ISCHEBECK® TITAN

FORMTECH concrete forms, inc.

Slab forming system ISCHEBECK HV

The aluminum slab formwork system

- Can be adapted to fit any plan layout with just four main components:
  - main beam
  - secondary beam
  - HV panel
  - drop-head
- Combines the advantages of panel and beam slab formwork
- Excellent efficiency
- System fits tight against walls in all directions
- Simple handling
- Safe working: erecting and stripping formwork from a safe position below according to the regulations

CONCRETE FORMING AND SUPPORTING SYSTEMS

The system

HV is the tried-and-tested aluminum slab forming system that allows every formwork task to be carried out quickly and economically without time-consuming and costly adaptation or make-up panels.

HV is a modular system that is not dependent on crane handling.

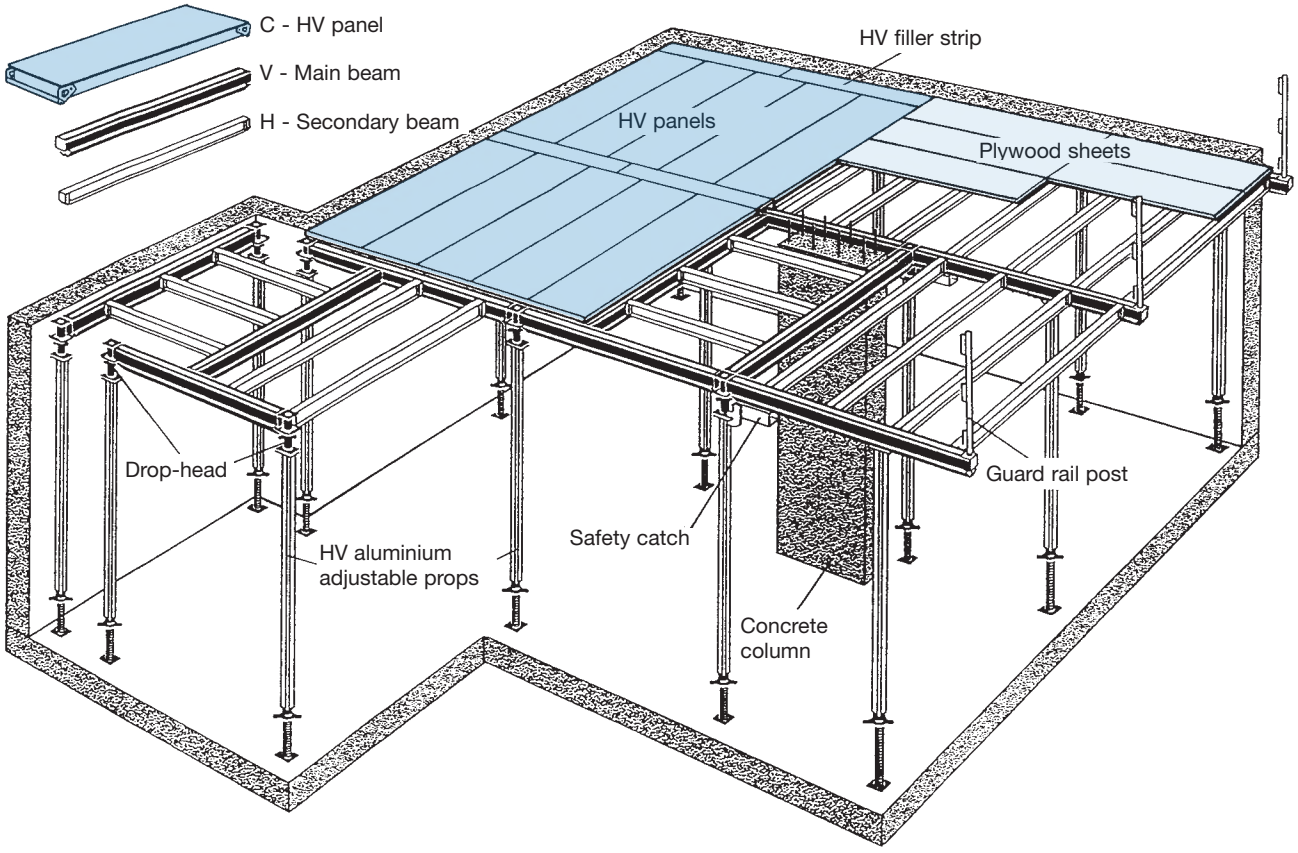
The concept

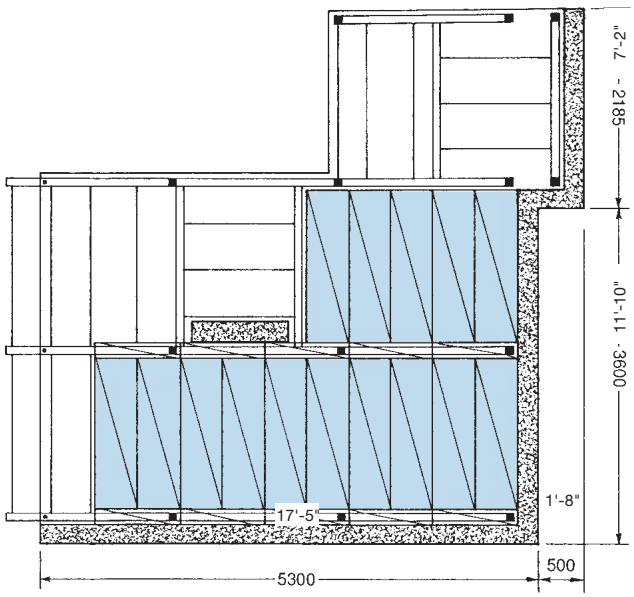
In contrast to conventional flexible formwork systems, the HV system main beams (V) and secondary beams (H) are fixed in the same plane. Support ledges on both the main beams and drop-heads allow the incoming beams to be hooked in place.

The HV system will never have an uneconomical overlapping of beams, unlike conventional formwork. The beams form an interlocking grid that is stable with in itself, even without plywood sheeting. Nevertheless, HV is still fully flexible: by changing