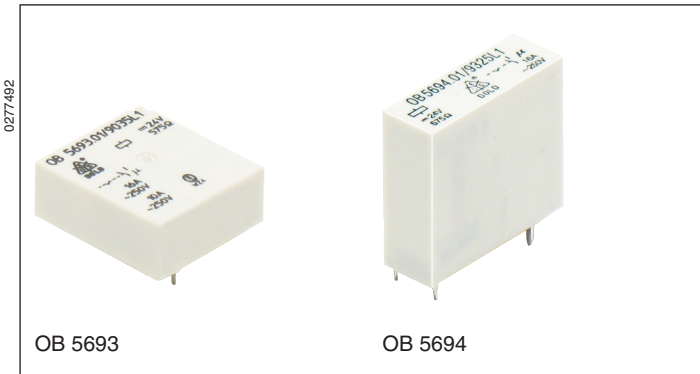


PCB Relays

Printed Circuit Board Relay bistable OB 5693, OB 5694

Translation
of the original instructions



- According to DIN EN 61810-1, IEC/EN 60669-1
- Switching reliability according to IEC/EN 60669-2-2
- Safe separation according to IEC/EN 61140, IEC/EN 60335
- OB 5693: Horizontal model
- OB 5694: Vertical model
- Bistable, mechanical latching of contact
- For impulse operation, at failure operation 100 % ED possible
- Same pulse (energy and direction) for both switching positions
- AC and DC - model
- Patent on function principle
- On request wash proof

Applications

- Remote switch
- Switching of sockets

Technical Data

Relay type

1.0 Coil

1.1 Nominal voltage	AC 12; 24; 42; 230 V 50/60 Hz
1.2 Nominal consumption	DC 6; 12; 15; 24; 48; 60; 110 V 1 W / 1.4 VA

2.0 Contacts

2.1 Contact arrangement	1 changeover contact or 1 NO
2.2 Contact material	AgSnO ₂ ; AgNi + 0,2 µm Au (goldplated contacts ³⁾ on request)
2.3 Rated insulation voltage	AC 250 V
Switching voltage min./max.	10 V / 400 V
2.4 Limiting continuous current I _{th}	16 A
Switching current min./max.	10 mA ¹⁾ / 50 A (20 ms)
2.5 Switching power min./max.	3 VA / 4000 VA
Switching power min./max.	35 W / 300 W
Incandescent lamp load	1500 W
2.7 Electrical life	At 1 s On, 1 s Off (see contact service life)
at AC 250 V 16 A cos φ = 1	≥ 5 x 10 ⁴ switching cycles
2.8 Max. switching frequency	5 switching cycles/s
2.10 Contact force	≥ 8 cN
2.14 Contact gap	≥ 0.5 mm

3.0 Other

3.1 Mechanical life	DC ≥ 10 x 10 ⁶ switching cycles, AC ≥ 1 x 10 ⁵ switching cycles
3.2 Temperature range	- 40 ... + 75 °C
3.3 Degree of protection	Solder line proof RT II
3.5 Vibration resistance	5 g, until max. 100 Hz
3.6 Climate resistance	40 / 075 / 04 (climate category); A / B / D IEC/EN 60068-1
3.8 Insulation according to IEC 60664-1	
Rated insulation voltage	AC 250 V
Pollution degree	3
Overvoltage category	III
Test voltage	
contact-coil (1 min)	≥ AC 4 kV eff.
Transient voltage	
contact-coil (1.2 - 50 µs)	≥ 6 kV
Clearance and creepage distances	
contact-coil	≥ 8 mm
3.9 Weight	Approx. 15 g

4.0 Packing

4.1 On cardboard	OB 5693: 32 pieces; OB 5694: 56 pieces
4.2 In case package	OB 5693: 320 pieces; OB 5694: 280 pieces

5.0 Solder method

5.1 Solder method /-temperature /-duration	Wave soldering / 260 °C / 5 s
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¹⁾ Typical values ²⁾ Only valid for the stated temperature range (≅ EN 61 810) different values (derating) see operating voltage limit curve
³⁾ For AC/DC 10 mW ... 12 W; at 2 ... 60 V / 2 ... 300 mA

