

# Damped-Capacitive Impulse Divider Type CZ

## Application

The damped-capacitive impulse voltage dividers series CZ are optimised for high dynamic behaviour and can be used to measure full, front and tail chopped lightning impulse voltages, switching impulses and ac voltages.

They meet all requirements of IEC 60060-2 (1994), in particular those with respect to measuring accuracy and step response. Furthermore, all HV tests are carried out in accordance to the applicable IEC 60060-2 requirements (up to the limits imposed by our test system & premises). The divider can not serve as a basic load for the impulse voltage generator.

The type designation consists of the characters CZ and two figures, e.g. CZ 1600-525. The first figure indicated the rated L.I. voltage in kV, the second the primary capacitance in pF.

The voltage divider is erected on a four-arm base equipped with castors. It is designed for indoor design.

## Design

The divider is a two component system comprising a damped capacitive divider and an external damping resistor at the beginning of the HV lead.

Depending on the voltage rating, the high voltage part of the dividers consists of one or several oil-filled capacitors which are housed in cylinders made from glass fibre reinforced epoxy resin. A damping resistance is inserted between the capacitor elements of the unit and acts as distributed internal resistive element. A second damping resistance is fitted externally at the beginning of the HV lead.

Above 1000 kV rated lightning impulse voltage the dividers are equipped with toroidal HV electrodes to guarantee corona-free operation. The electrode is designed depending of the rated L.I. and negative S.I. levels.

The secondary unit consists of a capacitor and a damping resistor of low inductance both arranged in a coaxial design. The unit is fixed at the bottom of the divider and can easily be disassembled.

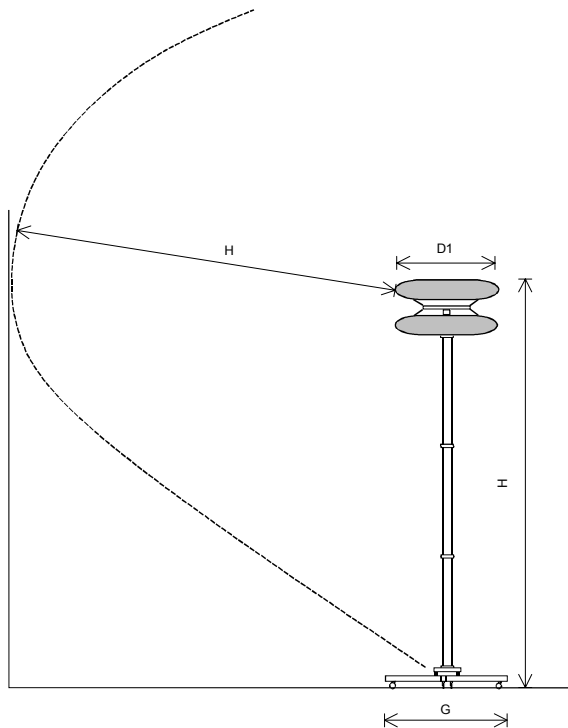
## Technical Data

Type	Rated impulse voltage L.I. 1.2/50 $\mu$ s kV	Rated impulse voltage S.I. neg. 250/2500 $\mu$ s kV	Rated AC voltage, 50/60 Hz, cont. duty * kV RMS	Capacitance pF	Damping res. int. $\Omega$	Damping res. ext. $\Omega$
CZ 600-600	600	500	200	600	300	300
CZ 800-600	800	650	200	600	300	300
CZ 1000-400	1000	850	300	400	500	300
CZ 1200-400	1200	850	300	400	500	300
CZ 1600-525	1600	1300	400	525	240	350
CZ 2000-420	2000	1650	500	420	300	350
CZ 2400-350	2400	2000	600	350	360	350
CZ 2800-300	2800	2300	700	300	420	350
CZ 3000-263	3000	2650	800	263	480	350
CZ 3200-263	3200	2650	800	263	480	350
CZ 3600-400	3600	3000	900	400	360	350
CZ 4000-360	4000	3300	1000	360	400	350

\* with adequate additional secondary part for AC voltage measurements type SEK W.

**Dimensions, weights & clearance (approx. values)**

Type	Height H m	Base frame G m	Net weight kg	Gross weight sea kg	Shipping volume m <sup>3</sup>	Clearance to walls and ceiling m
CZ 600-600	2.5	1.2	180	300	1.8	2.5
CZ 800-600	2.5	1.2	180	300	1.8	2.5
CZ 1000-400	3.7	1.5	250	400	2.0	3.7
CZ 1200-400	3.7	1.5	250	400	2.0	3.7
CZ 1600-525	5.5	2.0	450	700	4.0	5.5
CZ 2000-420	6.8	2.0	500	900	6.5	6.8
CZ 2400-350	7.8	3.0	700	1000	7.0	7.8
CZ 2800-300	8.9	3.0	800	1200	7.5	8.9
CZ 3000-263	10.0	3.0	880	1300	8.0	10.0
CZ 3200-263	10.0	3.0	880	1300	9.0	10.0
CZ 3600-400	11.5	3.0	1050	1500	9.0	11.5
CZ 4000-360	12.0	4.0	1270	1900	10.5	12.0



**Divider Ratio**

The divider ratio is designed to achieve an output voltage of approx. 1400 V at rated lightning impulse voltage. This value was chosen as the standard input voltage for impulse measuring systems from Haefely Test in order to reduce the influence of electromagnetic interferences.

Upon request the dividers can be supplied with other ratios or with an attenuator to match the input voltage of other measuring devices.

**Step Response**

The unit step response of the dividers is adjusted to meet the requirements of IEC 60060-2 (1994).

**Top electrodes**

Made of polished aluminium, the top electrodes are dimensioned according to the required L.I. and negative S.I. levels and the available clearances.