

CONTELEC
CONTELEC
CONTELEC ENGRAVINGS LIMITED

Spring Lane • Willenhall • West Midlands • WV12 4JG • UK
TEL +44 (0) 1902 369307 • FAX +44 (0) 1902 369309 • E-mail engrave@contelec.co.uk

SACO Mosaic
Tiles
And
Supporting
Framework

SACO
CONTROLS
2011/10/04

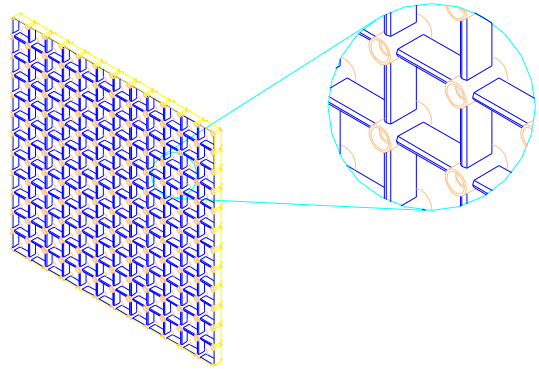
CONTELEC
CONTELEC ENGRAVINGS LIMITED

SACO
CONTROLS
2011/10/04

Spring Lane • Willenhall • West Midlands • WV12 4JG • UK
TEL +44 (0) 1902 369307 • FAX +44 (0) 1902 369309 • E-mail engrave@contelec.co.uk

The Grid Module

The SACO grid system is the basic support structure of the mosaic graphic display. It is made up of grid modules assembled together to produce the required panel size. Each module consists of a twelve by twelve matrix of 24 x 24 mm squares. It measures 288 x 288 mm (approximately 1 foot x 1 foot) with a depth of 13 mm. The perimeter of the grid module is smooth with no rough edges.



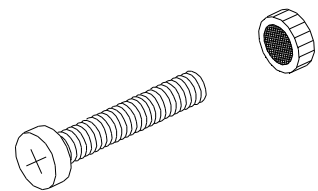
It is manufactured from precision die-cast zinc alloy, Zamac. The material is corrosion-proof, lightweight and durable. The grid system can accommodate the standard SACO tiles: 24 x 24mm, 24 x 48mm and 48 x 48mm tiles; or any tile whose height and length is a multiple of 24mm.

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 modules can be either straight or curved. An assembly of curved modules can allow a radius of curvature as small as four (4) meters.

Grid Assembly

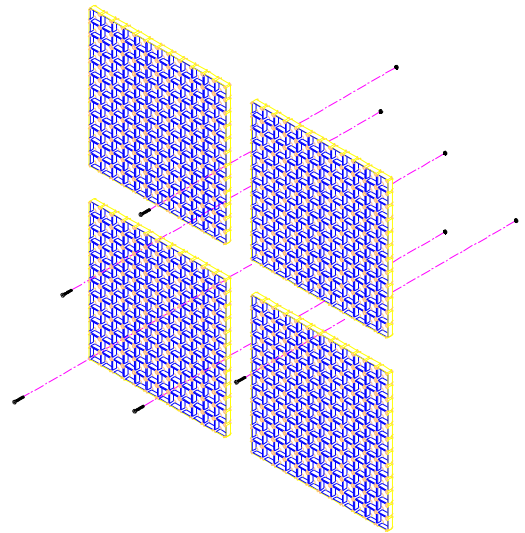
The attachment of one module to another is accomplished using the grid junction screw set #SJS-24. The screw #SJS-24-01 and the knurled nut #SJS-24-02 are used to secure junctions between adjacent modules. These junctions lie between the cross-lines of the grid. Grid junction screws are placed at every sixth junction.



Joining Grid Modules

Place two grid modules side-by-side and align the outer half grid junctions of first module with that of the second one to form circles. Secure the two modules by inserting a grid junction screw into the sixth junction. Place a nut into the same junction at the rear. Tighten the screw using a screwdriver.

Continue by adding a module to the top of the first and another one to the top of the second. Secure these new ones with grid junction screws and nuts, again at every sixth junction. After assembling the four modules, insert a last grid junction screw at the junction where the four modules meet. Each module will contain a quarter junction which joins with its adjacent counterparts to form a complete circle. Keep adding modules the same way until the desired size is attained.



