

WERNER

Inventing Innovation...

Living Industrial Partnerships

PRODUCT SPECIFICATION

9000 Series Mosaic



www.wernerelektrik.com

Introduction

Werner Electric's control & indicating instruments have been time tested for several years and can be used in our grid with tranquil methods of fixing. We integrate LED's for Indicating Alarms and Status Signals. Maintenance time and downtime incurred to replace the incandescent lamps that have a limited durability can be eliminated. In addition to this, danger of short circuits which exists when lamps are prevented efficiently.

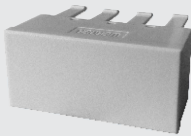
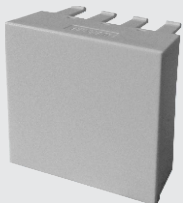
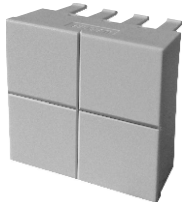
It is very important for an operator to have full information and easy method of control and function displays. This is essential for effective control and monitoring of processes. Control and display panels with mosaic systems are best suited for this application.

A control and display panel majorly consists of the mosaic grid construction to which the mosaic tiles and control and display elements are fitted. Mimic diagram tiles and passive or active WERNER modules may be installed at any position on the panel's front. Measuring instruments can also be installed. Different mounting frames are available for the installation of the panel. A planning tool is also available for designing the layout of your panel.

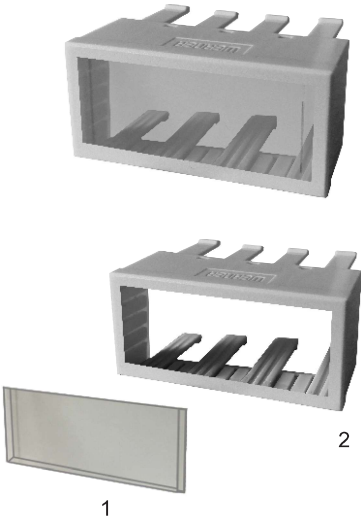
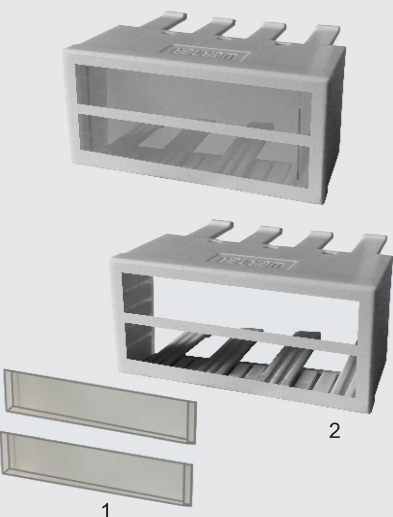
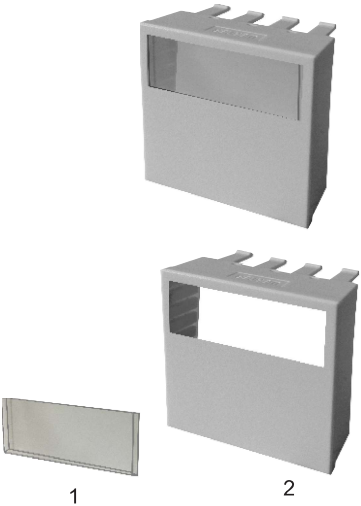
Non-reflecting plastic tiles to cover the front of our models are given. Going further our technological process flow diagram images are imprinted on the tiles yielding an abrasion, scratch and graze proof mimic.



Tile - Model Selection

Tiles	Size	Color	Part Number
	24 X 24mm	Grey	9000.2424-GR
		Ivory	9000.2424-IV
	24 X 48mm	Grey	9000.2448-GR
		Ivory	9000.2448-IV
	24 X 48mm with simulated line	Grey	9000.2448-GR2
		Ivory	9000.2448-IV2
	48 X 48mm	Grey	9000.4848-GR
		Ivory	9000.4848-IV
	48 X 48mm with simulated line	Grey	9000.4848-GR2
		Ivory	9000.4848-IV2

Tile - Model Selection

Appearance	Size	Color	Part Number
	24 X 48mm	Ivory with one legend	9000.2448-L1-IV
		Grey with one legend	9000.2448-L1-GR
		White translucent legend	1. 9000.L-18/42
		Ivory or Gray tile *specify color	2. 9000.2448-LL
	24 X 48mm	Ivory with two legends	9000.2448-L2-IV
		Grey with two legends	9000.2448-L2-GR
		White translucent legend	1. 9000.L-9/42
		Ivory or Gray tile *specify color	2. 9000.2448-LL
	48 X 48mm	Ivory	9000.4848-L1-IV
		White translucent legend	1. 9000.L-9/42
		Ivory	2. 9000.4848-IV XXL

Model Number Structure - Pushbutton



0	Black*
2	Red
3	Amber
4	Yellow
5	Green
6	Blue
9	White

Lamp Terminal (+) Lamp Terminal (-)