the direction of the span (simply fit main beams together at 90° – see drg. on p. 4), the grid can be adapted as required to fit any plan layout. Interruptions such as columns, wall corners, make-up panels, curved walls, etc. are therefore no longer a problem. The main and secondary beams can be arranged to suit.

The system is complemented by the HV panel. This panel consists of an aluminum frame with an integral 10 mm (3/8") GFRP sheet. These panels are fitted between the main beams instead of using secondary beams plus separate plywood sheets. Make-up areas are systematically closed off with main and secondary beams plus 21 mm (3/4") plywood sheeting. The drop-head system enables the formwork to be stripped just two days after concreting without having to remove the props (post shores). All the main and secondary beams (or formwork panels) are then available for the next concreting operations.

Practical experience has shown that the HV system reduces the time needed for erecting and stripping formwork considerably, when compared to conventional slab formwork. Meaning two uses per month are enough to recoup the cost of hiring the components.

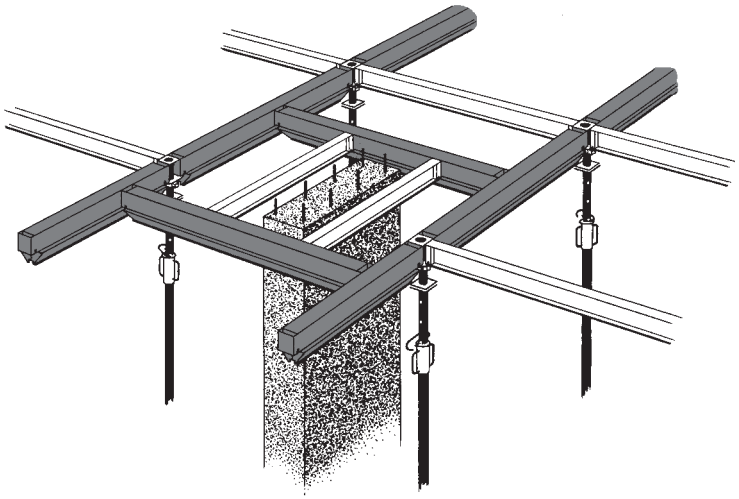




The HV panels can slide along the main beams right up to the wall – cantilevering max. 6" beyond the centre-line of the drop-head – so that erection of the formwork can start in a corner.

