

## Current-compensated Chokes



- | Rated currents from 16 to 50A
- | Up to 600VAC or 1000VDC
- | 2- and 3-wire configurations
- | Horizontal and vertical PCB mounting types
- | Ruggedized saturation and thermal behavior
- | Open construction for forced and convection cooling
- | Straightforward pin-out for easy PCB design

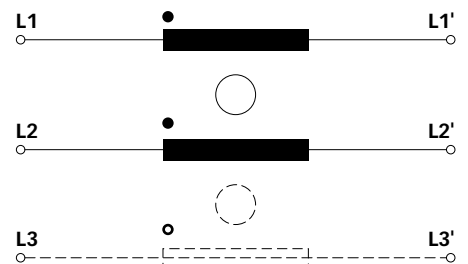
### Approvals

**RoHS**

### Technical specifications

|  |   |
|--|---|
| Maximum continuous operating voltage:                  | 600VAC / 1000VDC                                |
| Operating frequency:                                   | DC to 400Hz                                     |
| Rated currents:  | 16 to 50A @ 60°C max. convection cooling        |
| High potential test voltage winding-to-winding @ 25°C: | 2500VAC, 60 sec, guaranteed, 2 sec factory test |
| Temperature range (operation and storage):             | -40°C to +125°C (40/125/21)                     |
| Flammability corresponding to:                         | UL 94V-0  |
| Cooling:   | convection/forced cooling                       |
| MTBF @ 40°C / 230V (Mil-HB-217F):                      | > 5,000,000 hours                               |

### Typical electrical schematic



RB common-mode chokes are mainly used to filter EMI noise on AC power lines up to 600VAC but they are as well applicable in DC power lines of photovoltaic installations or similar applications up to 1000VDC.

EMI noise of electronic equipment can go to the power lines and disturb the proper function of other devices like TV sets or radios.

Thus noise generated by the equipment from switched power electronics or by high slew rates of controllers needs to be filtered.

RB common-mode chokes are used to suppress EMI noise in PCB integrated filter designs with line bypass capacitors or in combination with single phase filters for extra low leakage filter designs.

### Features and benefits

- | Cost-effective PCB designs for up to 80A with forced cooling\*
- | Compact size and light weight
- | Low magnetic leakage flux
- | Excellent winding insulation
- | Standardized foot print
- | Broad range of inductance ratings
- | Custom-specific versions on request

\* See Application Note for forced cooling

### Typical applications

- | AC and DC filtering for midsize power range drives, photovoltaic inverters, fast chargers, charging stations, UPS and switch mode power supplies
- | Filter with low leakage current noise or improved immunity against grid disturbances
- | Electronic devices, automation
- | Converters