Model Number Structure - Mushroom Head



41.84.12.11.12

Series

41 Series Switches and Indicators

Operation Type

8	Mushroom Head Momentary
9	Mushroom Head Maintained

Style

1	Round Non-Illuminated
2	Square Non-Illuminated
3	Rectangular Non-Illuminated
4	Round Illuminated
5	Square Illuminated
6	Rectangular Illuminated

Contact

1	1NO-1NC
2	2NO-2NC
3	3NO-3NC

Operating Voltage

00	No Voltage
06	6V
12	12V
24	24V

Lamp Type

0	No Lamp
1	LED
2	Filament

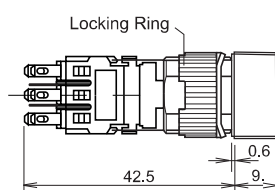
Degree of Protection

1	IP40
2	IP65

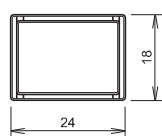
Colour

0	Black*
2	Red
3	Amber
4	Yellow
5	Green
6	Blue
9	White

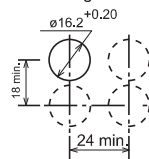
Dimensions - Illuminated Pushbutton



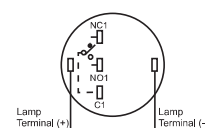
Rectangular



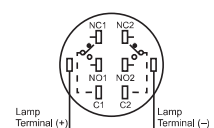
Rectangular



SPDT



DPDT



Model Number Structure - Selector Switch



41.43.10.11

Series	
41	Series Switches and Indicators

Operation Type	
4	Selector Switch 90°- 2 Positions
5	Selector Switch 45°- 3 Positions

Shape	
1	Round Non-Illuminated
2	Square Non-Illuminated
3	Rectangular Non-Illuminated

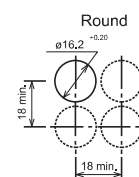
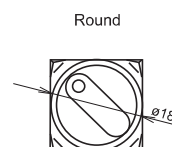
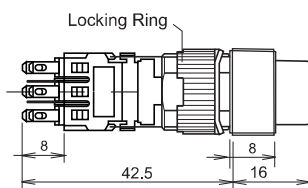
Position	
1	Maintained
2	Spring Return From Right
3	Spring Return From Left
4	Spring Return Two Ways

Protection	
1	IP40
2	IP65

Color	
0	Black

Contact	
1	1NO-1NC
2	2NO-2NC
3	3NO-3NC

Dimensions - Selector Switch



Model Number Structure - Illuminated Selector Switch



41.46.14.112.12

Series	
41	Series Switches and Indicators

Operation Type	
4	Selector Switch 90°- 2 Positions
5	Selector Switch 45°- 3 Positions

Shape	
4	Round Illuminated
5	Square Illuminated
6	Rectangular Illuminated

Contact	
1	SPDT
2	DPDT

Color	
2	Red
3	Amber
4	Yellow
5	Green
6	Blue
9	White

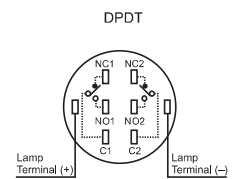
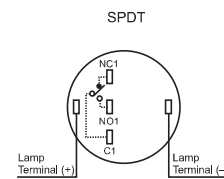
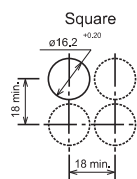
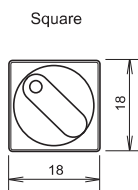
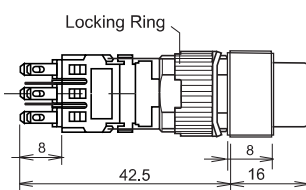
Voltage	
06	6V AC/DC
12	12V AC/DC
24	24V AC/DC

Lamp Type	
1	LED
2	Filament

Position	
1	Maintained
2	Spring Return From Right
3	Spring Return From Left
4	Spring Return Two Ways

Protection	
1	IP40
2	IP65

Dimensions - Illuminated Selector Switch



Model Number Structure - Key Selector Switch



41.63.10.112

Series

41 Series Switches and Indicators

Operation Type

6	90° 2 Positions
7	45° 3 Positions

Shape

1	Round
2	Square
3	Rectangular

Contact

1	1NO-1NC
2	2NO-2NC
3	3NO-3NC

Colour

0	Black
2	Red
3	Amber
4	Yellow
5	Green
6	Blue
9	White

Key Retained / Removable

1	Key Removable at all sides
2	Key Retained at Right
3	Key Retained at Left
4	Key Retained at Right & Left
5	Key Retained at Center
6	Key Retained at Center & Right
7	Key Retained at Center & Left

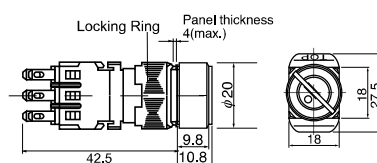
Positions

1	Maintained
2	Spring Return from Right
3	Spring Return from Left
4	Spring Return two Ways

Degree of Protection

1	IP40
2	IP65

Dimensions - Key Selector Switch

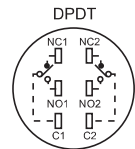
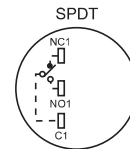
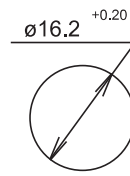
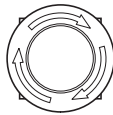
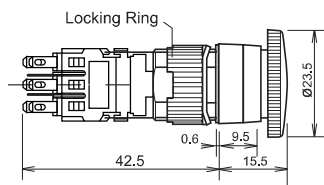