The joined grid modules result in a strong structure with no weakness at the joints. The overall grid system has no ridges or gaps, thus eliminating any light penetration when mosaic tiles are mounted.

Grid Cutout

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 SACO CONTROLS grid tools which are listed below:



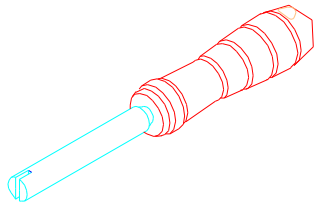
Tile/lamp remover tool #SRT-01

SACO
CONTROLS
2011/0000

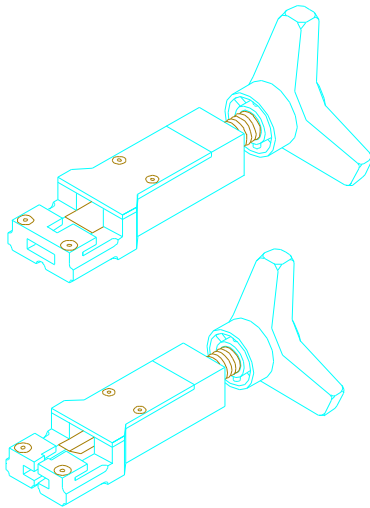
CONTELEC
CONTELEC ENGRAVINGS LIMITED

SACO
CONTROLS
2011/0000

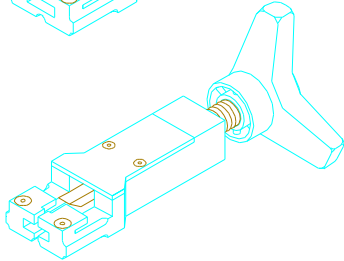
Spring Lane • Willenhall • West Midlands • WV12 4JG • UK
TEL +44 (0) 1902 369307 • FAX +44 (0) 1902 369309 • E-mail engrave@contelec.co.uk



Grid cross-line breaker #SGB-01



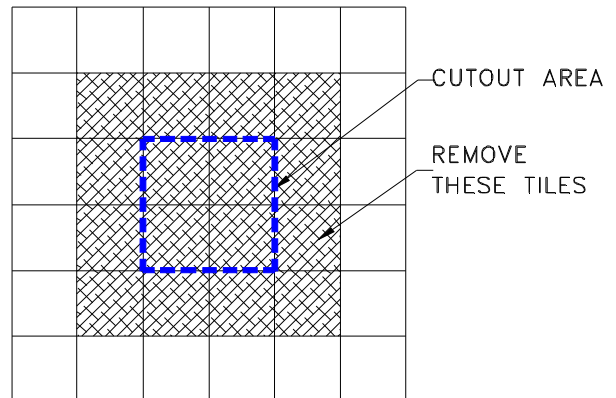
Side grid junction cutter #SGC-01

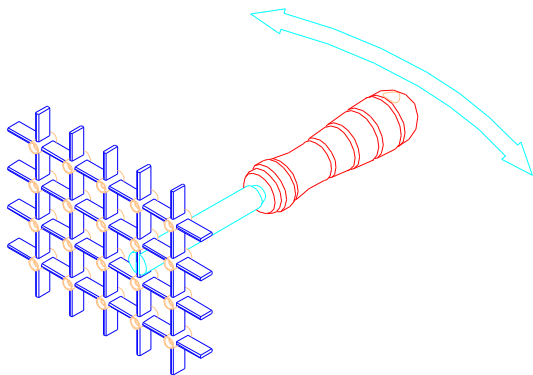


Corner grid junction cutter #SGC-02

Cutting the Cross-lines

Cutting the cross-lines of the grid is required only for devices which require a complete opening. Before mounting an instrument, determine its location on the mosaic display and the area it will occupy. Remove the mosaic tiles which occupy this space plus those which surround it.





Select a cross-line which is located within the inside perimeter of the cutout area. Insert the cross-line into the breaker's slot. With a motion perpendicular to the cross-line's direction, move the breaker back and forth until the cross-line breaks. Repeat this procedure for the remaining cross-lines inside the perimeter until the required cutout area is opened.