**RB Series**

| Selection table | convection cooling nominal current @60° C | *forced cooling 3m/s nominal current @60° C | Inductance L @25°C | Resistance R @25°C | Choke  | Ø Pin   | Length Pin | Weight |
|-----------------|---|---|--------------------|--------------------|--------|---------|------------|--------|
|                 | [A]                                       | [A]   | [mH/path]          | [mΩ/path]          | [size] | D [mm]  | L [mm]     |        |
| RB6122-16-1M0   | 16  | 25  | 1.00               | 4.8                | 1      | 2.0±0.1 | 4.5±0.5    | 130    |
| RB6122-25-0M6   | 25  | 39  | 0.64               | 2.7                | 1      | 2.4±0.1 | 4.5±0.5    | 135    |
| RB6122-36-0M5   | 36  | 53  | 0.45               | 1.5                | 2      | 2.2±0.1 | 4.5±0.5    | 180    |
| RB6122-50-0M3   | 50  | 80  | 0.25               | 0.9                | 2      | 2.5±0.1 | 5.0±0.5    | 172    |
| RB6522-16-1M0   | 16  | 25  | 1.00               | 4.6                | 3      | 2.0±0.1 | 4.5±0.5    | 132    |
| RB6522-25-0M6   | 25  | 39  | 0.64               | 2.6                | 3      | 2.4±0.1 | 4.5±0.5    | 126    |
| RB6522-36-0M5   | 36  | 53  | 0.45               | 1.5                | 4      | 2.2±0.1 | 4.5±0.5    | 180    |
| RB6522-50-0M3   | 50  | 80  | 0.25               | 0.9                | 4      | 2.5±0.1 | 5.0±0.5    | 175    |
| RB8522-16-3M0   | 16  | 25  | 3.00               | 8.4                | 4      | 2.0±0.1 | 4.5±0.5    | 172    |
| RB8522-25-2M0   | 25  | 39  | 2.00               | 4.2                | 5      | 2.6±0.1 | 5.0±0.5    | 268    |
| RB8522-36-1M5   | 36  | 58  | 1.50               | 3.0                | 6      | 2.2±0.1 | 4.5±0.5    | 440    |
| RB8522-50-0M8   | 50  | 83  | 0.75               | 1.7                | 6      | 2.5±0.1 | 5.0±0.5    | 430    |
| RB6132-16-0M8   | 16  | 26.5  | 0.80               | 4.6                | 7      | 2.0±0.1 | 4.5±0.5    | 162    |
| RB6132-25-0M5   | 25  | 41  | 0.47               | 2.4                | 7      | 2.5±0.1 | 5.0±0.5    | 175    |
| RB6132-36-0M4   | 36  | 60  | 0.42               | 1.4                | 8      | 2.2±0.1 | 4.5±0.5    | 278    |
| RB6132-50-0M2   | 50  | 81  | 0.18               | 0.9                | 8      | 2.5±0.1 | 5.0±0.5    | 264    |
| RB6532-16-0M8   | 16  | 26.5  | 0.80               | 4.7                | 9      | 2.0±0.1 | 4.5±0.5    | 165    |
| RB6532-25-0M5   | 25  | 41  | 0.47               | 2.4                | 9      | 2.5±0.1 | 5.0±0.5    | 180    |
| RB6532-36-0M4   | 36  | 60  | 0.42               | 1.5                | 10     | 2.2±0.1 | 4.5±0.5    | 280    |
| RB6532-50-0M2   | 50  | 81  | 0.18               | 0.8                | 10     | 2.5±0.1 | 5.0±0.5    | 268    |
| RB8532-16-1M3   | 16  | 27  | 1.30               | 5.7                | 9      | 2.0±0.1 | 4.5±0.5    | 176    |
| RB8532-25-0M9   | 25  | 41  | 0.94               | 3.0                | 11     | 2.6±0.1 | 5.0±0.5    | 282    |
| RB8532-36-0M8   | 36  | 58  | 0.83               | 2.3                | 12     | 2.2±0.1 | 4.5±0.5    | 478    |
| RB8532-50-0M3   | 50  | 82  | 0.33               | 1.2                | 12     | 2.5±0.1 | 5.0±0.5    | 442    |

**Test conditions:**

Measuring frequency: 1kHz; 500µA > 0.16mH < 1.6mH; 50µA > 1.6mH < 160mH

Inductance tolerance: +50%, -30%

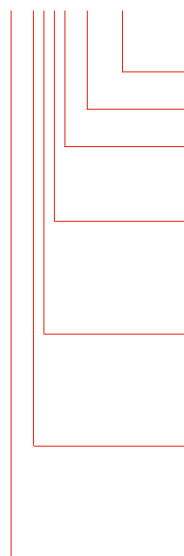
Resistance tolerance: max. ±15% @ 25°C; < 20mΩ 1A

Electrical characteristics @ 25°C: ±2°C

\* typical current for forced cooling with 3m/s. Due to the possible turbulences and degradation of the air stream within an equipment please consider thermal validation.

**Order Code:**

RB xxxx-xx-xmx



Inductance value (e.g. 9M6 = 9.6 mH)

Nominal input current [A] (convection cooling)

Terminal type ( 2 for PCB pin)

2 = 2-wire choke

3 = 3-wire choke

1 = Horizontal

5 = Vertical

8 = high inductance series

6 = low inductance series

Schaffner standard ring-core choke series RB

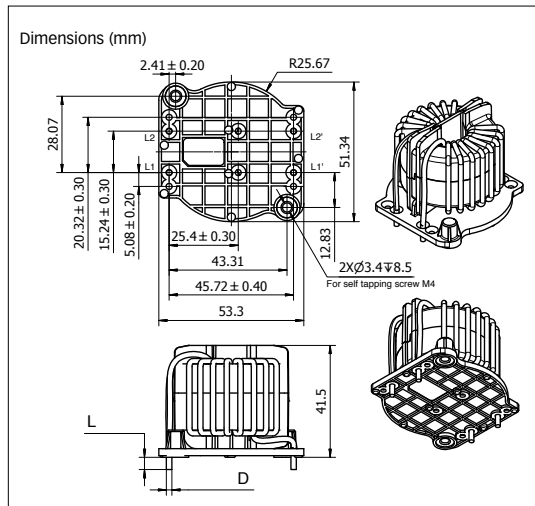
**Examples:**

RB8532-16-1M3: Vertical 3-wire high inductance choke with PCB pins, for 16A, with 1.3mH