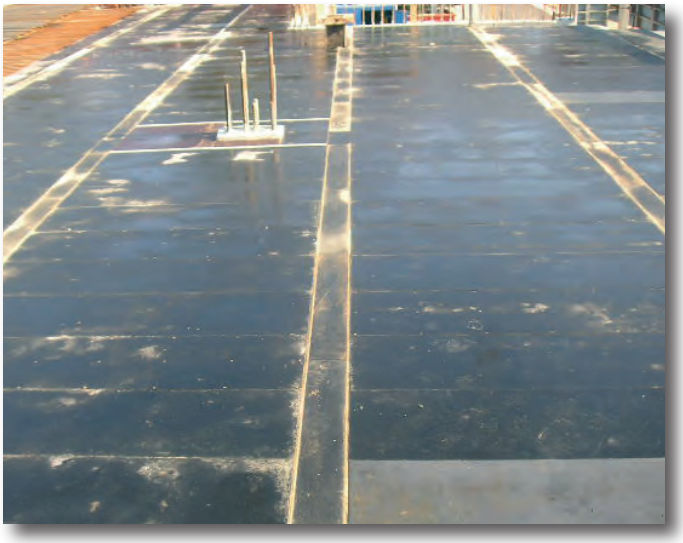
Only a few props required

Ideal bay 1.8 x 1.8 m = 35 sq ft up to 14" slab thickness with HV-props



Make-up panels

Full infilling without gaps is achieved by changing the direction of the span and shifting the positions of the main and secondary beams. This simple principle avoids the need for costly make-up panels.

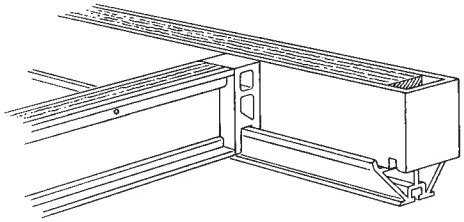


View of formwork surface with HV panels and HV filler strips

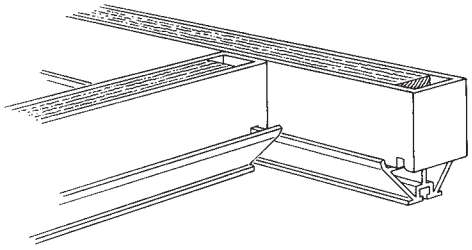
View of slab soffit with regular pattern of joints

The connections

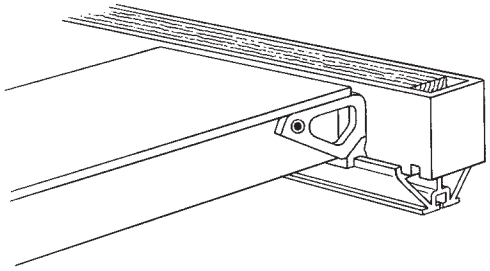
The components are simply hooked together on site.