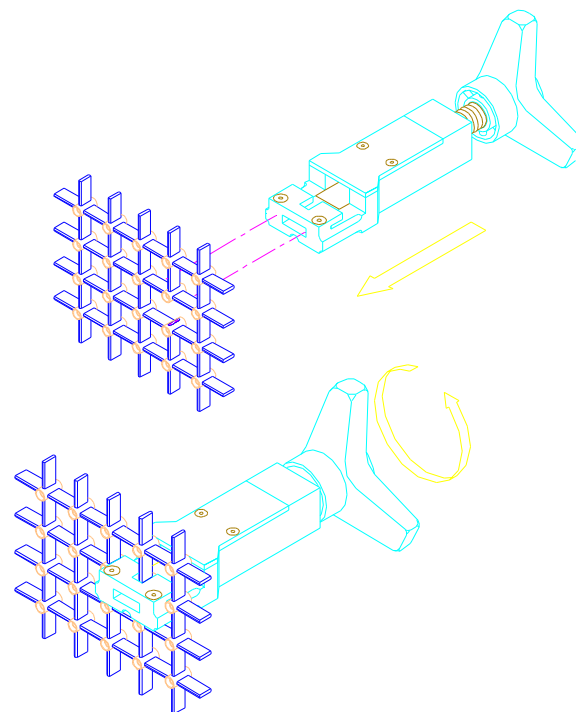
Removing half and quarter junctions

Once the cross-lines are removed, the opening will contain grid junction halves and quarters along the inner sides and corners of the opening's perimeter, respectively. Depending on the instrument, it may be necessary to trim these parts to attain straight edges and right angle corners. This is done by using the side and corner grid junction cutters.

To remove the unwanted junction half, insert the side junction cutter into the opening so that the grid junction lies inside the tool's cutting guide.

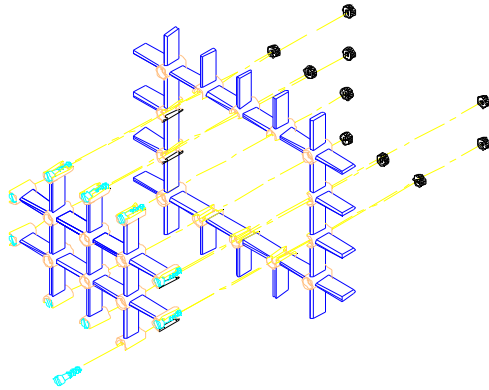
Turn the tool's handle clockwise to decrease the cutting guide's distance. Keep turning the handle until the junction half is removed. This process is repeated until all junction halves are cut.

To cut the quarter junctions at the corners, the corner junction cutter is used following a similar procedure.



Grid Restoration

restored
and grid
opening.
residual grid
from SACO.
mosaic tiles
grid section
junction
of the new



Cutouts can be easily simply by using grid junction screws sections cut to the size of the. These grid sections may be cut from modules or may be ordered directly. To close an opening, remove the which surround the opening. Place a into the opening. Use the grid screws to secure the junction halves section with that of the existing grid.

SACO
CONTROLS
2017/00000

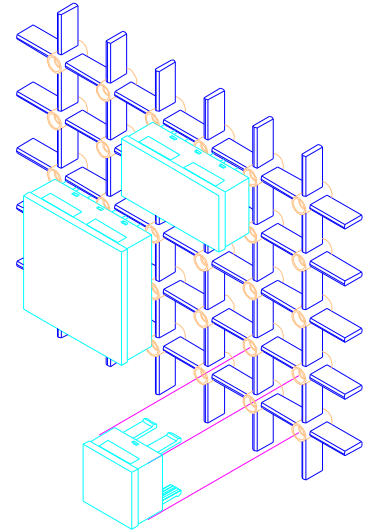
CONTELEC
CONTELEC ENGRAVINGS LIMITED

SACO
CONTROLS
2017/00000

Spring Lane • Willenhall • West Midlands • WV12 4JG • UK
TEL +44 (0) 1902 369307 • FAX +44 (0) 1902 369309 • E-mail engrave@contelec.co.uk

Mosaic Tiles

The basic element of a graphic display is the mosaic tile. Mounted on SACO CONTROLS grid platform, they are designed to be held firmly in position so that vibration does not cause them to shift or fall. They are secured to the grid by four integrally molded legs. No screws, cams or fasteners are required to retain the tiles in place. When mounted, the tiles have no horizontal or vertical movement. Consequently, the surface of the mosaic has no ridges or gaps.