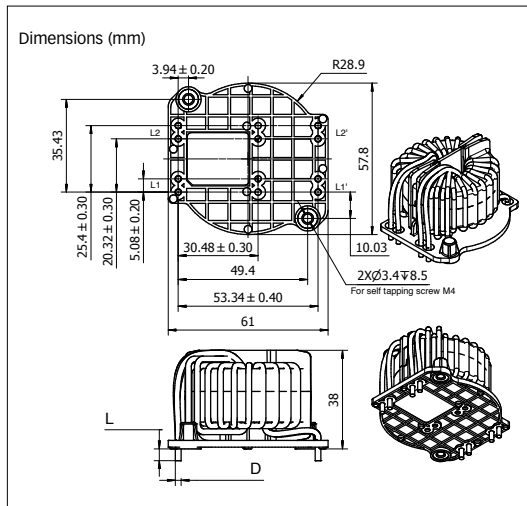
RB6122-50-0M3: Horizontal 2-wire low inductance choke with PCB pins, for 50A, with 0.3mH

1-phase /DC chokes

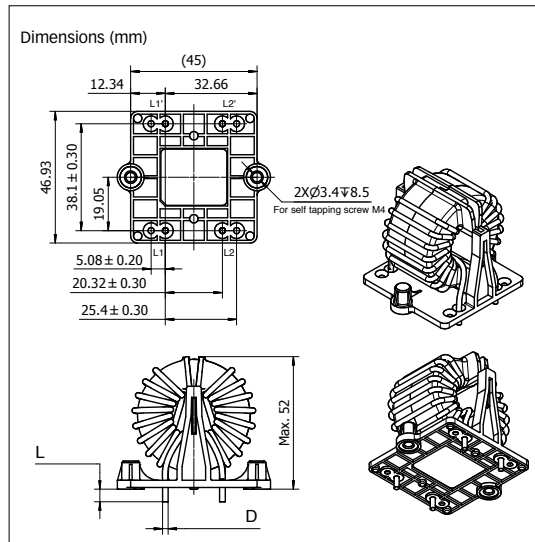
Size 1 (RB6122)



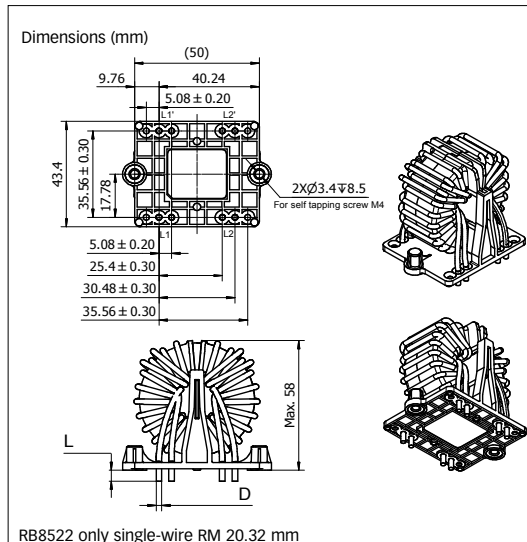
Size 2 (RB6122)



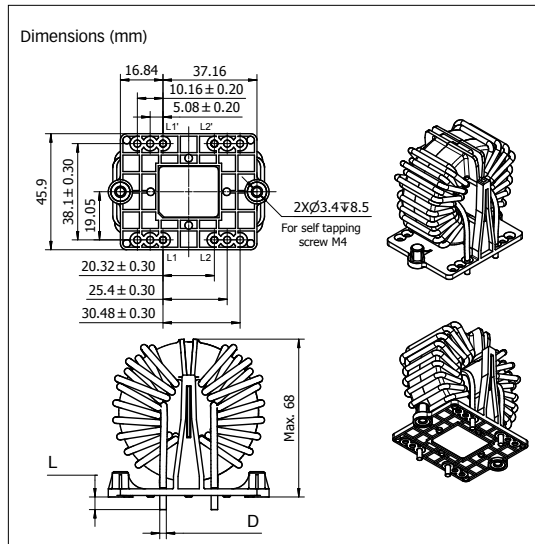
Size 3 (RB6522)