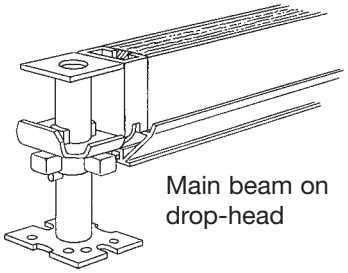
Secondary beam on main beam



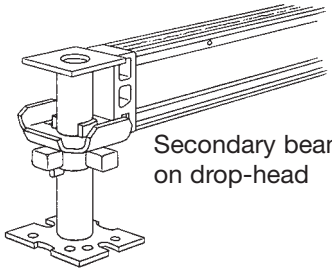
Main beam on main beam



HV panel on main beam

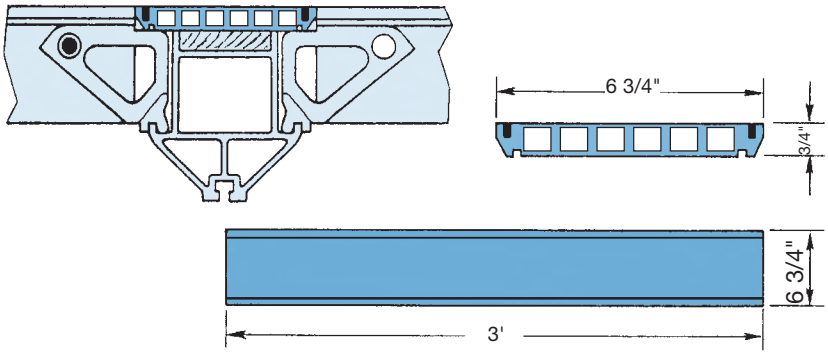


Main beam on drop-head

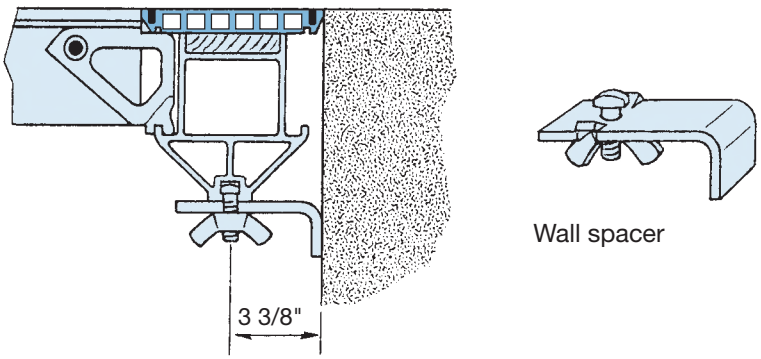


Secondary beam on drop-head

HV filler strip between HV panels



HV filler strip adjacent to wall



Wall spacer

HV filler strip

The gap above a main beam between adjacent HV panels is closed off with a special HV filler strip. The drip profiles on the underside of the HV filler strip ensure that any cement slurry seeping through drips off directly without leaving any unsightly stains on the main beam below.
The two integral expansion joints compensate for expansion movements on hot days.

Junction with perimeter wall

The gap between an HV panel and a wall is closed off with a special HV filler strip. The wall spacer ensures that the perimeter main beam is positioned at the correct distance from the wall. This means that the erection of the slab formwork can begin in a corner.

Setting up and stripping the formwork

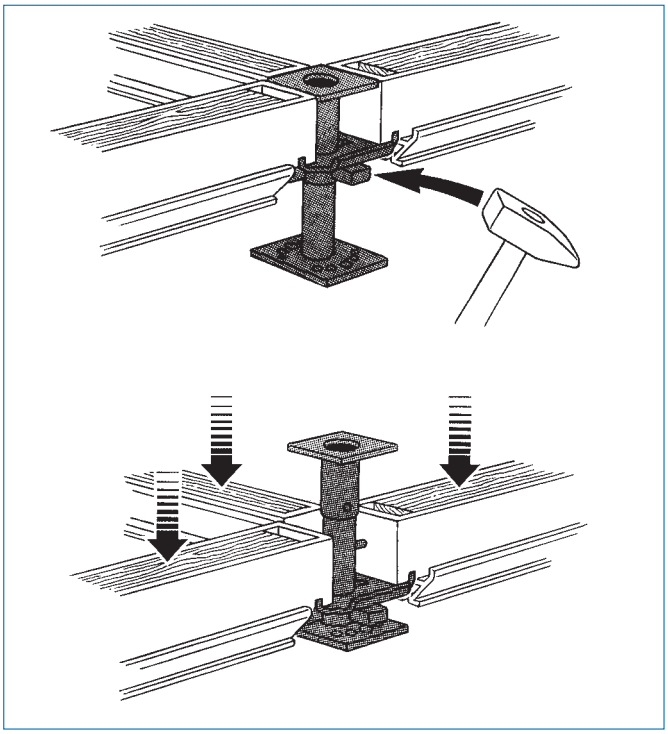
The erection of the HV System is very easy and quick to learn.
Countless uses on building sites all over the world have proved this.
A two-person formwork crew can work independently.
The erection of the formwork can begin at several places simultaneously using several formwork crews. For transport on site without the need for cranes, the components should be stored in wheeled storage racks “Barelle®” (see p. 19).

