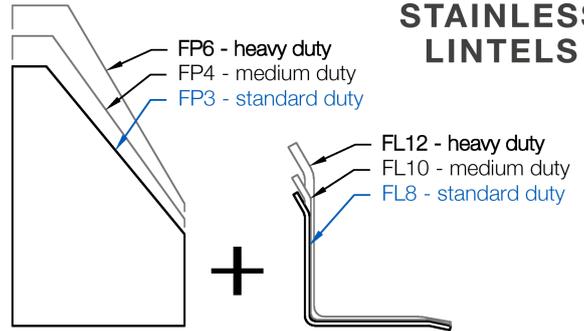


# FLP System - overview



**STAINLESS LINTELS**

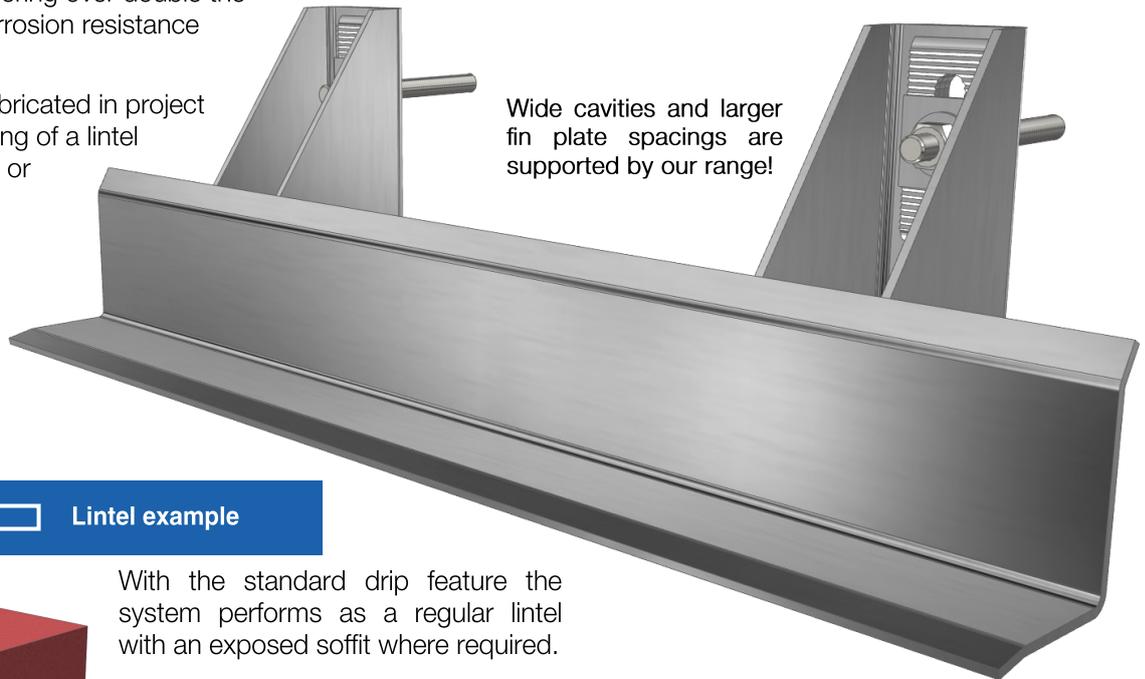
The FLP system consists of 3 increasing duties of fin plate that can be matched to corresponding duties of brick support lintel as shown right. Or - to achieve longer spans between fin plates, the FP3 & FP4 fin plates may be combined with heavier duty lintels.



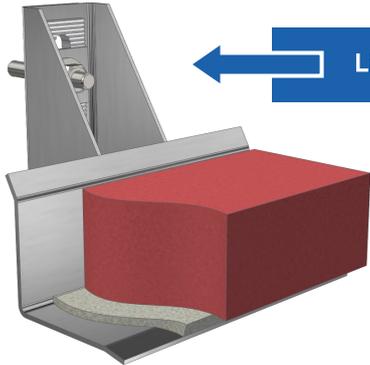
The standard system allows for masonry support shelves to be stood off from a concrete or steel inner frame over a cavity/gap of up to 200mm, and wider can be accommodated on request.