Mosaic tiles are used to display static information or to hold devices. Cutouts can be made in the tile for any kind of selector switch, push button or light. Because of its modular design, a tile can be removed from the grid and relocated to any other place on the grid matrix without affecting adjacent components.

Composition

Mosaic tiles are made of high quality polycarbonate (MAKROLON) with flame retardant and self-extinguishing properties. This material exhibits high thermal resistance with a temperature rating of 100 °C (212 °F) continuous and 125 °C (257 °F) intermittent. Its surface is non-reflective, anti-static and smooth. It is highly resistant to ultra-violet rays.

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
- charcoal
- black
- white translucent
- red translucent

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

The translucent tiles are used for annunciation. SACO CONTROLS incandescent or LED indicators are placed behind these tile for backlighting. Any window size can be accommodated, simply by combining tiles in the X and Y direction.

Engraving

Static information of the system to be mimicked is represented by lines and symbols which are engraved on the tiles. The graphical layout is generated using a Computer Aided Design (CAD) program. An electronic engraving machine uses the CAD generated file to produce a precise representation of the layout.

Each line and symbol is carefully designed at the center of tile (unless required otherwise) so that relocation of this tile to another part of the graphic is easily accomplished.

Painting

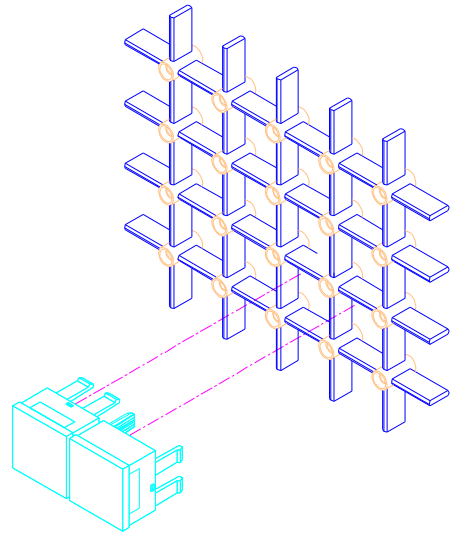
After the tiles are engraved, they are covered with a plastic film. This film is removed for areas which require the same paint color. The tiles are then air-spray painted with a uniform coating. The masking and painting process is continued until all the colors are applied to the tiles. The final step involves filling the grooves of the lines and symbols with a special permanent, non-

glare ink. The paint and ink are permanent and will not fade with time. The tiles are then wiped with a clean damp cloth. Heavy-duty solvents should not be used to clean the tile surface.

Inserting and Removing Tiles

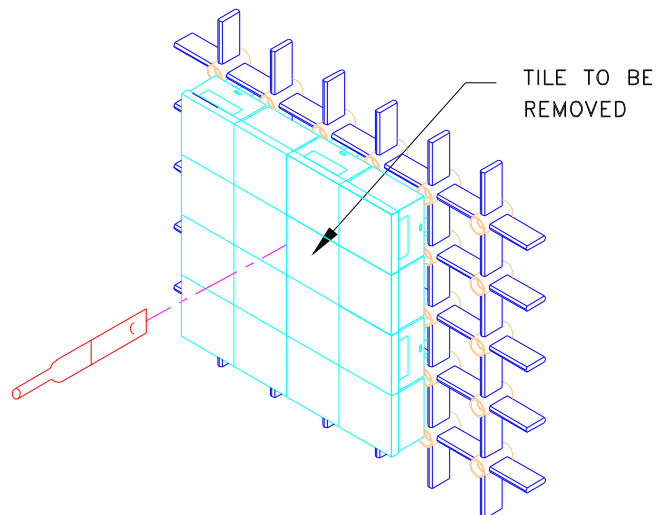
Snapping in the Tile

Hold the tile with your thumb and index finger. Orient the tile so that the sides which contain the legs are the same sides which you are holding with your thumb and index finger. Insert one of the legs into the grid square. Gently press this leg against the grid's cross-line and snap in the other leg. When mounting the next tile, orient by 90 degrees compared to the one already mounted and follow the same procedure.