Model Number Structure - E-Stop



Operation Type	Contact	Color	Model No.	
			IP40	IP65
Pushlock Turn Reset	1NO-1NC	Red	41.08.12.10	41.08.12.20
Pushlock Turn Reset	2NO-2NC	Red	41.08.22.10	41.08.22.20
Pushlock Turn Reset	3NO-3NC	Red	41.08.32.10	41.08.32.20

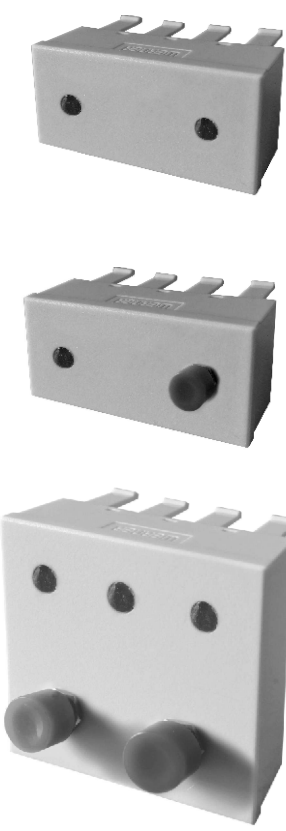
Dimensions - E-Stop



Selector Switch Contact Arrangement

Positions		1NO-1NC		2NO-2NC		3NO-3NC	
90° 2 Positions	Left ↶	U	—	U	1 O — O 2 3 O O 4	U	1 O — O 2 3 O O 4
		M	1 O — O 2 3 O O 4	M	—	M	1 O — O 2 3 O O 4
		L	—	L	1 O — O 2 3 O O 4	L	1 O — O 2 3 O O 4
	Right ↷	U	—	U	1 O O 2 3 O — O 4	U	1 O O 2 3 O — O 4
		M	1 O — O 2 3 O O 4	M	—	M	1 O O 2 3 O — O 4
		L	—	L	1 O O 2 3 O — O 4	L	1 O O 2 3 O — O 4
45° 3 Positions	Left ↶	U	—	U	1 O — O 2 3 O O 4	U	1 O — O 2 3 O O 4
		M	—	M	—	M	1 O — O 2 3 O O 4
		L	—	L	1 O — O 2 3 O O 4	L	1 O — O 2 3 O O 4
	Center ⌀	U	—	U	1 O — O 2 3 O O 4	U	1 O — O 2 3 O O 4
		M	—	M	—	M	1 O — O 2 3 O O 4
		L	—	L	1 O — O 2 3 O O 4	L	1 O — O 2 3 O O 4
	Right ↷	U	—	U	1 O O 2 3 O — O 4	U	1 O O 2 3 O — O 4
		M	—	M	—	M	1 O O 2 3 O — O 4
		L	—	L	1 O — O 2 3 O O 4	L	1 O — O 2 3 O O 4

Model Selection

Appearance	Part Number	Description
	Tele-slide T5.5K LED for Push Buttons	
	9000.FT-10	1 LED
	9000.FT-20	2 LED's
	9000.FT-30	3 LED's
	9000.FT-40	4 LED's
	9000.FT-50	5 LED's
	9000.FT-01	1 push button
	9000.FT-02	2 push buttons
	9000.FT-03	3 push buttons
	9000.FT-11	1 LED and 1 push button
	9000.FT-21	2 LED's and 1 push button
	9000.FT-31	3 LED's and 1 push button
	9000.FT-41	4 LED's and 1 push button
	9000.FT-51	5 LED's and 1 push button
	9000.FT-12	1 LED and 2 push buttons
	9000.FT-22	2 LED's and 2 push buttons
	9000.FT-32	3 LED's and 2 push buttons
	9000.FT-42	4 LED's and 2 push buttons
	9000.FT-52	5 LED's and 2 push buttons
	9000.FT-13	1 LED and 3 push buttons
	9000.FT-23	2 LED's and 3 push buttons
	9000.FT-33	3 LED's and 3 push buttons
	9000.FT-43	4 LED's and 3 push buttons
	9000.FT-53	5 LED's and 3 push buttons
	Functional Tile with 3 LED's	
	9000.FT-3R	Red LED's
	9000.FT-3A	Amber LED's
	9000.FT-3G	Green LED's
	9000.FT-3Y	Yellow LED's
	Functional Tile with 2 LED's	
	9000.FT-2R	Red LED's
	9000.FT-2A	Amber LED's
	9000.FT-2G	Green LED's
	9000.FT-2Y	Yellow LED's