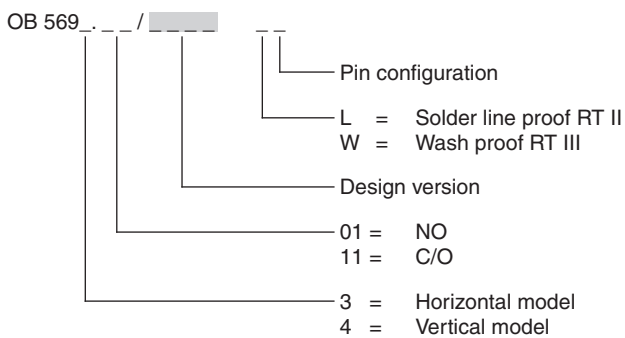
Design versions OB 5693

Nominal voltage U _N		Voltage range (DC V) ²⁾	R _{Coil} Ω ± 10 %	AgSnO ₂		Ag Ni + 0.2 μm Au	
DC V	AC V			.01/	.11/	.01/	.11/
6		4.8 ... 6.6	38	9031	9001	9141	9121
12		9.6 ... 13.2	150	9032	9002	9142	9122
15		12 ... 16.5	220	9033	9003	9143	9123
20		16 ... 22	410	9034	9004	9144	9124
24		19.2 ... 26.4	575	9035	9005	9145	9125
48		38.4 ... 52.8	2500	9036	9006	9146	9126
60		48 ... 66	3600	9037	9007	9147	9127
110		88 ... 121	12100	9038	9008	9148	9128
	12	9.6 ... 13.2	65	9182	9152	9232	9222
	24	19.2 ... 26.4	250	9181	9151	9231	9221
	42	33.6 ... 46.2	830	9183	9153	9233	9223
	230	184 ... 253	25000	9187	9157	9235	9225

Design versions OB 5694

Nominal voltage U _N		Voltage range (DC V) ²⁾	R _{Coil} Ω ± 10 %	AgSnO ₂		Ag Ni + 0.2 μm Au	
DC V	AC V			.01/	.11/	.01/	.11/
6		4.8 ... 6.6	38	9321	9301	9331	9311
12		9.6 ... 13.2	150	9322	9302	9332	9312
15		12 ... 16.5	220	9323	9303	9333	9313
20		16 ... 22	410	9324	9304	9334	9314
24		19.2 ... 26.4	575	9325	9305	9335	9315
	12	9.6 ... 13.2	65	9422	9402	9432	9412
	24	19.2 ... 26.4	250	9423	9403	9433	9413
	42	33.6 ... 46.2	830	9424	9404	9434	9414
	230	184 ... 253	25000	9425	9405	9435	9415