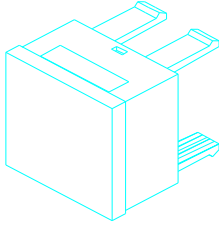
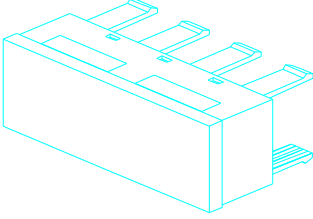
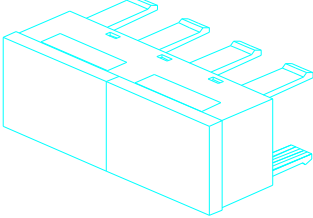
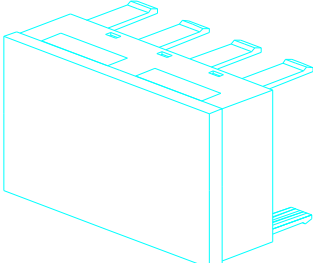
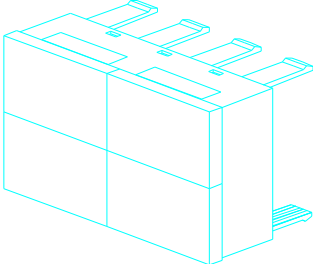


Snapping out the Tile

The tile can be removed in two ways. Either from the back by pushing the tile out with your index finger or by using SACO CONTROLS tile/lamp remover tool #SRT-01. Insert the flat portion of the tile remover between the two tiles. Make sure that the indented slit on the tool's flat portion is facing the tile you want to remove. Once the tool is inserted, gently pull it straight out. This will snap out the tile.



Tile Types

Tile	Color	Part Number
24 x 24 mm 	Grey Ivory Green Charcoal Black White Translucent Red Translucent	ST-2424GR ST-2424IV ST-2424GN ST-2424CH ST-2424BK ST-2424WT ST-2424RT
24 x 48 mm 	Grey Ivory Green Charcoal Black White Translucent Red Translucent	ST-2448GR ST-2448IV ST-2448GN ST-2448CH ST-2448BK ST-2448WT ST-2448RT
24 x 48 mm with simulated line 	Grey Ivory Green Charcoal Black White Translucent	ST-2448GR2 ST-2448IV2 ST-2448GN2 ST-2448CH2 ST-2448BK2 ST-2448WT2
48 x 48 mm 	Grey Ivory Green Charcoal Black White Translucent	ST-4848GR ST-4848IV ST-4848GN ST-4848CH ST-4848BK ST-4848WT
48 x 48 mm with simulated line 	Grey Ivory Green Charcoal Black White Translucent	ST-4848GR2 ST-4848IV2 ST-4848GN2 ST-4848CH2 ST-4848BK2 ST-4848WT2

Profiles

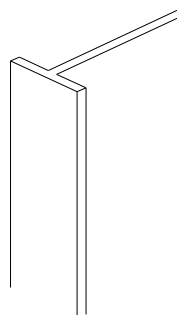
A mosaic system can be constructed for panel mounting or as a free-standing unit. The framework which supports the mosaic grid system is constructed of extruded aluminum profiles. These profiles include front and rear support profiles.

Front Profiles

Three basic types of front supporting profiles are available:

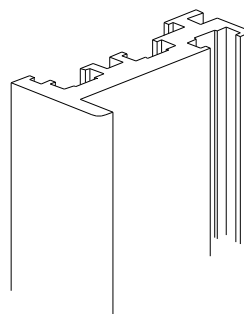
SP-100

Used for free-standing units

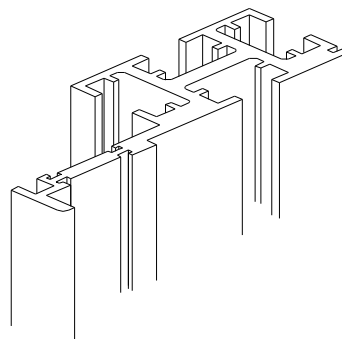


SP-200

Used for small panel
mount mosaics



SP-300
Used for large panel
mount mosaics



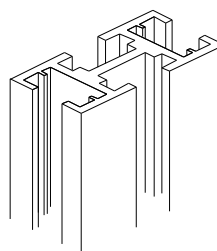
The front support profiles are cut to the appropriate lengths depending on the size of the grid platform. They are secured to the grid system by grid-profile fastener sets and zinc-plated steel connectors. No drilling, tapping or welding is required .