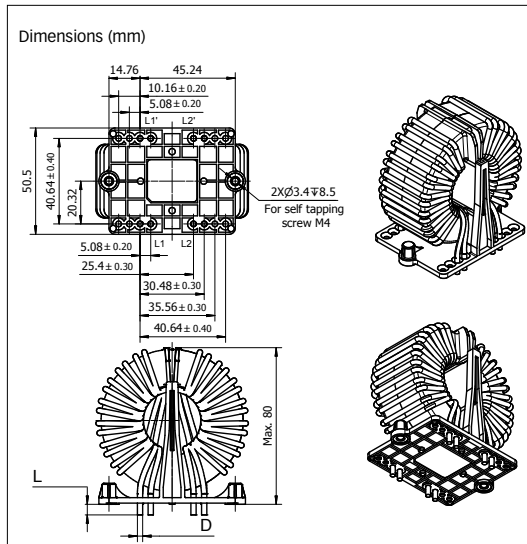
Size 4 (RB6522/RB8522)



Size 5 (RB8522)

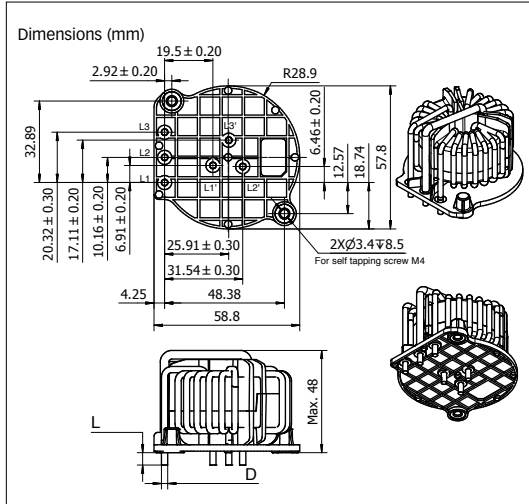


Size 6 (RB8522)

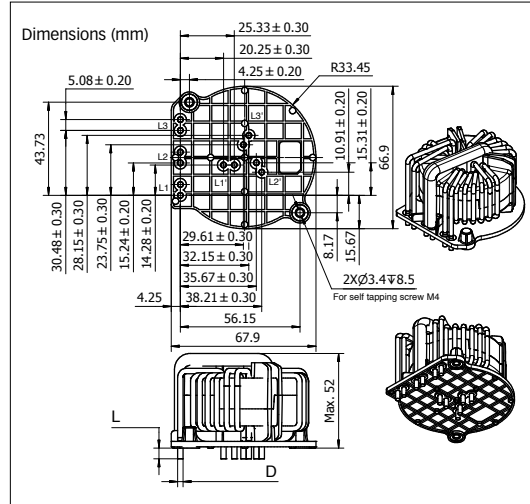


3-phase chokes

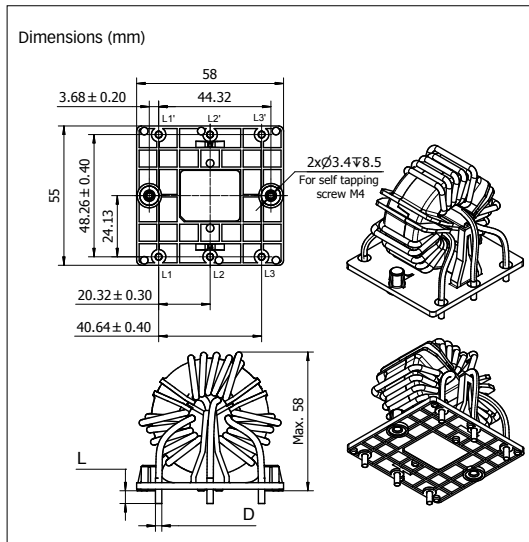
Size 7 (RB6132)