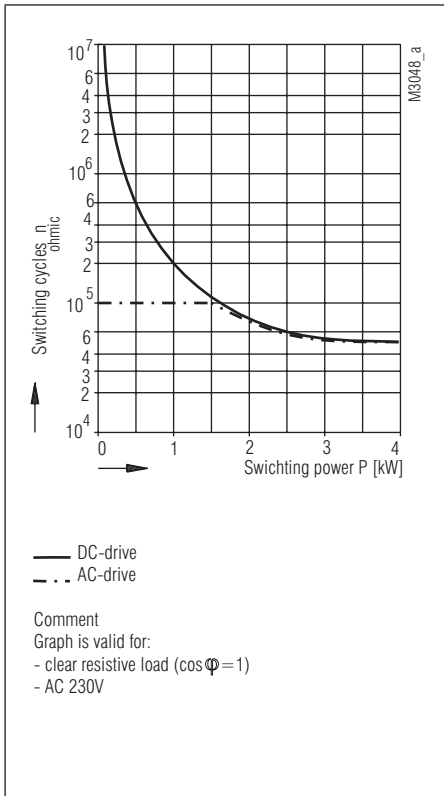
Ordering Example



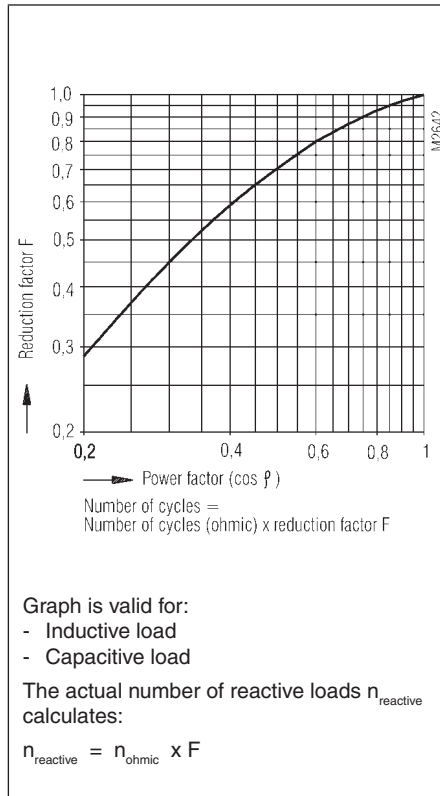
Notes

For the use and processing of our PCB relays, please refer to the **application and processing instructions** at www.dold.com