Support Profiles

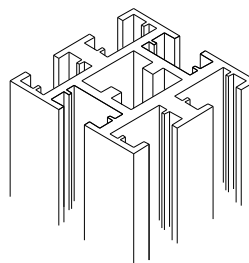
Various types of support profiles can be added at the rear of the front profile to add reinforcement to the front profile or to mount terminal blocks, wire ducts, electronic circuit boards or any rack-mounted equipment. Support profiles contain slots which are used to slide pillars. The pillars are used to secure the support profile to either the front profile or mosaic grid.

The different types of support profiles are shown below:

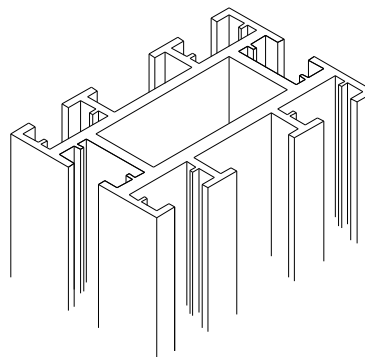
SP-700
24 x 48 mm



SP-800
48 x 48 mm

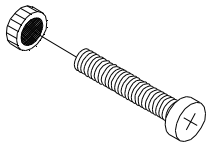
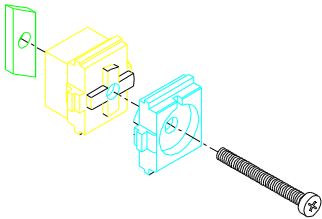


SP-900
48 x 72 mm



Mounting Accessories

Common mounting accessories are used throughout the assembly to provide flexibility in future modifications and additions. Some of the mounting accessories are shown below:

Figure	Part Number	Description
	SJS-24	Grid Junction Screw Set <i>Used for securing grid modules together.</i>
	SF-01A	Grid-Profile Fastening Set A <i>Used for securing front profiles to grids.</i>
	SP-120 SP-180	Pillar Type A <i>Used for securing support profiles to the grid system.</i>

Mounting Accessories

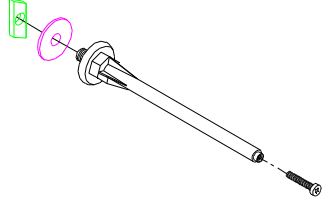
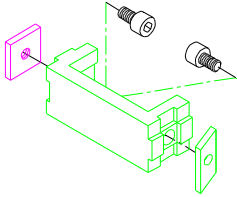
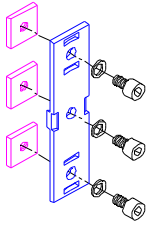
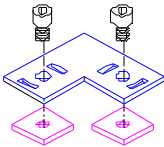
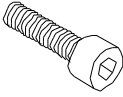
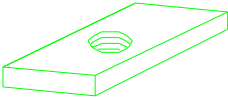
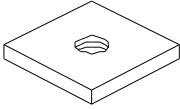
		
	<p>SP-60U</p>	<p>Pillar Type B <i>Used for securing support profiles to front profiles.</i></p>

Figure	Part Number	Description
	<p>SPC-01</p>	<p>Profile Connector <i>Used for securing profiles together.</i></p>
	<p>SJA-03</p>	<p>Joint Angle <i>Used for securing profiles together.</i></p>
	<p>SS-612</p>	<p>Hexagonal Socket Head Screw M6 x 12mm</p>

Mounting Accessories

	SS-616 SS-618 SS-625	M6 x 16 mm M6 x 18 mm M6 x 25 mm
	SSN-03 SSN-05 SSN-06 SSN-08	Oblique Slide Nut M3 M5 M6 M8
	SSNS-03 SSNS-06	Square Slide Nut M3 M6