The system is fully welded in 1.4003 stainless as standard ( 50% stronger than 304 stainless, with no friction or gravity-locking connections ). Duplex stainless steel (1.4162) is also available for demanding applications, offering over double the strength and superior corrosion resistance compared to 304.

The system is typically fabricated in project specific modules consisting of a lintel length or corner with two or more fin plates already welded on and ready for site installation.



Wide cavities and larger fin plate spacings are supported by our range!

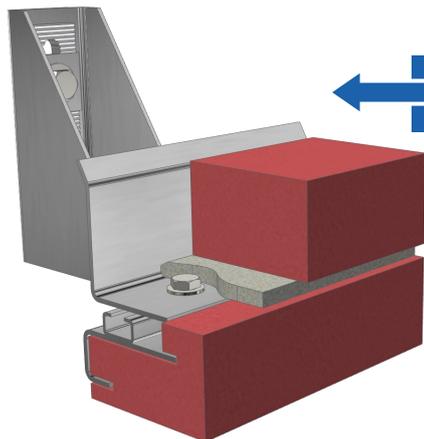


Lintel example

With the standard drip feature the system performs as a regular lintel with an exposed soffit where required.

**Brick support application example**

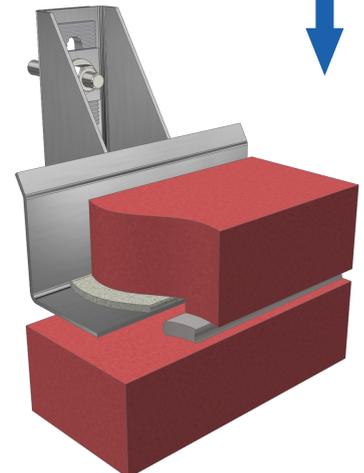
The system can be specified with a shorter leaf support and no drip feature for intermediate brick support applications, such as shown below supporting a course of pistol bricks.



Feature brick application example

The FLP system can be specified to allow for feature brick or soffit modules, in a wide range of designs (all fully mechanically fixed) to be manufactured off-site and bolted directly to the underside - saving on site labor and ensuring flawless features and soffits.

Refer to our separate flier for details of our mechanically fixed feature brick modules...



# FLP System - Load Capacities

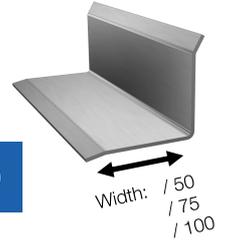


**STAINLESS LINTELS**

To provide solutions for a wide range of cavity applications and load demands, we offer 3 duties of shelf lintels and 3 duties of fin plate.

Lintel and Fin Plate are specified together to form one of 5 possible duty combinations, each of which is available in a wide range of standard cavity sizes with many options.

The load tables below show the capacities of a selection of the options available, critical information for capacity calculation is the **spacing ('span')** between the fin plate fixings, the size of cavity the fin plate must bridge, and the **thickness of masonry** supported:



**To specify the correct duty:**

- i. Determine your desired cavity size and fin plate spacing,
- ii. Determine your unfactored load,
- iii. Pick a lintel/fin-plate combination below for which both lintel and fin plate capacities exceed your load.

**Compatible Combinations**

- FL8 lintel + FP3 fin plate
- FL10 lintel + FP3 fin plate
- FL10 lintel + FP4 fin plate
- FL12 lintel + FP4 fin plate
- FL12 lintel + FP6 fin plate

**Lintels for use with Fin Plates - load capacity table ( kN/m )**

		nominal lintel width (mm) →								
		FL8 Lintel ( Standard Duty )			FL10 Lintel ( Medium Duty )			FL12 Lintel ( Heavy Duty )		
		/ 50	/ 75	/ 100	/ 50	/ 75	/ 100	/ 50	/ 75	/ 100
span between fin plate fixings ( mm )	400	6.8	6.5	6.5	15.3	15.0	13.8	37.3	34.8	34.5
	600	5.8	5.2	5.3	12.0	11.7	11.2	28.3	25.8	26.2
	800	4.9	4.9	4.5	8.9	9.4	9.1	20.9	20.6	21.5
	1000	3.5	4.2	4.0	6.3	7.0	7.2	16.6	15.6	17.7

e.g. FL12 /100 is an FL12 (heavy duty) lintel section designed for 100mm (4in) thick brickwork.  
Note: all items are manufactured to order, so any other widths are also possible.