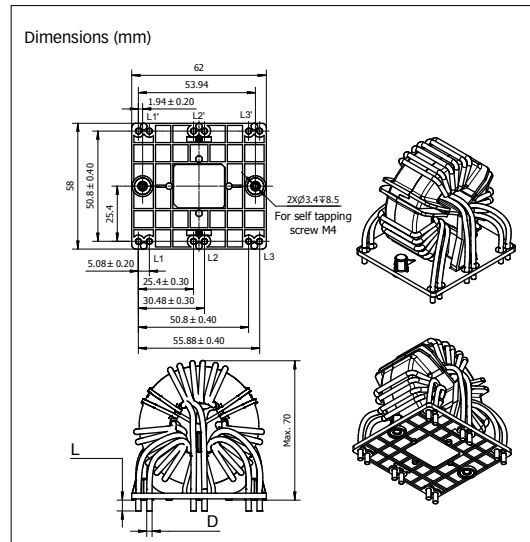
Size 8 (RB6132)



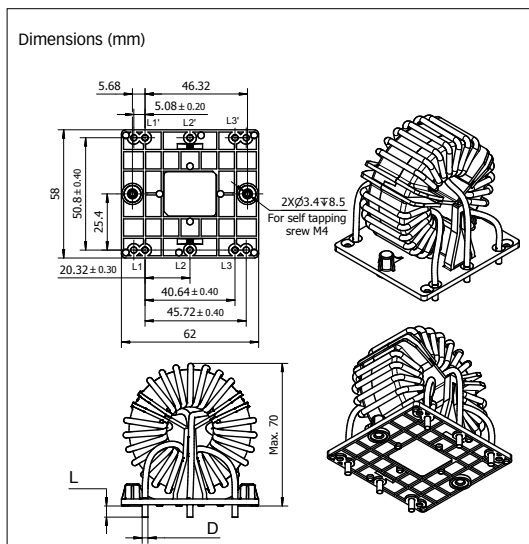
Size 9 (RB6532/RB8532)



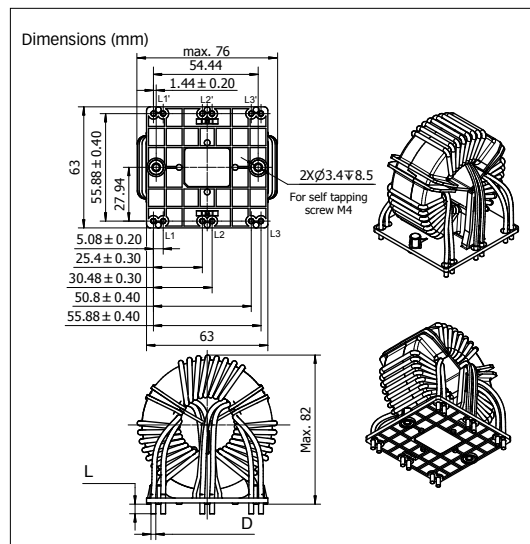
Size 10 (RB6532)



Size 11 (RB8532)



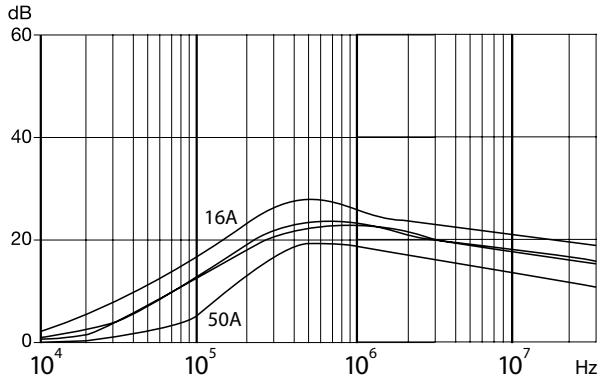
Size 12 (RB8532)



