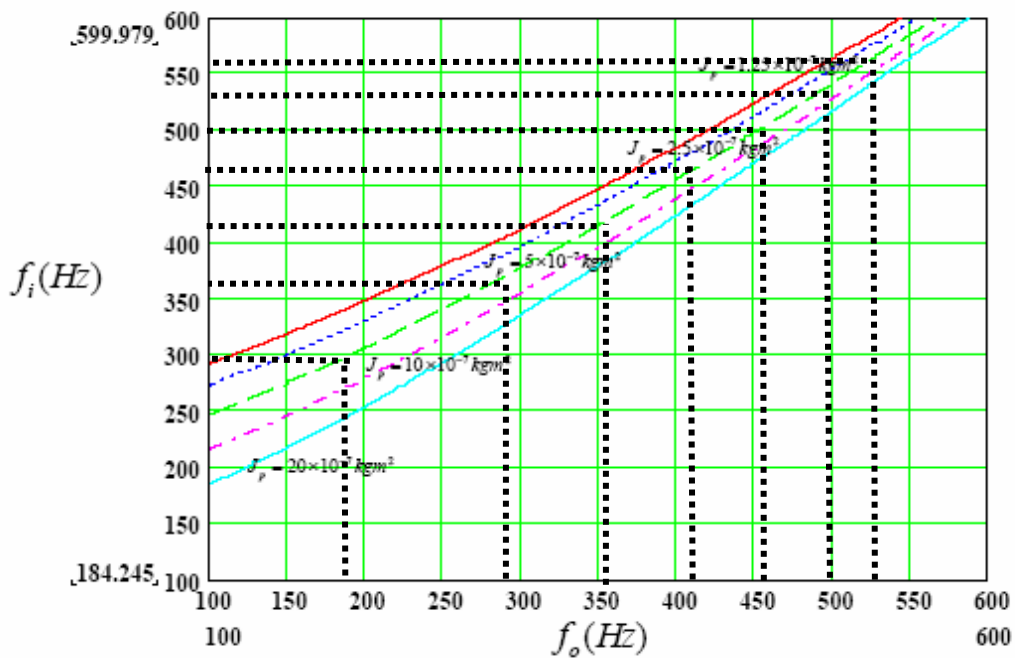
The maximum start-stop frequency is:

205 Hz (205 deg/sec of pointer)



For security we will chose 170 Hz. So the pointer can start to move at 190 deg/sec.