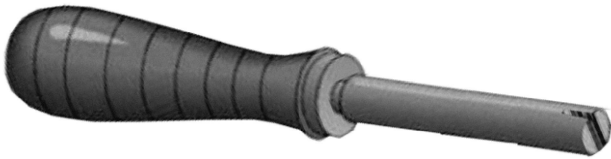
Graphic Colors for Plastic Tiles

Color	RAL - Number	Order Number (*)
Traffic Yellow	1007	TL - 007
Primrose	1012	TL - 008
Pearl White	1013	TL - 009
Light Ivory	1015	TL - 010
Lemon	1018	TL - 014
Cadium Yellow	1021	TL - 004
Yellowish Orange	2000	TL - 015
Red Orange	2001	TL - 016
Vermilion	2002	TL - 017
Pure Orange	2004	TL - 018
Luminous Orange	2005	TL - 019
Flame Red	3000	TL - 022
Venetian Red	3002	TL - 023
Ruby Red	3003	TL - 024
Strawberry Red	3018	TL - 026
Red Lilac	4001	TL - 027
Red Violet	4002	TL - 028
Heather Violet	4003	TL - 029
Blue Lilac	4005	TL - 030
Ultramarine Blue	5002	TL - 031
Azure Blue	5010	TL - 032
Light French Blue	5012	TL - 033
Sky Blue	5015	TL - 034
Brilliant Green	6001	TL - 035
Leaf Green	6002	TL - 036
Middle Bronze Green	6003	TL - 037
Grass Green	6010	TL - 038
Emerald Green	6016	TL - 039
Sea Green	6018	TL - 040
Squirrel Grey	7000	TL - 041
Aircraft Grey	7005	TL - 042
Pebble Grey	7032	TL - 047
Light Grey	7035	TL - 048
Dusty Grey	7037	TL - 051
Ocher	8001	TL - 053
Clay Brown	8003	TL - 054
Fawn Brown	8007	TL - 056
Orange Brown	8023	TL - 057
Beige Brown	8024	TL - 058
Jet Black	9005	TL - 059
Pure White	9010	TL - 061

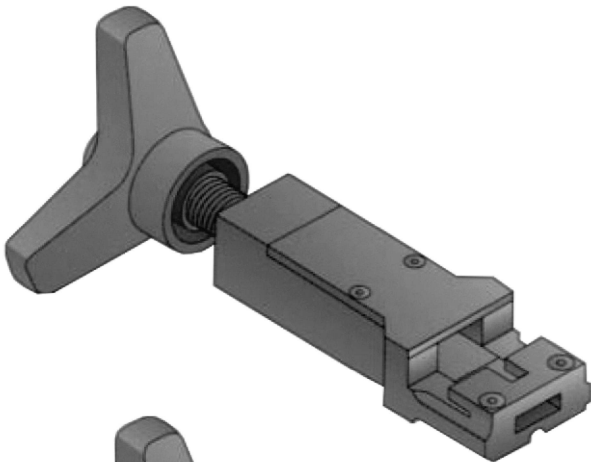
Grid Cutout



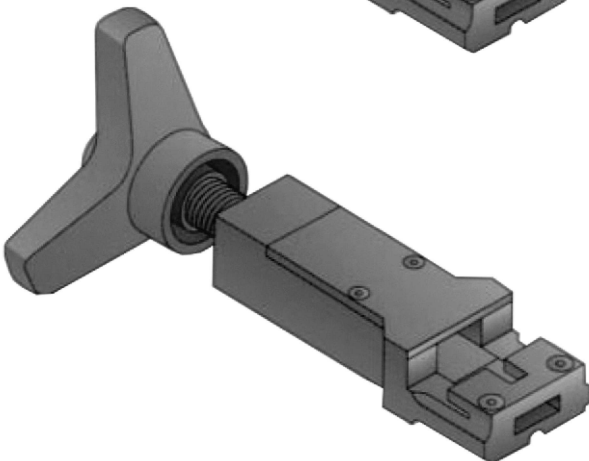
Tile/lamp remover tool # RT-01



Grid cross-line breaker # GB-01



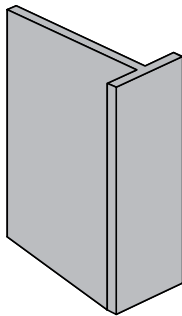
Side grid junction cutter # GC-01



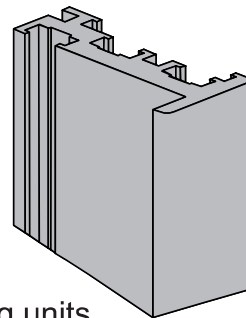
Corner grid junction cutter # GC-02

The grid module may be cut to any size. Cutouts for installation of instruments, such as meters, chart recorders, switches and so on... are made using WERNER ELECTRIC'S

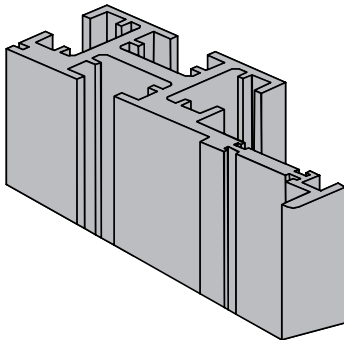
Profiles



9000.FP-100
Used for free-standing units



9000.FP-200
Used for free-standing units



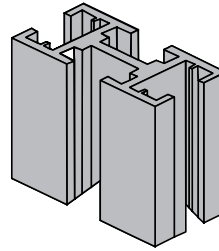
9000.FP-300
Used for large panel mount mosaics

The front support profiles are sliced to the proper lengths relying upon the measure of the framework stage. They are secured to the grid framework by grid profile clasp sets and zinc-plated steel connectors. No drilling, tapping or welding is required .