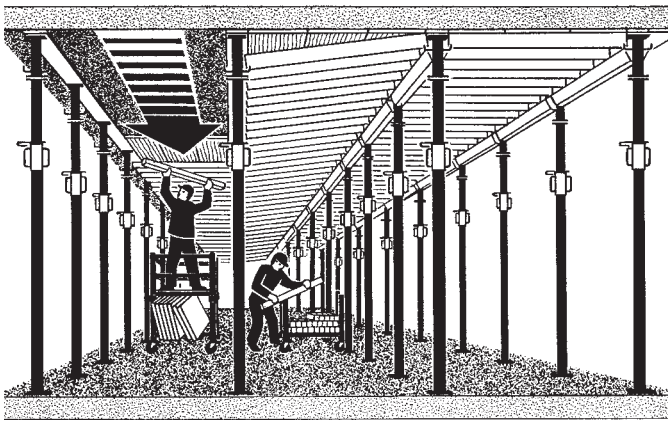
Setting up the formwork is carried out:

- without having to set out the prop spacing beforehand because the props are automatically positioned by the lengths of the beams
- with just 1 prop per 10 square feet on average
- without unnecessary extra props “just to make sure” because the system does not permit any additional props
- safely because the erection work is carried out from below
- ergonomically and with minimal fatigue

Hooking a main beam onto a drop-head.

No HV components are in contact with the concrete. That means cleaning is simple and inexpensive.



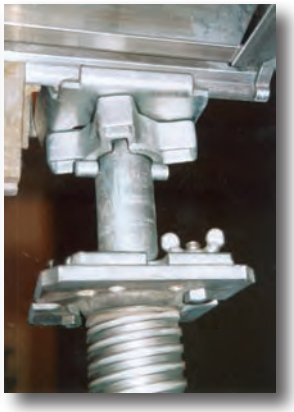


Removing main and secondary beams

The drop-head is lowered with a hammer-blow. The advantage of early stripping is that all main and secondary beams plus about two-thirds of the formwork panels and, depending on the situation, up to half of the props and drop-heads are immediately available for reuse.

Setting up and stripping formwork with main beams and HV panels

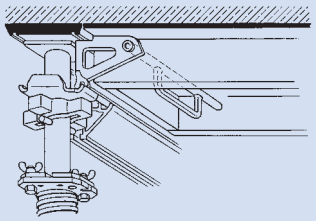
Instead of using secondary beams and plywood sheets, it is possible to use HV panels (5'-7" x 18"; weight approx. 36.5 lbs.) fitted directly between the main beams. All the advantages of the aluminum HV slab forming system are still retained.

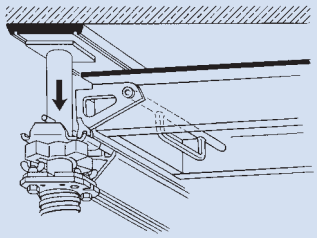


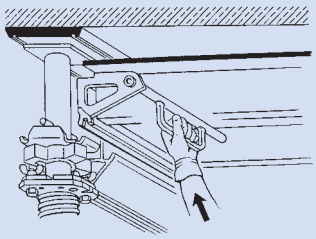
HV panel can be installed and removed from below.

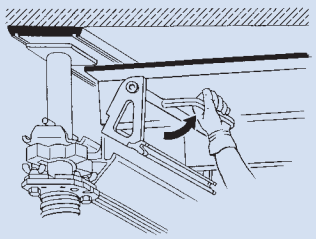
Make up panels with secondary or main beams and 3/4" plywood sheeting.