**b) Rotation speed steps**

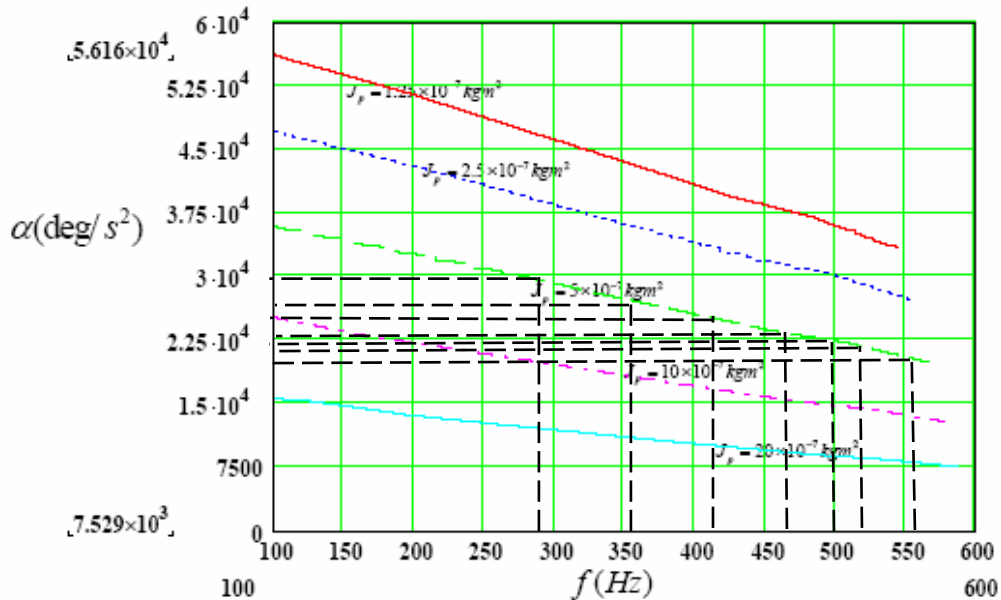


A pointer with inertia of  $5 \cdot 10^{-7} \text{ Kgm}^2$  can be accelerate

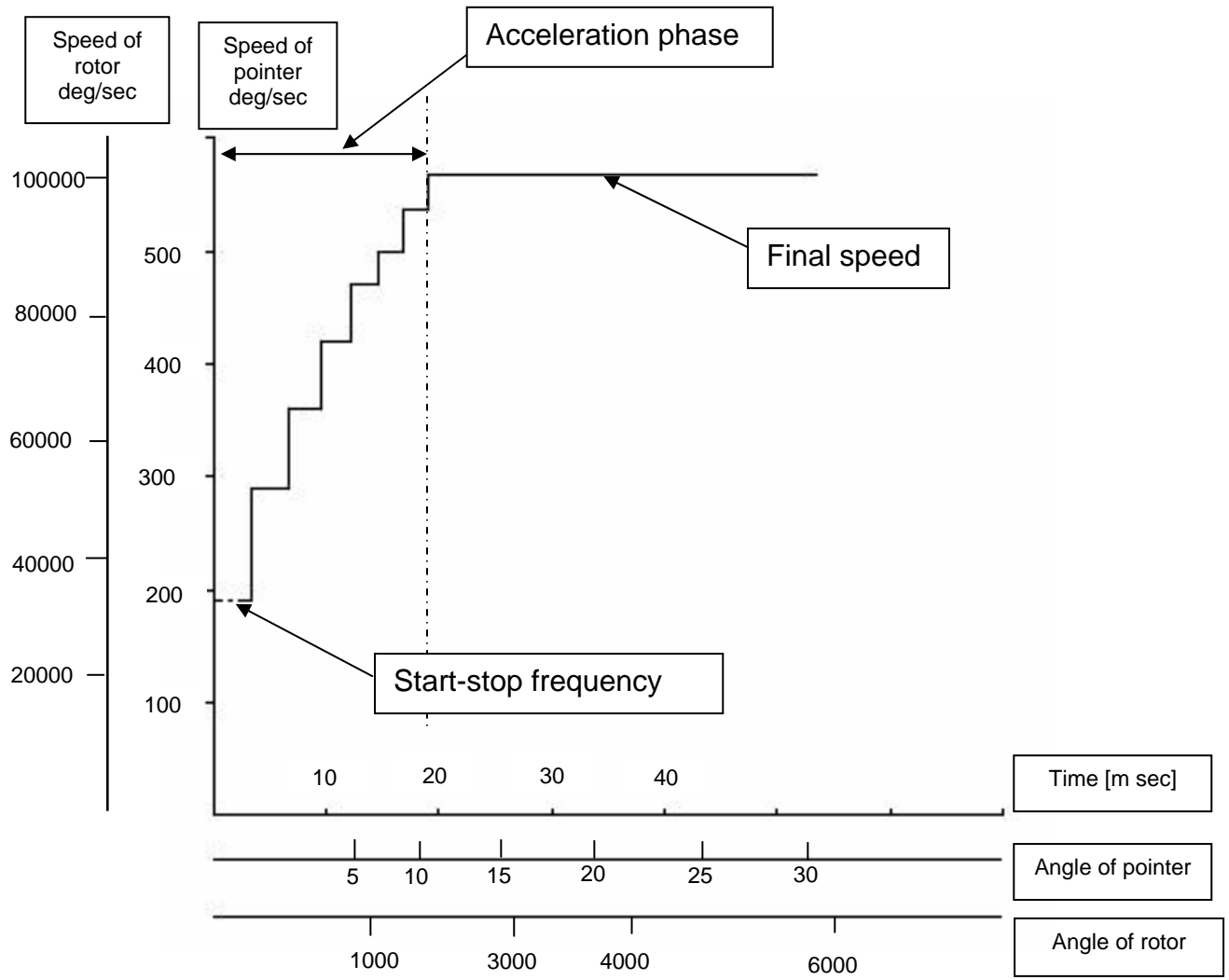
FROM	TO
190 deg/sec	290 deg/sec
290 deg/sec	360 deg/sec
360 deg/sec	420 deg/sec
420 deg/sec	470 deg/sec
470 deg/sec	500 deg/sec
500 deg/sec	530 deg/sec
530 deg/sec	560 deg/sec

### c) Time of acceleration

How long the pointer as to be accelerate for each steps



FROM	TO	Time [msec]
190 deg/sec	290 deg/sec	3.3
290 deg/sec	360 deg/sec	2.9
360 deg/sec	420 deg/sec	2.6
420 deg/sec	470 deg/sec	2.5
470 deg/sec	500 deg/sec	2.2
500 deg/sec	530 deg/sec	2
530 deg/sec	560 deg/sec	2



REMARKS:

- The visible jitter of pointer during bumping on the stop is also influenced by the design and the material of the pointer. It is necessary to adjust the final speed (final rotation frequency) by experimental test in order to minimize this phenomenon.

- Noise measurement during reset process.