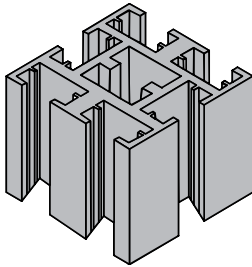
A mosaic framework can be developed for board mounting or as a detached unit. The structure which bolsters the mosaic lattice framework is built of expelle aluminum profiles. These profiles incorporate front and back bolster profiles.

Support Profiles

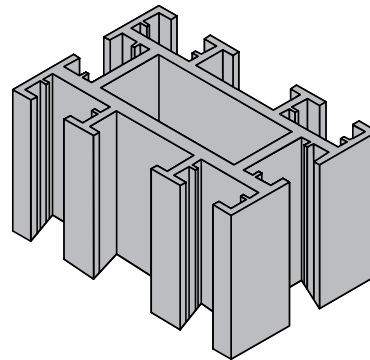
9000.P-700
24 x 48 mm



9000.P-800
48x 48 mm

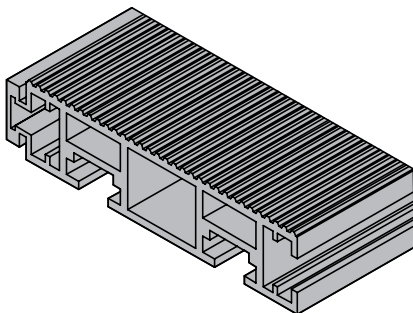


9000.P-900
48x 72 mm

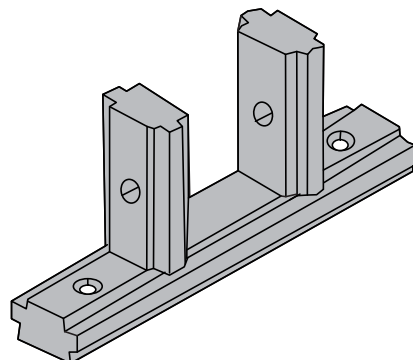


Floor Profiles

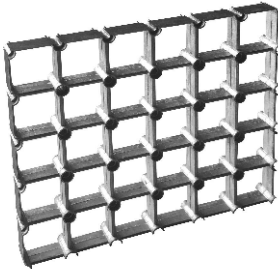
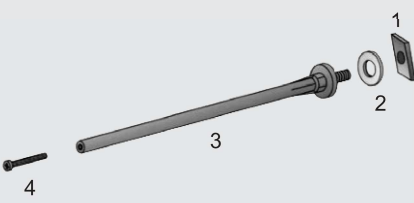
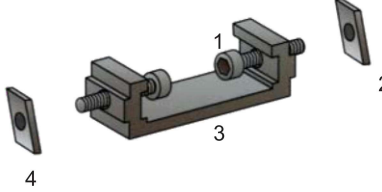
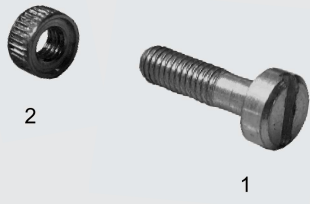
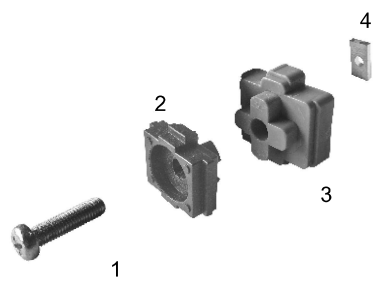
9000.P-1000
24x 96 mm



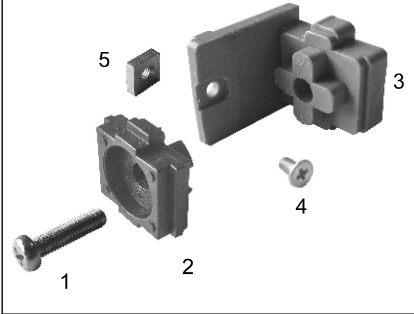
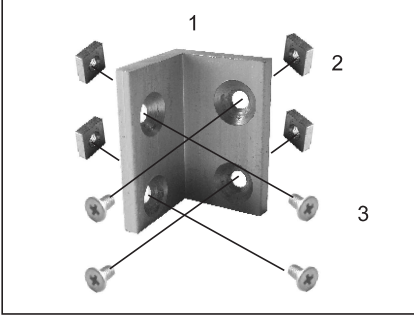
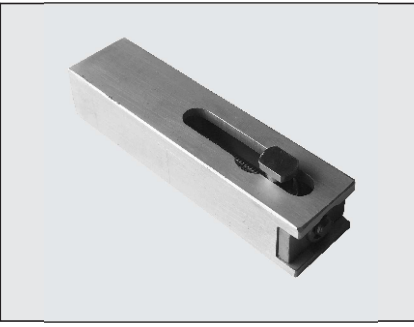
9000.DT-01
Double T Connector