Tip: Larger spans can reduce installation effort, and avoid obstructions on site, but carry less load - reduce the span to increase load capacity.

\*See page 4 for specification of installation lengths (as opposed to span)



**Fin Plates - load capacity table ( kN/m )**

		span between fixings (mm) →											
		FP3 fin plate ( Standard Duty )				FP4 fin plate ( Medium Duty )				FP6 fin plate ( Heavy Duty )			
		400	600	800	1000	400	600	800	1000	400	600	800	1000
nominal cavity size ( mm )	<100	15.3	10.8	8.1	6.5	27.5	18.3	13.8	11.0	34.0	25.3	21.0	17.6
	100-109	15.3	10.8	8.1	6.5	27.5	18.3	13.8	11.0	34.0	25.3	21.0	17.6
	110-119	15.3	10.2	7.6	6.1	26.3	17.5	13.1	10.5	34.0	25.3	21.0	17.6
	120-129	14.5	9.7	7.3	5.8	25.0	16.7	12.5	10.0	34.0	25.3	21.0	17.6
	130-139	13.8	9.2	6.9	5.5	23.8	15.8	11.9	9.5	34.0	25.3	21.0	17.6
	140-149	12.8	8.5	6.4	5.1	22.5	15.0	11.3	9.0	34.0	25.3	21.0	16.8
	150-159	12.0	8.0	6.0	4.8	21.3	14.2	10.6	8.5	34.0	25.3	20.0	16.0
	160-169	11.3	7.5	5.6	4.5	20.0	13.3	10.0	8.0	34.0	25.3	19.0	15.2
	170-179	10.3	6.8	5.1	4.1	18.8	12.5	9.4	7.5	34.0	24.0	18.0	14.4
	180-189	9.5	6.3	4.8	3.8	17.5	11.7	8.8	7.0	34.0	22.7	17.0	13.6
	190-199	8.8	5.8	4.4	3.5	16.3	10.8	8.1	6.5	32.0	21.3	16.0	12.8
200-209	8.0	5.3	4.0	3.2	15.0	10.0	7.5	6.0	30.0	20.0	15.0	12.0	

e.g. When used with a matching lintel below, the fin plates are suitable for cavities in the size ranges shown, with a slightly larger gap between the lintel back and masonry for cavities at the higher end of a specific nominal size range.

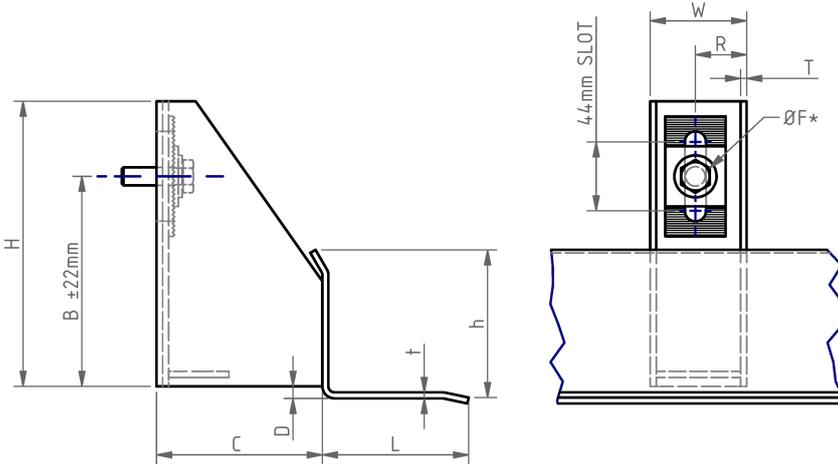
The figures shown (in kN/m) are permissible unfactored applied loads and include a load factor of approximately 1.6 (or greater) on material Rp0.2% value. Deflection is <1/200th of span for all loads shown, for larger spans deflection limit is typically reached before stress limit. Loads are applied using a line of action 20mm onto the leaf support from the back of the lintel. Deflection is the total deflection at the worst location, including twisting effect, and assumes no masonry composite action assistance. The stated loads are valid for only stainless steels type SS370 (1.4003) (default specification) and 1.4162 duplex stainless (optional, specified for exposed applications).