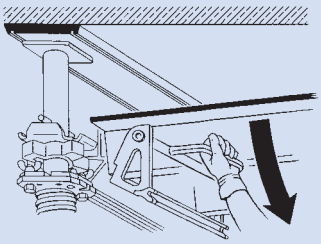
You can start stripping the formwork at any position.







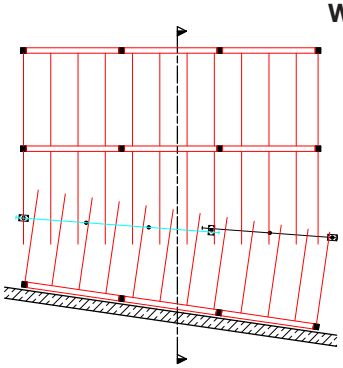


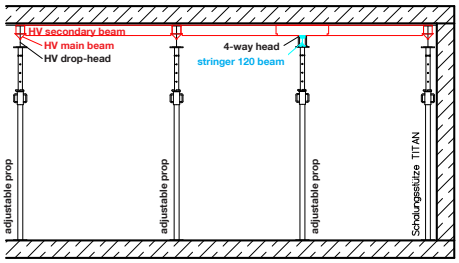


Formwork solutions – it's so easy with HV

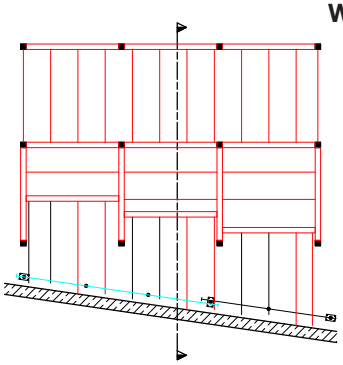
Examples of typical applications for HV in practical everyday situations are shown on this and the following pages. The easy handling of the system is obvious (for legend see p. 13).