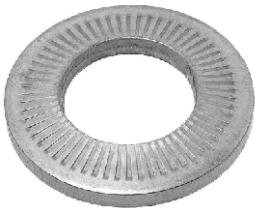
Model Selection

Types	Part Number	Description
	9000.G-2412	Grid
	9000.P-120 9000.P-180 1. 9000.SN-08 2. 9000.NW-01 3. 9000.P-120-01 9000.P-180-01 4. 9000.JS-317	Pillar Type A Used For securing support profiles to the grid system
	9000.P-60U 9000.P-120U 1. 9000.S-612 2. 9000.SNS-06 3. 9000.P-120-01 9000.P-180-01 4. 9000.SN-06	Pillar Type B Used For securing support profiles to front profiles
	9000.JS-24 1. 9000.JS-311 2. 9000.JS-03	Grid Junction Screw Set Used for securing grid modules together.
	9000.F-01A 1. 9000.CS-535 2. 9000.F-01A-01 3. 9000.F-01A-02 4. 9000.SN-05	Grid to Front Profile Attachment Grid Profile Fastening Set A

Mounting Accessories

Types	Part Number	Description
	9000.F-01B 1. 9000.CS-520 2. 9000.F-01B-01 3. 9000.F-01B-02 4. 9000.CS-304 5. 9000.SNS-03	Grid to Front Profile Attachment Grid Profile Fastening Set B
	9000.JA-01 1. 9000.-JA-01-01 2. 9000.SNS-03 3. 9000.FS-304	Corner Connector 90°
	9000.VA-01	Vertical Adjustment
	9000.LH-01	Lifting Eyebolt
	9000.PB-02	Mounting Bracket Front Profile Attachment

Mounting Accessories

Types	Part Number	Description
	9000.JS-311 9000.JS-317	Grid Junction Screw M3 X 11 M3 X 17
	9000.S-612 9000.S-616 9000.S-618 9000.S-625	Hexagonal Socket Head Bolt M6 X 12mm M6 X 16mm M6 X 18mm M6 X 25mm
	9000.FS-304	Flat Head Screw M3 X 4mm
	9000.NW-01	Nylon Washer Yellow
	9000.SLW-06	Ribbed Lock Washer M6

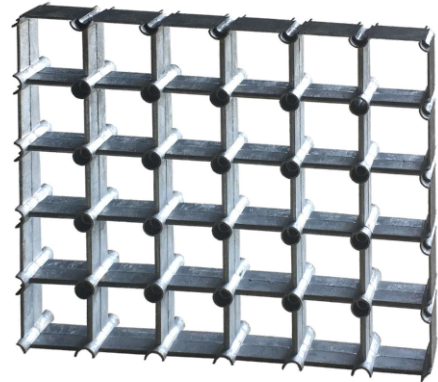
Accessories

Metal Grid

The mosaic framework depends on a metal grid made of Aluminum zinc Alloy furnished with mosaic tiles made of poly-carbonate. The essential matrix component measures 288x288 mm. It is especially appropriate for huge client interfaces and is self-supporting.

Design Goals

- Robust construction
- High load bearing capacity
- Grid pattern: 24x24, 24x48, 48x48 mm
- Mosaic tiles: polycarbonate, flame-retardant, self-extinguishing



Mosaic Tiles

Mosaic tiles shape the openly configurable surface of mosaic frameworks. Mosaic tiles can be engraved, or furnished with interchangeable content stripes.



The following sizes of mosaic tiles are available according to the IEC 61554 standard:

24x24 mm
24x48 mm
48x48 mm

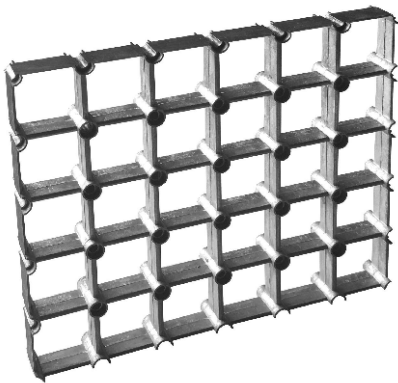
All mosaic tiles are available in RAL7032 (pebble grey), RAL7035 (light grey) or RAL 1015 (light ivory). Other colors on request.

The mosaic tiles are made of polycarbonate and are self-extinguishing in less than 10 seconds (V-0 according to UL94).

Specifications

High Temperature Resistance	100°C for one hour
Non-Hygroscopic	Water Absorption : 0.18%
Gap Observations	< 0.026 to 0.055mm
Suitability for drilling and filing	Yes
High Mechanical Strength	Tensile Load of 50N for 10 sec
Chemical Composition of Grid	Alu Zinc

The Grid Module



The WERNER grid system is the simple assist structure of the mosaic picture display. It is made of grid modules assembled together to provide the required panel length. Every module consists of a twelve through twelve matrix of 24 x 24 mm squares. It measures 288 x 288 mm (approximately 1 foot x 1 foot) with a intensity of thirteen mm. the fringe of the grid module is easy without a rough edges.

It's miles fabricated from precision die-solid zinc alloy. The fabric is corrosion-proof, lightweight and durable. The grid device can accommodate the standard WERNER tiles: 24 x 24mm, 24 x 48mm and forty eight x 48mm tiles; or any tile whose height and length is a more than one of 24mm.