1.4162 duplex stainless steel - double the strength of 304 with better corrosion resistance - specify for exposed applications  
Call 01206 792001 for more information or visit [www.stainless-lintels.co.uk](http://www.stainless-lintels.co.uk)

# FLP System - Dimensions



**STAINLESS LINTELS**



The standard fixing arrangement features a 44mm slot with welded serrated rectangular slot plate and matching serrated washer to provide slip-free vertical adjustment on installation.

All items are manufactured to order, so exact cavity sizes and other dimensional variations are easily accommodated.

## Fin plates - Dimensions

	FP3 std.	FP4 med.	FP6 Heav.
H =	170	190	210
B =	120	140	160
W =	62	64	76
R =	32	34	41
T =	3.0	4.0	6.0

dimensions in mm

Deeper fin plates may be manufactured to increase the drop height ( B ) from the fastener to the lintel with the same load capacity, but reduced heights ( B ) will have reduced load capacity.

Applicable cavity size range ( mm )

	FP3 ( Standard Duty )			FP4 ( Medium Duty )			FP6 ( Heavy Duty )		
	spec.	Mass	C	spec.	Mass	C	spec.	Mass	C
80-89	/ 80	0.95	72	/ 80	1.34	70	/ 80	2.23	68
90-99	/ 90	1.00	82	/ 90	1.42	80	/ 90	2.36	78
100-109	/ 100	1.06	92	/ 100	1.50	90	/ 100	2.50	88
110-119	/ 110	1.11	102	/ 110	1.58	100	/ 110	2.63	98
120-129	/ 120	1.16	112	/ 120	1.66	110	/ 120	2.76	108
130-139	/ 130	1.22	122	/ 130	1.74	120	/ 130	2.90	118
140-149	/ 140	1.27	132	/ 140	1.82	130	/ 140	3.03	128
150-159	/ 150	1.34	142	/ 150	1.91	140	/ 150	3.16	138
160-169	/ 160	1.41	152	/ 160	2.01	150	/ 160	3.30	148
170-179	/ 170	1.47	162	/ 170	2.11	160	/ 170	3.46	158
180-189	/ 180	1.54	172	/ 180	2.21	170	/ 180	3.62	168
190-199	/ 190	1.61	182	/ 190	2.31	180	/ 190	3.79	178
200-209	/ 200	1.68	192	/ 200	2.41	190	/ 200	3.96	188

dimensions in kg & mm

Smaller, larger, and specific intermediate sizes are all possible!

## Fin plates - fixings requirement

	FP3	FP4	FP6
Fixing size (ØF*):	M12	M12	M16
Tensile Capacity <sup>(1)</sup> :	14.7 kN	21.2 kN	34.1 kN
Design Resistance <sup>(2)</sup> :	20.3 kN	32.5 kN	56.9 kN

\* A form C washer must be used with the selected fastener, the washer and fastener are not provided with the fin plates, the fastener may be specified by the responsible site engineer to suit the site requirements - or we can advise.

<sup>(1)</sup>Fixing tensile capacity shown includes a factor of 1.6 over the maximum applied unfactored tensile load.

