HAEFELY

Current and voltage – our passion

RCZ 500 REF, RCZ 800 REF, R 500 REF

Reference Universal and Impulse Dividers

Reference dividers are used for comparative measurements while calibrating measuring systems.

Reference dividers, type RCZ, are designed for the calibration of voltage dividers for AC, DC, full- and tail-chopped impulse voltages. They can be used for normal measurements as well.

Reference dividers, type R, are designed for the calibration of voltage dividers for full and front-chopped lightning impulse voltages. R dividers can be used for normal measurements too.

Reference dividers by Haefely meet all requirements of IEC 60060-2, in particular those with respect to measuring accuracy and step response.

DESIGN

The active part of the high voltage unit of dividers type RCZ consists of one oil-filled capacitor assembly that is housed in a cylinder made out of glass fibre reinforced epoxy resin. A series damping resistor is inserted between the capacitor elements of the unit and acts as distributed internal resistive element. A further resistor is arranged in parallel with these RC elements.

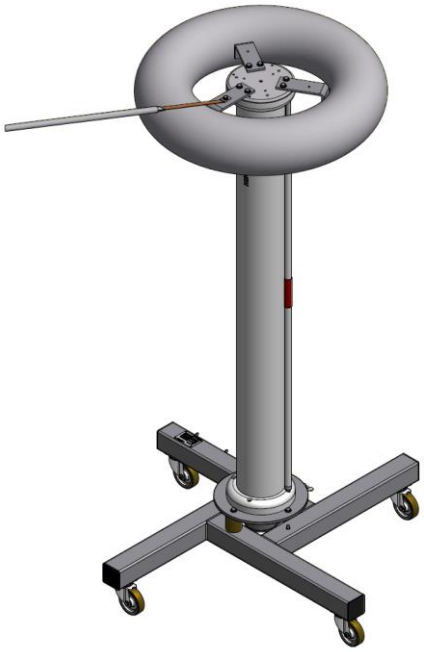
The active part of the high-voltage unit in the R 500 REF forms a low-inductance resistor consisting of CrNi wire wound on a core that is also housed in a glass fibre reinforced epoxy resin cylinder.

The RCZ 500 operates corona-free in its basic version and the reference dividers type R and RCZ 800 are equipped with a specific HV electrode to guarantee corona-free operation.

The secondary unit of the R dividers consists of measuring resistors with low inductance mounted in a coaxial design inside a cylindrical housing. For the divider type RCZ additional capacitors are combined with the resistors in a similar arrangement. The secondary unit is fixed at the bottom of the divider and can be easily exchanged.

The reference dividers are erected on a four-arm base equipped with castors. They are designed for indoor operation. ¨

The divider ratio is designed to achieve an output voltage of approx. 1400 V at rated lightning impulse voltage and thereby reduce the influence of electromagnetic interferences. Other ratios or an attenuator to match the input voltage of other measuring devices can be made available.



Reference dividers RCZ 800REF

Reference divider R 500REF

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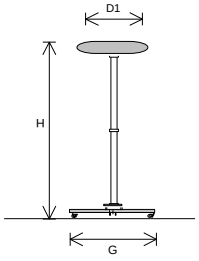
TECHNICAL DATA

Type	Rated impulse voltage LI	Rated impulse voltage SI	Rated AC voltage, 50/60 Hz, cont. duty	Rated DC voltage cont. duty	Primary capacitance	Primary resistor	Primary parallel resistor	Damping resistor
RCZ 500 REF	500 kV	500	180 kV RMS	180 kV	500 pF ±10%	400 Ω	225 MΩ	300 Ω
RCZ 800 REF	800 kV	600	250 kV RMS	375 kV	500 pF ±10%	400 Ω	900 MΩ	300 Ω
R 500 REF	500 kV	--	--	--	--	5000 Ω	--	300 Ω

	RCZ 500 REF	RCZ 800 REF	R 500 REF
Ratio for impulse voltages	500 : 1.4 *	800 : 1.4 *	500 : 1.4 *
Ratio of AC voltages 50 / 60 Hz	180 : 0.14 **	250 : 0.19 **	--
Ratio of DC voltages	180 : 0.14 **	375 : 0.28 **	--
SI, AC, DC voltage	Measurement uncertainty ≤±1%		--
Front-chopped lightning impulse voltage	Measurement uncertainty ≤±3%		
LI full & tail-chopped voltage	Measurement uncertainty ≤±1%		
Stability of the ratio	≤±1%		
Relative humidity	<95% non-condensing		
Reference temperature	+10°C … +30°C		
Storage temperature	-20°C ... +50°C		
Step response	The unit step response of the dividers is adjusted to meet the requirements of IEC 60060-2 (2010).		
Instrument impedance	Optimised for instrument input impedances of 1MΩ/ 30 pF.		
Scope of supply	High voltage unit; Short circuit bar; External damping resistor; Mobile base frame; Measuring cable, HV connection & Record of performance		
Scope of supply	2 Secondary parts for impulse voltages & For AC - DC voltages	2 Secondary parts for impulse voltage & For AC-DC voltages	Secondary part for lightning impulse voltages; Termination resistor 75 Ω

DIMENSIONS & CLEARANCE

Type	Height H	Base frame G	Electrode type d1/D1	Net weight	Shipping volume	Min. clearance to walls and ceiling
RCZ 500 REF	2 m	1.2 m	--	170 kg	4.0 m^3	2.0 m
RCZ 800 REF	2.62 m	1.5 m	R 250/1100	210 kg	8.0 m^3	2.6 m
R 500 REF	1.9 m	0. 8 m	R 40/890	100 kg	2.0 m^3	1.9 m