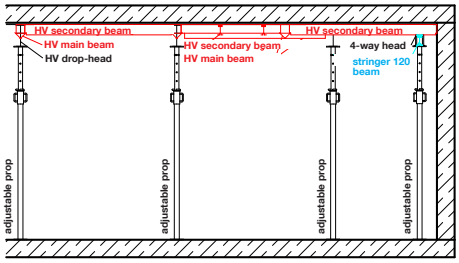
Wall at an angle to main grid 1



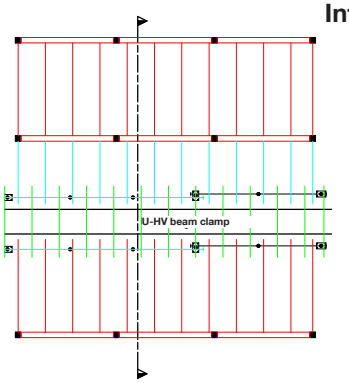


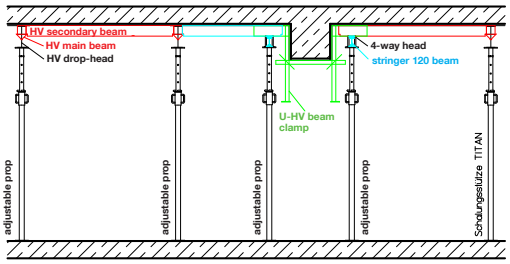
Wall at an angle to main grid 2



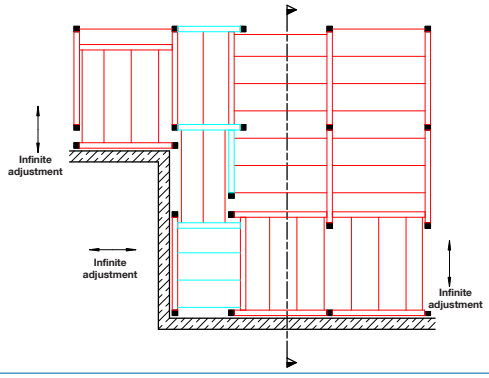


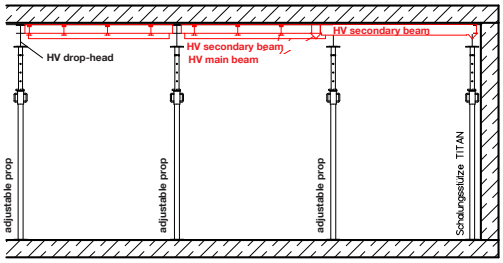
Integrating a downstand beam





Infinite adjustment to suit room dimensions



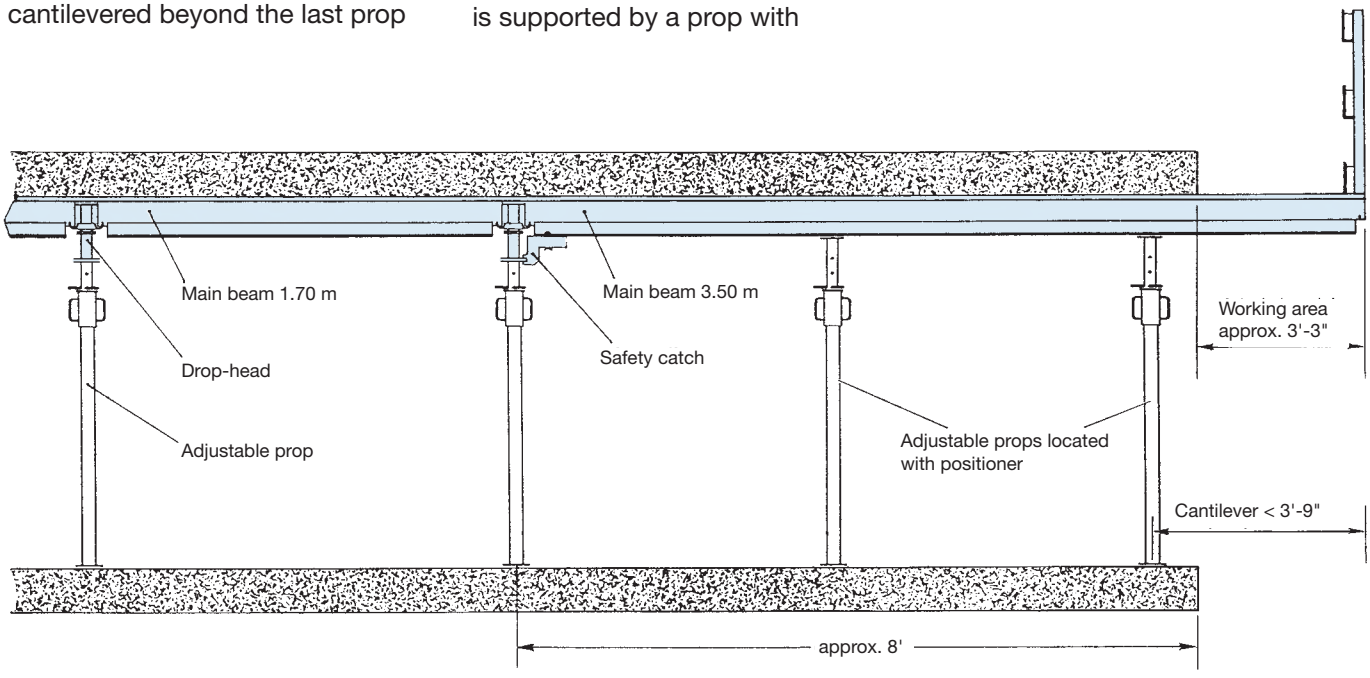


System solution for perimeter beams with RT edge table

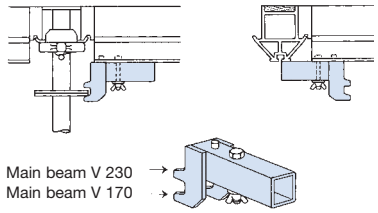
On taller buildings, erecting the formwork for cantilevering slabs, perimeter downstand beams, spandrel panels, etc. is more time-consuming than standard floor bays. Furthermore, such work is very dangerous. In such cases HV is combined with the RT edge table. The complete edge table is repositioned in the next storey by crane prior to beginning formwork erection so that the formwork for the critical perimeter zones is positioned first and the HV slab forming system can then be set up against. (For more comprehensive information please see our Megashore brochure.)