<sup>(2)</sup>Design resistance shown is the tensile value given by the fastener manufacturer, accounting for combined tension and shear in the actual application, and assumes application of a partial load factor  $\gamma = 1.4$

## Lintels for use with fin plates - Dimensions

	FL8 ( Standard Duty )			FL10 ( Medium Duty )			FL12 ( Heavy Duty )		
	-50	-75	-100	-50	-75	-100	-50	-75	-100
L =	45.0	70.0	95.0	47.0	72.0	97.0	47.0	72.0	97.0
h =	88.0	88.0	88.0	99.0	99.0	99.0	120.0	120.0	120.0
t =	3.0	3.0	3.0	4.0	4.0	4.0	6.0	6.0	6.0
D =	7.0	7.0	7.0	8.0	8.0	8.0	12.0	12.0	12.0
mass =	2.98	3.55	4.13	4.32	5.08	5.85	7.28	8.43	9.58

dimensions in mm & kg/m

\* Intermediate and wider leaf support widths are also possible \*

1.4162 duplex stainless offers the best thermal performance of any lintel steel: 14.9 W/m.K vs >64 W/m.K for typical galvanized steel !!  
Call 01206 792001 for more information or visit [www.stainless-lintels.co.uk](http://www.stainless-lintels.co.uk)

# FLP System - Specification



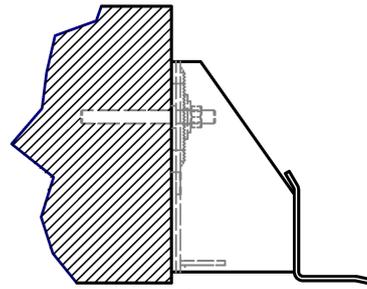
The FLP system must be ordered in modules consisting of a lintel with two or more fin plates attached (fully welded).

These modules are typically offered up and fixed on site when the masonry reaches the required level. They may be fixed to cast-in channels at the correct height or drilled through to locate and install fixings into masonry or steel.

A complete specification consists of the desired fin plate and lintel specification, together with a drawing or sketch showing the lintel lengths and fin plate locations along the lengths. Our technical staff can produce these drawings to suit client provided building frame plans.

Due to the large range of possible inner frame geometries and materials we do not supply the required fixing bolts or form C washers, but we can recommend appropriate fasteners on a case by case basis. A loose serrated washer is provided and **MUST** be installed with the fastener to prevent the fin plate from slipping in it's height adjustment slot.

The notes on this page highlight the most important system design, specification and installation considerations:



Fin plate support

To achieve the stated load capacities, the fin plates must bear squarely onto a flat solid concrete or steel inner structure over the full length 'B' shown on the previous page. Special version taller (drop) fin plates may overhang after length B.

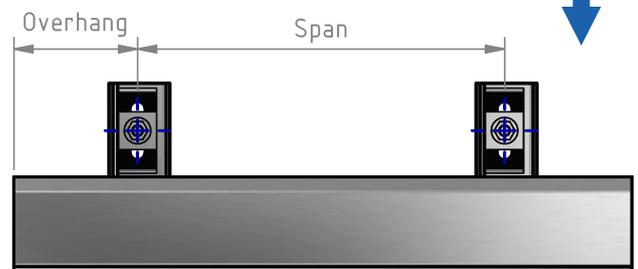
## Corner applications



Corners (internal or external) are readily accommodated either by two independent linear FLP units with cantilever sections that meet, or by a purpose fabricated corner section.

In either case, the lintel section on either side of the corner must have at least two fin plates, and the cantilever geometry must observe the rules for overhanging sections below:

## Cantilevered sections



Cantilevered (overhanging) segments are permissible but are limited in length to the lesser of the following two requirements:

1. One third of the maximum permissible span for the applied load and selected FP/FL combination, and
2. Half of the adjacent span (as shown above).

(Refer to the load tables on page 3)

## Size considerations

FLP modules are typically installed manually, so the module lengths are usually dictated by weight.

The component weights are shown on page 3.

Heavy duty systems are too heavy for manual handling in other than short lengths - a site crane may be required.

Any length of module is possible to manufacture if required - longer lengths of lighter duty modules will be dispatched attached to a timber beam to help avoid damage during transport and to aid installation. Awkward shapes may be similarly fixed to a timber frame.