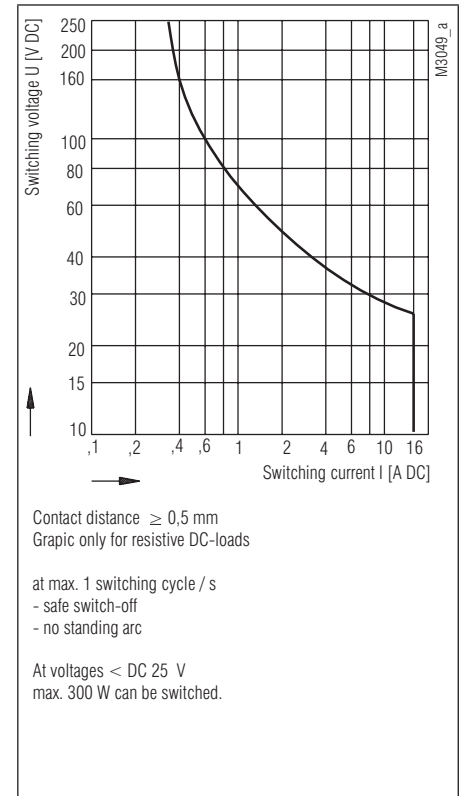
Characteristics



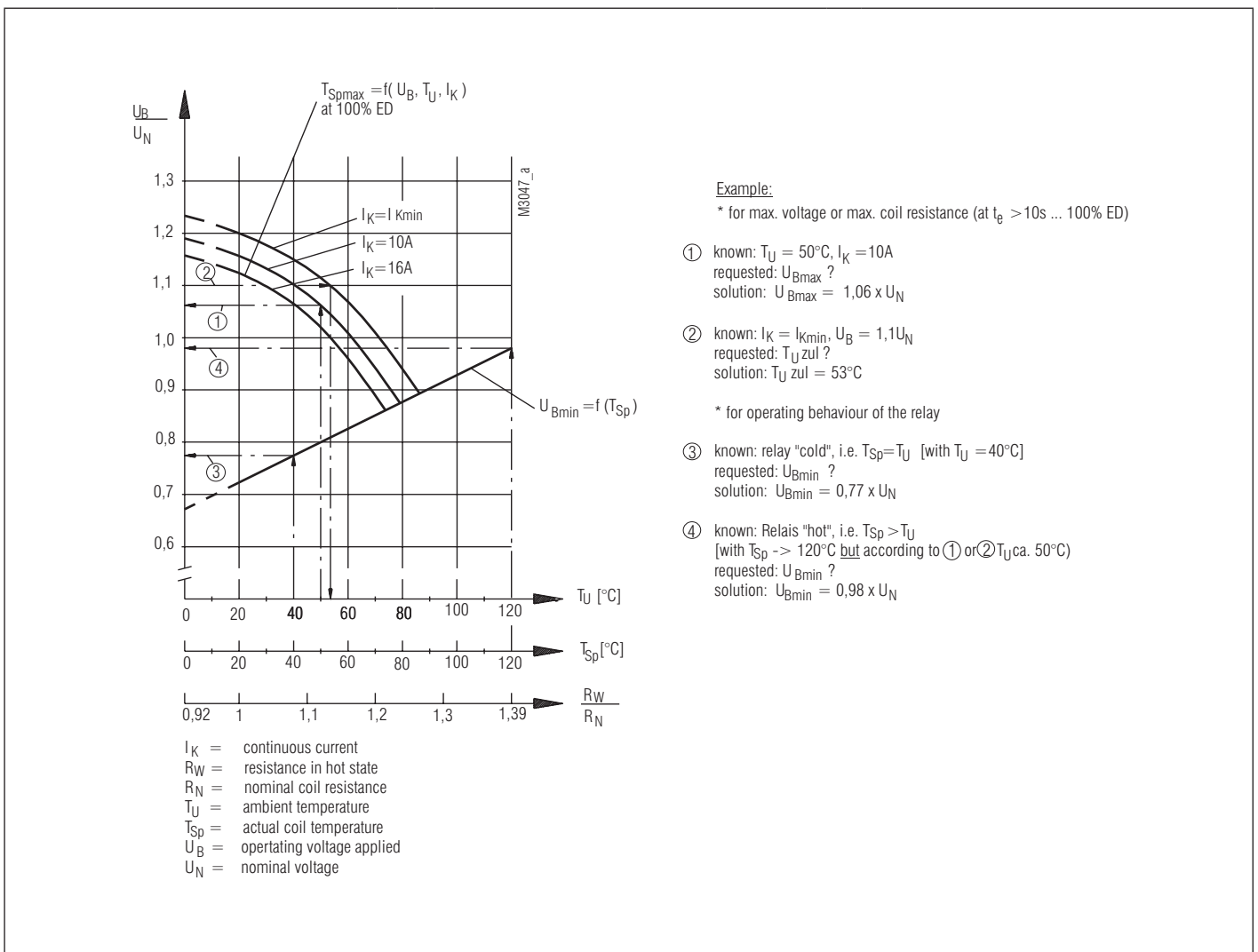
Contact service life



Reduction factor for reactive loads

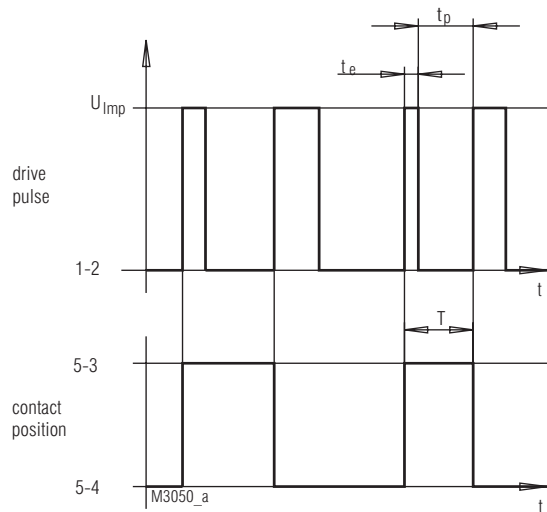


Arc limit curve



Operating voltage limit curve

Function Diagram



Notes:

1.) Safe function for pulse operation at $0,8x U_N < U_{Imp} < 1,1x U_N$

$t_e \text{ min} = 20 \text{ ms}$
 $t_p \text{ min} = 180 \text{ ms}$

2.) Safe thermal operation at $1,1x U_N < U_{Imp}$ (voltage increase at pulse operation)