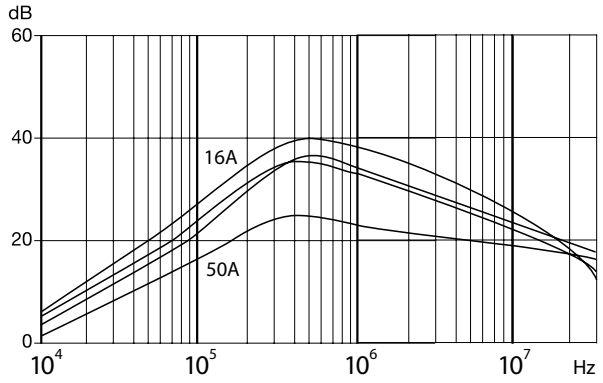
**Typical choke attenuation/resonance frequency characteristics**

Per CISPR 17; 50Ω/50Ω asym

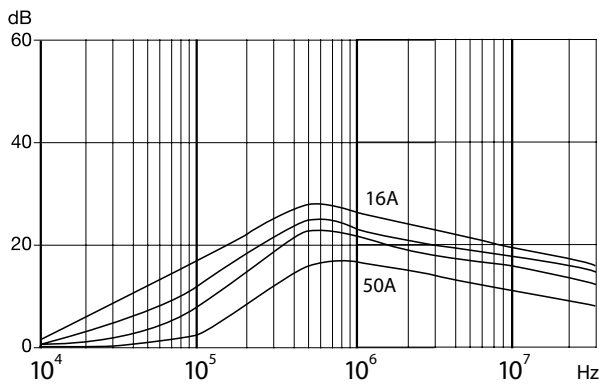
**RB6122, RB6522**



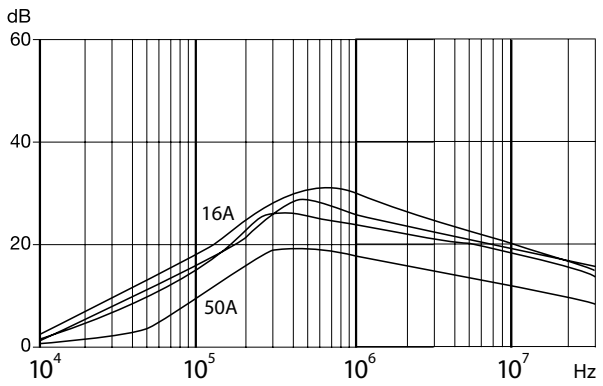
**RB8522**



**RB6132, RB6532**



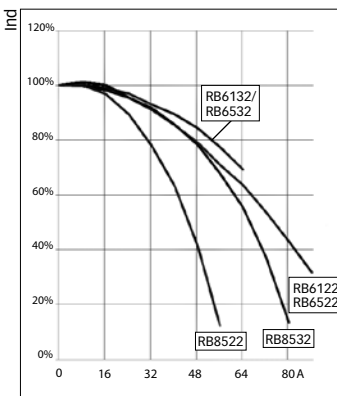
**RB8532**



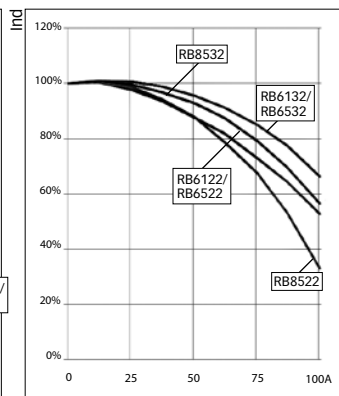
**Typical saturation characteristics**

Inductance (typical value in %) vs. nominal current (A DC)

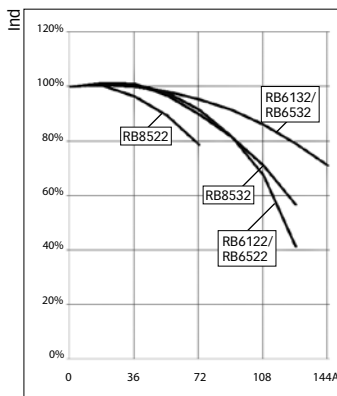
**16A**



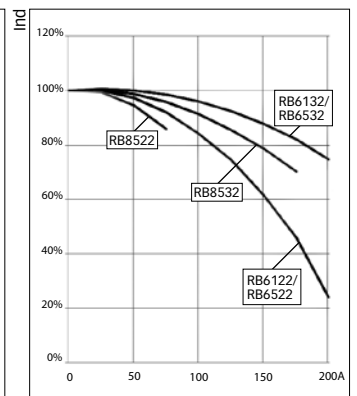
**25A**



**36A**



**50A**



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