# FLP - Feature Brick Options

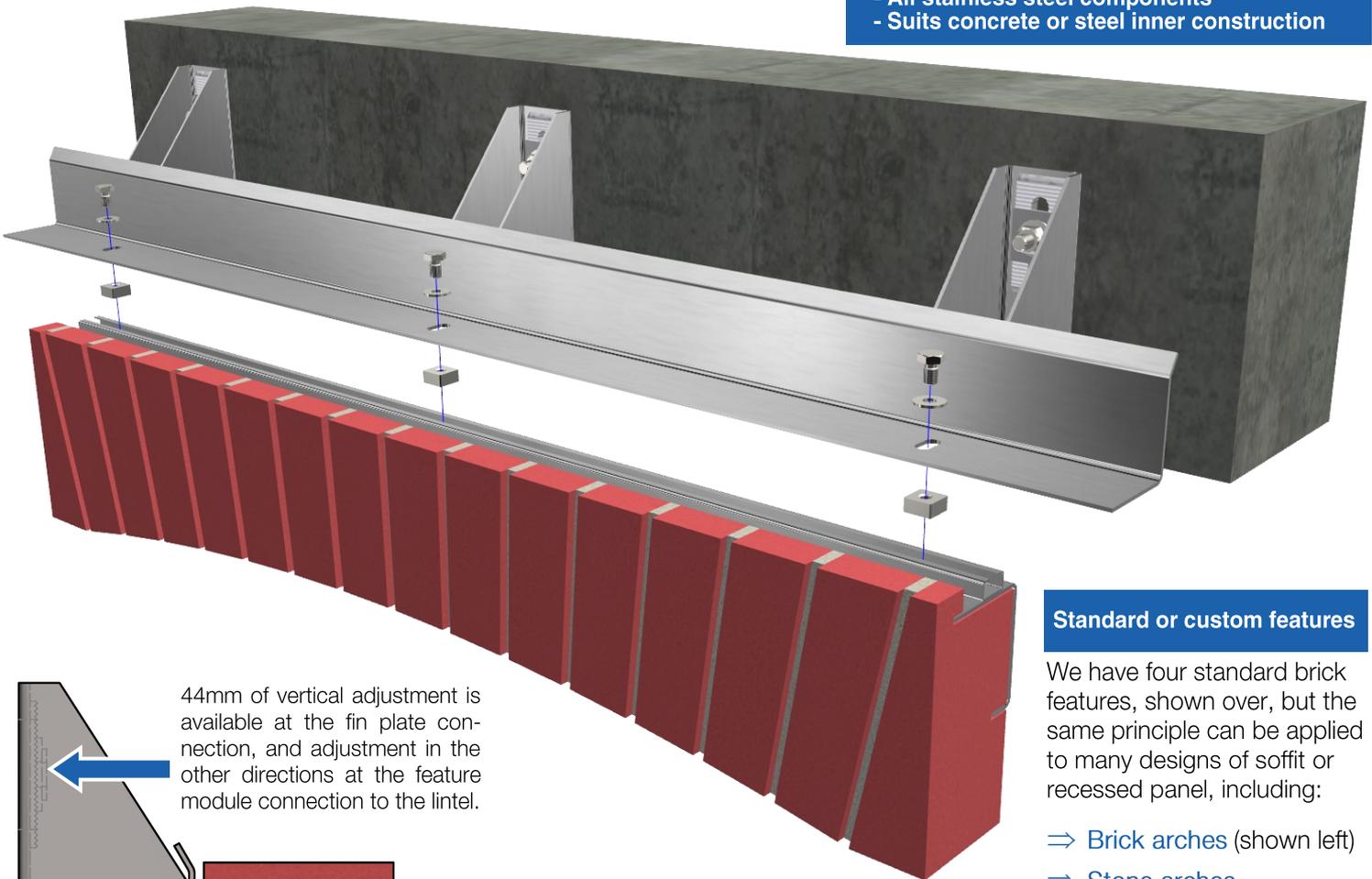


The FLP system can be combined with factory-made feature brick modules, allowing rapid on-site installation of pre-formed architectural features. The feature bricks in these modules are fully mechanically retained (not reliant on adhesives) which, together with the absence of flammable materials, allows for BRE compliant application at heights above 18m. (*Patent app. GB 19 07827.8*)

The short toe “/75” version of the required support angle lintel is specified (the drip feature is not required) and fixing slots are added in the lintel at each fin plate - and also between fin plates for applications with larger fin plate spacings.