The grid module can be assembled in any 90 degree orientation. No matter what size of graphic display is needed, the grid modules can be assembled to satisfy any design criterion.

Grid Assembly

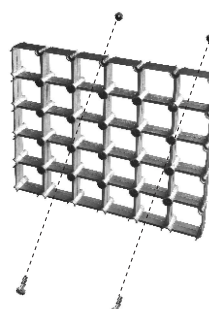
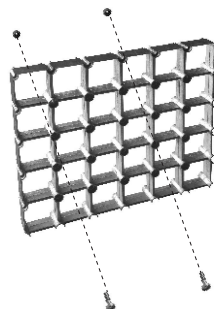
The connection of one module to another is refined utilizing the network intersection screw set 9000.JS-24. The screw 9000.JS-24-01 and the knurled nut 9000.JS-24-02 are used to secure intersections between neighboring modules. These intersections lie between the cross-lines of the network. Lattice intersection screws are put at each 6th intersection.

Joining Grid Modules

Place two grid modules one next to the other and adjust the external half network intersections of first module with that of the second one to shape circles. Secure the two modules by embedding a framework intersection screw into the 6th intersection. Place a nut into the same intersection at the back. Fix the screw utilizing a screwdriver. .

Proceed by adding a module to the highest point of the first and another to the highest point of the second. Secure these new ones with framework intersection screws and nuts, again at each 6th intersection. Subsequent to gathering the four modules, embed a last framework intersection screw at the intersection where the four modules meet. Every module will contain a quarter intersection which joins with its adjoining partners to frame a complete circle. Continue including modules the same path until the wanted size is achieved.

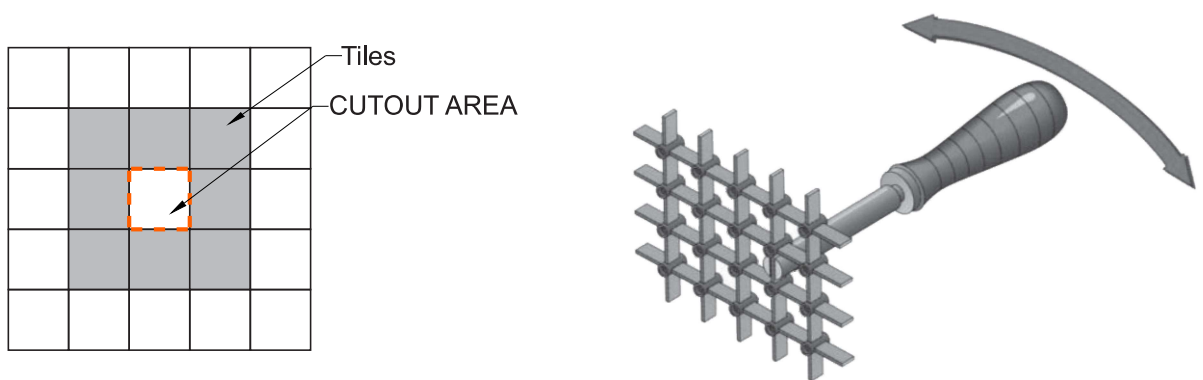
The joined grid modules result in a solid structure with no shortcoming at the joints. The general grid framework has no edges or holes, along these lines wiping out any light infiltration when mosaic tiles are mounted.



Cutting the Cross-lines

Cutting the cross-lines of the grid is required just for gadgets which require a complete opening. Before mounting an instrument, decide its area on the mosaic showcase and the zone it will possess. Expel the mosaic tiles which possess this space in addition to those which encompass it.

Select a cross-line which is situated inside within edge of the set pattern territory. Embed the cross-line into the breaker's space. With a movement opposite to the cross-line's course, move the breaker forward and backward until the cross-line breaks. Rehash this method for the staying cross-lines inside the border until the required set pattern territory is opened.

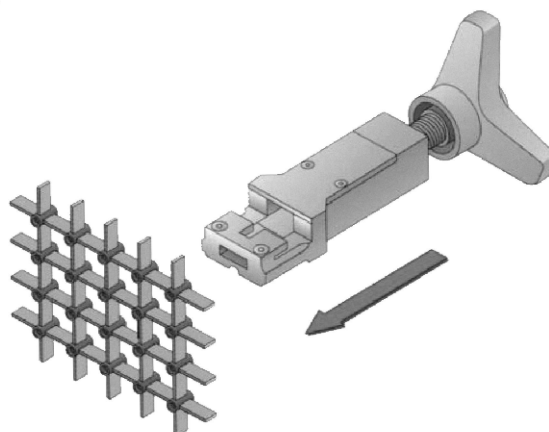


Removing half and quarter junctions

Once the cross-lines are evacuated, the opening will contain grid intersections parts and quarters along the internal sides and corners of the opening's edge, separately. Contingent upon the instrument, it might be important to trim these parts to accomplish straight edges and right edge corners. This is finished by utilizing the side furthermore, corner lattice intersectioncutters.

