

# Horizontal and Vertical Sphere Gaps Type KFS H & KFS V

## Application

The sphere gaps can be used for Impulse, AC or DC voltage calibration according to the IEC 60052 recommendation. The sphere-gap presents the undeniable advantage of a direct and straightforward voltage measurement, where only the sphere diameter and their distance gives a voltage measurement within  $\pm 3\%$  accuracy.

As both spheres are mounted on columns of insulating material on the horizontal sphere gaps, it's possible to superimpose impulse, alternating and direct voltages for special tests. For the chopping of lightning impulses, the sphere gap can be equipped with the optional chopping device KFS Z. The type designation consists of the characters KFS, H for horizontal design and V for vertical and the sphere diameter in mm, e.g. KFS H 250.

## Design

Designed for indoor operation. The measuring spheres are made of highly polished copper with small manufacturing tolerances.

In the horizontal design, they are mounted together with the adjusting gear on supporting columns. The adjusting gear consists of a hand-wheel and precision scale for adjustment of the sphere gap (accuracy 0,5 mm).

The vertical, motorised design includes the sphere drive placed on the base frame. The sphere distance is controlled by the impulse generator controls (e.g. GC 223) or by a specific control unit (e.g. GSC 219).

## Technical Data, dimensions & weights



Vertical sphere gap 750 mm  
Type KFS V 750

Type	Sphere diameter D  mm	Ratings for AC peak, DC and impulse voltage L.I. 1.2 / 50 $\mu$ s measurements Spacing of 0.5 x D  kV	Max. voltage L.I. 1.2 / 50 $\mu$ s for chopping on the tail Spacing of 0.5 x D  kV
KFS H 150	150	177	177
KFS H 250	250	275	275
KFS V 250	250	275	275
KFS V 500	500	515	515
KFS V 750	750	750	750
KFS V 1000	1000	1010	1010

Type	Height  m	Base frame, approx.  m	Weight, net, approx.  kg
KFS H 150	1.22	1.3 x 0.45	47
KFS H 250	1.76	2.6 x 0.7	60
KFS V 250	2.3	1.1 x 0.8	110
KFS V 500	3.4	2.3 x 1.0	350
KFS V 750	4.8	3.1 x 1.3	520
KFS V 1000	5.9	3.3 x 1.5	620

## Trigger device

### Description

This triggering device is recommended for chopping lightning impulses on the tail. It is available for both the vertical and horizontal sphere gaps. This way the chopping system can be controlled by an electronic triggering device and allows wave-chopping with a maximal dispersion of approx. 0.1  $\mu$ s. The chopping device requires a power supply of 230 V, 50 or 60 Hz.

### The trigger device consists mainly of:

- 1 Impulse Amplifier with an adjustable delay time between 1  $\mu$ s - 5  $\mu$ s, in 8 steps (set by jumpers)
- 1 Trigger sphere with a built-in ignition rod (this sphere must be exchanged with one of the measuring spheres for chopping operation).
- 1 Set of cables

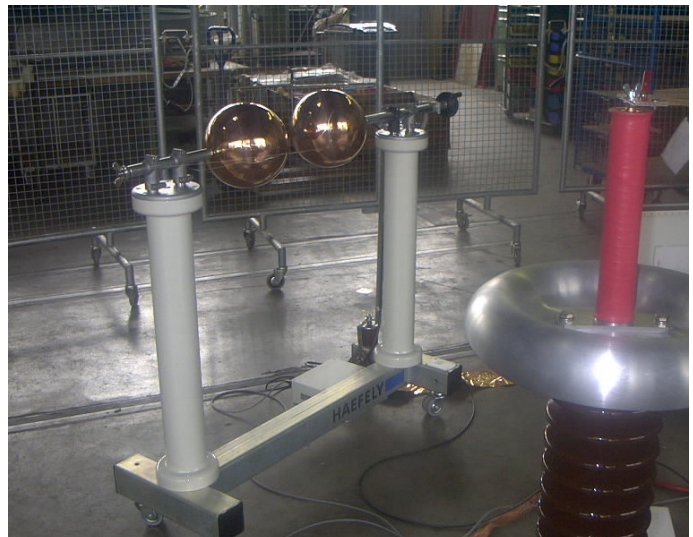
## Sphere gap distance control unit

### General

This simple control unit is designed for the sphere gap distance measurement & control of motorised, vertical sphere gaps type KFS V. It ensures an autonomous setting of the sphere gap distance, independent from the existing control unit.

The desk top unit contains the power supplies for the sphere gap DC motor drive and the sphere gap distance measuring system. A multiple digit display shows the sphere distance. The distance is adjusted by means of two push buttons.

The control unit also supplies the trigger amplifier of the sphere gap with mains power should the sphere gap be used with the above described chopping device.



*Horizontal sphere gap 250 mm*



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