Once the lintel system is installed and adjusted to the correct height, the feature module is offered up, aligned, and secured to the underside of the lintel. Slots in the lintel combined with a fixing channel on top of the feature provide adjustment on plan in both directions.

- All stainless steel components  
- Suits concrete or steel inner construction

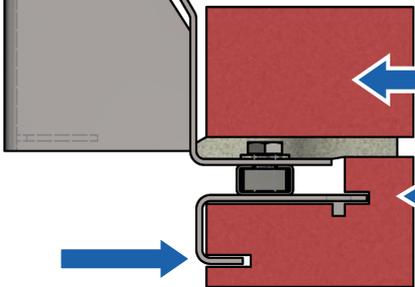


**Standard or custom features**

We have four standard brick features, shown over, but the same principle can be applied to many designs of soffit or recessed panel, including:

- ⇒ Brick arches (shown left)
- ⇒ Stone arches
- ⇒ Stone ‘lintels’
- ⇒ Reconstituted stone
- ⇒ Brick feature panels
- ⇒ Proud/recessed courses

44mm of vertical adjustment is available at the fin plate connection, and adjustment in the other directions at the feature module connection to the lintel.



Standard bricks can be installed above the system, no need to manage specially cut pistol bricks on-site.

Pistol feature and retaining slots are machined into the feature bricks at the factory, and the feature typically supplied complete with mortar.\*

Our rigid 3.0mm stainless steel hanger bar mechanically retains each feature brick in two or more locations, and mortar engages a slot in the bricks with key features on the hanger to prevent the bricks from ever moving. This *patent pending* system does not rely on flammable adhesives for long term security.

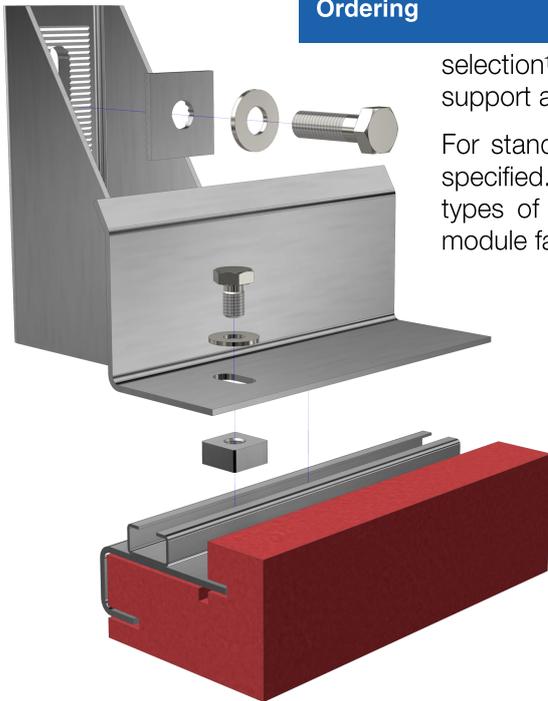
\* The feature module is typically supplied with deep mortar joints, which require pointing on site so as to achieve a perfect colour match with the site mortar.

Similarly, for features made of the same brick as the surrounding, bricks from the actual batch used on site would normally be requested by the factory to ensure a match.

# FLP - Feature Brick Options



**STAINLESS LINTELS**



## Ordering

The feature brick module can be specified independently of the fin plate and lintel selection<sup>1</sup> - provided the lintel is produced with the ' /75' leaf support and pre-formed slots ready to mount the feature module.