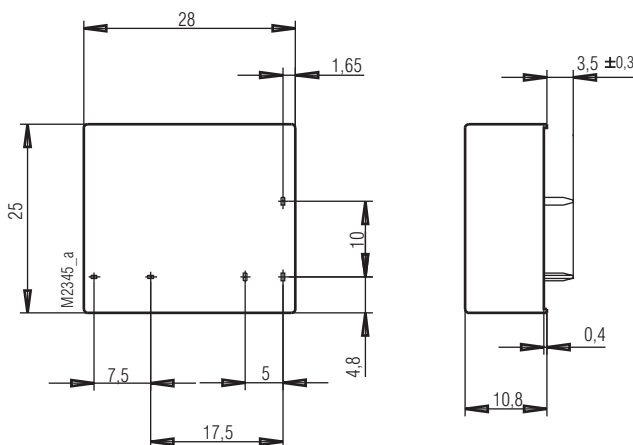
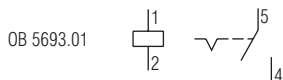
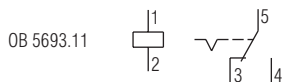
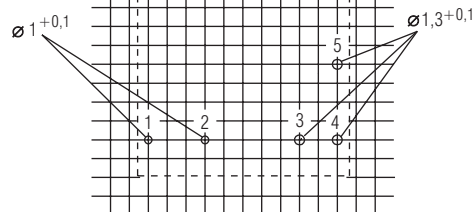
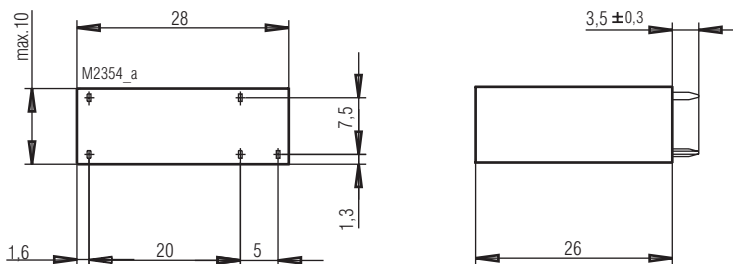
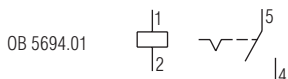
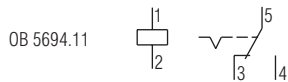
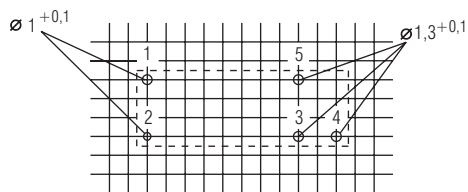
$$U_{Imp} = U_{Bmax} \times \sqrt{\frac{T}{t_e}}$$

with: $t_e \leq 10s$

for: $t_e > 10s \dots 100\% \text{ ED}$
 see operating voltage limit curve

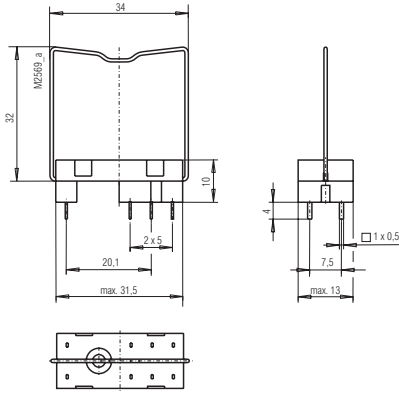
Dimensions, Pin Configuration, Connection Diagrams

Drilling plan (solder side)



Connection for basic grid dimensions 2.5 mm as well as 2.54 mm according to IEC/EN 60097 and IEC 60326 average

Relay Socket incl. Fixing Clip



Relay socket ET 1415.021

Article number: 0034769

Fixing clip (wire) ET 1415.025

Article number: 0034770

Fixing clip (plastic) ET 1415.026

Article number: 0047726

Packing: 100 pieces

Function Modules

ET1415.913: DC 24 V, with free-wheel diode and green LED
Article number: 0056828

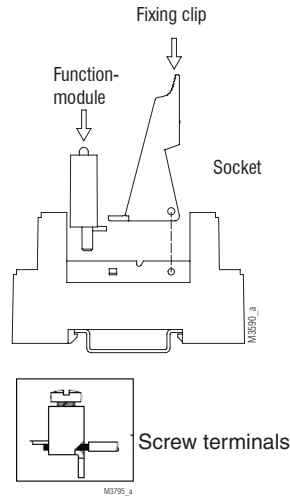
ET1415.911: DC 24 V, with free-wheel diode and red LED
Article number: 0055909

ET1415.912: AC/DC 24 V, with varistor and green LED
Article number: 0055910

ET1415.924: DC 60 V, with free-wheel diode and red LED
Article number: 0062552

Packing: 20 pieces

Socket ET 1415.041 incl. Fixing Clip - Screw Terminals -



Article number: 0055571

Temperature range: - 25 ... + 85 °C

Clearance and creepage distance

Rated impulse voltage /
degree of protection

Input / output: 6 kV / 2

IEC 60664-1

Output / output: 4 kV / 2

IEC 60664-1

Overvoltage category: III

Degree of protection:

IP 20

IEC/EN 60529

Wire connection

Solid / stranded: 0.5 - 2.5 mm² (20-14 AWG)

Sleeved end: 0.14 - 2.5 mm² (26-14 AWG)

Stripping length

7 mm

Wire fixing:

Screw terminals

Fixing torque:

Max. 0.8 Nm

Mounting:

DIN-rail

IEC/EN 60715

Weight:

Approx. 38.5 g

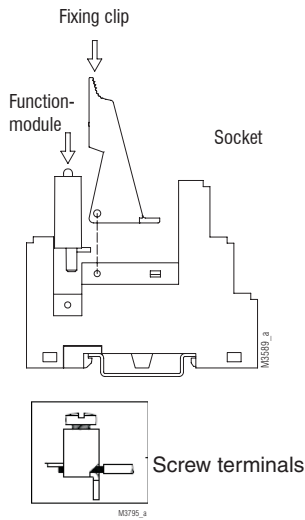
Packing:

10 pieces

Dimensions

Width x height x depth: 15.8 x 75 x 69.0 mm

Socket ET 1415.044 incl. Fixing Clip - Screw Terminals -



- Incl. safe separation between coil and contacts according to DIN EN 60947-1, DIN EN 61140

Article number: 0059274

Temperature range: - 25 ... + 85 °C

Clearance and creepage distance

Rated impulse voltage / degree of protection

Input / output: 6 kV / 2 IEC 60664-1

Output / output: 4 kV / 2 IEC 60664-1

Overvoltage category: III

Degree of protection: IP 20 IEC/EN 60529

Wire connection

Solid / stranded: 0.5 - 2.5 mm² (20-14 AWG)

Sleeved end: 0.14 - 2.5 mm² (26-14 AWG)

Stripping length 7 mm

Wire fixing: Screw terminals

Fixing torque: Max. 0.8 Nm

Mounting: DIN-rail IEC/EN 60715

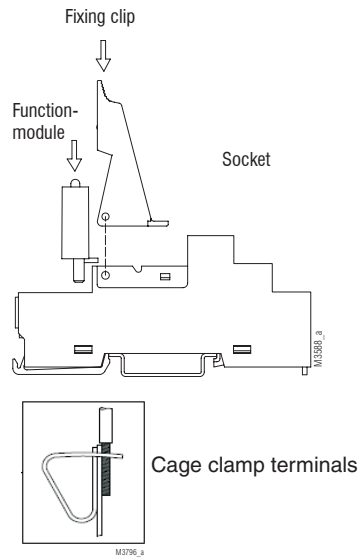
Weight: Approx. 43.5 g

Packing: 10 pieces

Dimensions

Width x height x depth: 15.8 x 75 x 75.0 mm

Socket ET 1415.047 incl. Fixing Clip - Cage Clamp Terminals -



Article number: 0059270

Temperature range: - 25 ... + 85 °C

Clearance and creepage distance

Rated impulse voltage / degree of protection

Input / output: 6 kV / 2 IEC 60664-1

Output / output: 4 kV / 2 IEC 60664-1

Overvoltage category: III

Degree of protection: IP 20 IEC/EN 60529

Wire connection

2 x Solid / stranded: 0.5 - 1.5 mm² (20-16 AWG)

2 x Sleeved end: 0.14 - 1.5 mm² (26-16 AWG)

Stripping length 11 mm

Wire fixing: Cage clamp terminals

Mounting: DIN-rail IEC/EN 60715

Weight: Approx. 42.0 g

Packing: 10 pieces

Dimensions

Width x height x depth: 15.8 x 97 x 75.5 mm

A large grid of graph paper. The grid consists of 28 columns and 30 rows of small squares. Each square is defined by solid lines. Additionally, there are dotted lines that create a larger grid pattern, with a vertical dotted line every 5 columns and a horizontal dotted line every 5 rows.

A vertical column of horizontal lines on the right side of the page, intended for writing. It contains 30 horizontal lines, each corresponding to a row in the grid to its left.