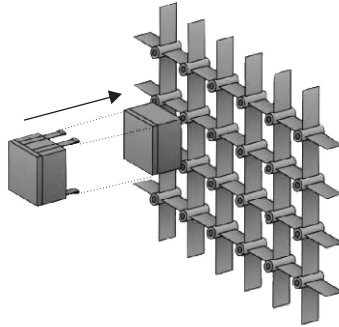
Turn the tool's handle clockwise to decrease the cutting guide's distance. Keep turning the handle until the junction half is removed. This process is repeated until all junction halves are cut.

To cut the quarter intersections at the corners, the corner intersection cutter is utilized after a comparative methodology.



Mosaic Tiles

The essential component of a realistic showcase is the mosaic tile. Mounted on WERNER mosaic grid platform, they are intended to be held solidly in position with the goal that vibration does not make them move or fall. They are secured to the lattice by four necessarily shaped legs. No screws, cams or clasp are required to hold the tiles set up. At the point when mounted, the tiles have no even or vertical development. Therefore, the surface of the mosaic has no edges or crevices.



Mosaic tiles are utilized to show static data or to hold gadgets. Set patterns can be made in the tile for any sort of selector switch, push catch or light. As a result of its measured configuration, a tile can be expelled from the framework and moved to whatever other spot on the grid matrix without influencing contiguous segments.

Composition

Mosaic tiles are made of excellent poly-carbonate with fire resistant and self-dousing properties. This material displays high warm resistance with a temperature rating of 100 °C (212 °F) constant and 125 °C (257 °F) irregular. Its surface is non-intelligent, hostile to static and smooth. It is exceptionally impervious to ultra-violet beams.

Dimension

Standard tiles come in the following sizes: 24 x 24 mm, 24 x 48 mm and 48 x 48 mm. The tile has a minimum tile body length of 15 mm (not including the length of its legs). It's tolerance is +0.0 mm and 0.06 mm. The gap between adjacent tiles on the grid is 0.1 mm and discontinuity between the corners of adjacent tiles is less than 0.2 mm.

Colors

The following standard tile colors are used as background:

- Grey
- Ivory
- Green
- Black
- White translucent

If the desired background color is not among the standard ones shown above, tiles can be painted to any color available on WERNER mosaic color chart.

The translucent tiles are utilized for annunciation. WERNER mosaic glowing or LED pointers are put behind these tile for backdrop illumination. Any window size can be obliged, essentially by consolidating tiles in the X and Y course.

Engraving

Static data of the framework to be emulated is spoken to by lines and images which are engraved on the tiles. The graphical format is created utilizing a Computer Aided Design (CAD) program. An electronic imprinting machine utilizes the CAD created record to deliver an exact representation of the format.

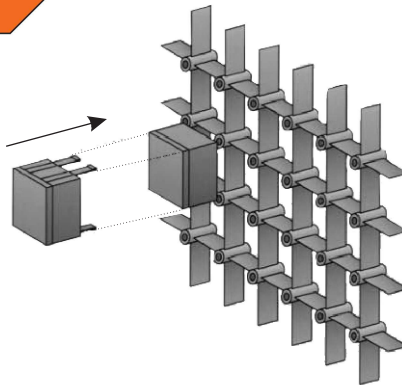
Every line and image is painstakingly composed at the focal point of tile (unless required generally) so that movement of this tile to another part of the realistic is effortlessly refined.

Painting

After the tiles are engraved, they are secured with a plastic film. This film is expelled for ranges which require the same paint shading. The tiles are then air-splash painted with a uniform covering. The veiling and painting procedure is proceeded until every one of the hues are connected to the tiles. The last stride includes filling the depressions of the lines and images with an uncommon changeless, non-glare ink. The paint and ink are perpetual and won't blur with time. The tiles are then wiped with a perfect clammy fabric. Overwhelming obligation solvents ought not be utilized to clean the tile surface.

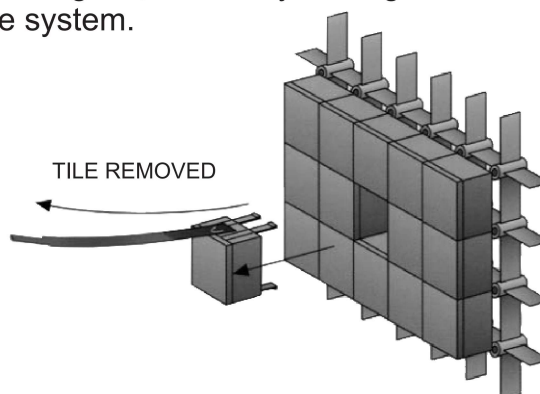
Inserting and Removing Tiles

Snapping in the Tile



Hold the tile with your thumb and pointer. Situate the tile so that the sides which contain the legs are the same sides which you are holding with the your thumb and pointer. Embed one of the legs into the lattice square. Delicately squeeze this leg against the network's cross-line and snap in the other leg. Whenever mounting the following tile, situate by 90 degrees contrasted with the one effectively mounted and take after the same system.

Removing the Tile



The tile can be expelled in two ways. Either from the back by pushing the tile out with your forefinger or by utilizing WERNER mosaic tile/light remover instrument 9000.RT-01. Embed the level segment of the tile remover between the two tiles. Ensure that the indented opening on the instrument's level segment is confronting the tile you need to expel. Once the device is embedded, tenderly force it straight out. This will snap out the tile.