For standard feature options (1-4 below) only the length and size of brick need be specified. For arches, recessed panels, variations on standard types 1-4, and other types of feature, an architect's drawing or sketch is required. Our corresponding module fabrication drawing will then be issued to the client for dimensional approval.

## Installation notes

The standard FLP system allows for up to 44mm of

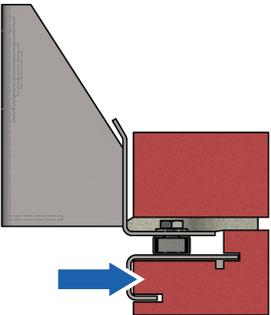
vertical adjustment, the fastener must be selected to match the substrate and applied loads, and must always be installed with the serrated square washer engaged with the fin plate and form-C washer.

The slots in the lintel provide 12mm of cavity adjustment, and the feature is secured to the lintel with grade A2 stainless M10x16 hex head machine screws (standard torque 16 Nm) with form-C washers.

Square nuts are used in the fixing channel of the hanger, providing unlimited adjustment, but upward facing tee-bolts may also be used.

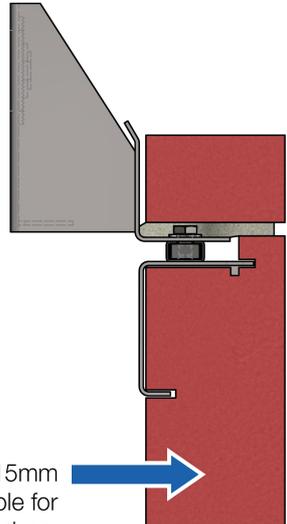
The M10 fixings and square nuts are provided with the feature module.

### Standard TYPE 1



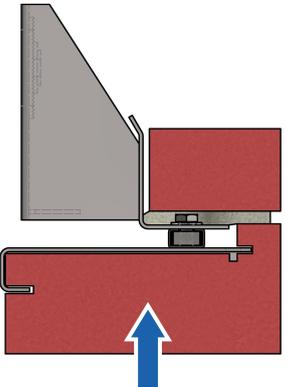
Typical 'stretcher bond' feature module, 102x65mm, adaptable to suit almost any brick or stone size.

### Standard TYPE 2



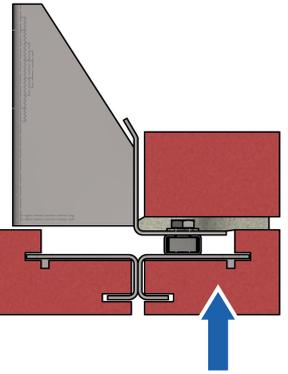
'Soldier course', 102x215mm shown, but similarly adaptable for most brick or stone unit sizes.

### Standard TYPE 3



'Header course' feature module, 215x102mm shown, but adaptable to suit almost any brick or stone size.

### Standard TYPE 4



'Double stretcher' feature module, for deeper soffits, 215x65mm shown, but adaptable to other masonry sizes.

## Materials

The steel hanger forming the backbone of the brick feature is supplied in 1.4003 stainless steel as standard. For severe exposure applications, or for applications where the stainless steel is on display for aesthetic reasons, we specify 1.4162 grade duplex stainless steel. Fasteners are grade A2/304 stainless or better, and the hanger fixing channel is 304 stainless. Features in the top of the hanger plate, in conjunction with the vertical slot in the feature bricks, provide a mortar key to lock the bricks in place; the bricks are fixed indefinitely without reliance on flammable adhesives (*patent pending: GB 19 07827.8*).

<sup>(1)</sup> In the case of the FL12 lintel section, the additional thickness of this heavy duty lintel will require a deeper pistol in the feature brick, or cut bricks for the first course above the lintel. This is typically accounted for in the feature brick module design at time of order.

1.4162 duplex stainless steel - double the strength of 304 with better corrosion resistance - specify for exposed applications  
Call 01206 792001 for more information or visit [www.stainless-lintels.co.uk](http://www.stainless-lintels.co.uk)