Erecting formwork for the slab perimeter with main beams cantilevering 3.50 m

The 3.50 m main beam is an alternative to the RT edge table. In order to create a working area approx. 3'-3" wide and provide a safety barrier, this beam can be cantilevered beyond the last prop (post shore) as shown below. The beam is secured with a safety catch at a prop with drop-head approx. 8' back from the edge. Directly on the edge the beam is supported by a prop with positioner. The beam may cantilever max. 3'-9" beyond this final prop. Depending on the structural requirements, the beam may require at least one further prop.

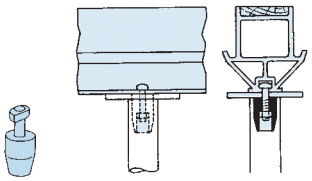


Accessories



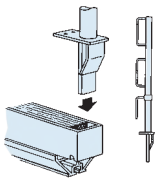
HV safety catch

HV safety catch:
Cantilever beam restraint clamp. This part prevents uplift at the inner end of a cantilevering beam. It is either clipped to the top plate of a prop or, reversed, clamps the cantilevering beam to another main beam where the direction of span changes.



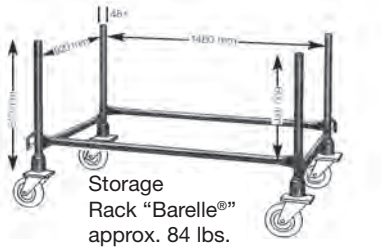
Positioner

Positioner:
This is for positioning props directly beneath a beam (e.g. cantilevering main beam, see example on p. 18). The positioner is attached to the underside of the main beam.



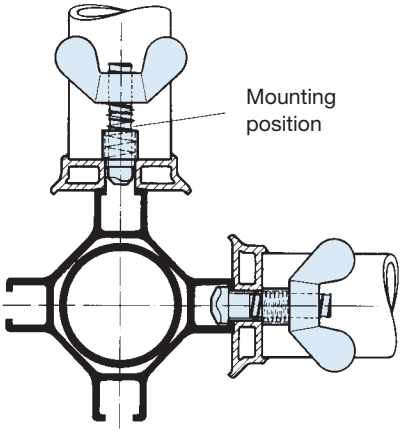
HV guard rail post

HV guard rail post:
This is simply inserted into the end of a main beam. According to DIN 4420 a safety barrier is mandatory.



Wheeled Storage Rack “Barelle®”
for transporting materials on the building site without the need for cranes.

Megashore ledger frame

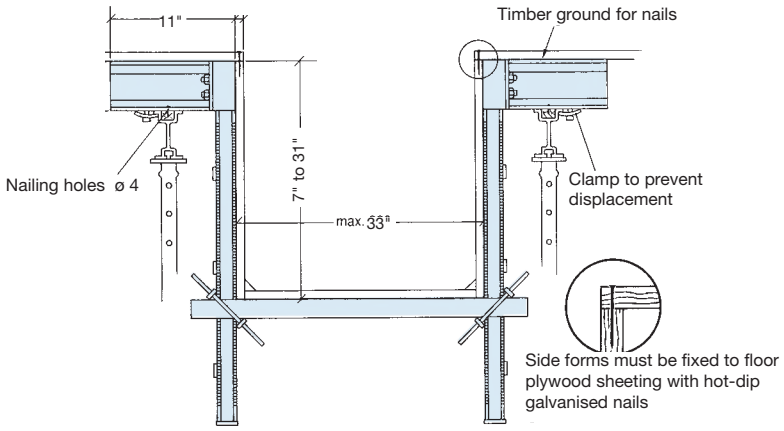


You have the option of joining the HV adjustable props by means of Megashore aluminum ledger frames to form a tower and thus increase the permissible loads.
The frame can be bolted on at any height. For more comprehensive information please see our Megashore brochure.

System solution for downstand beams with U-HV

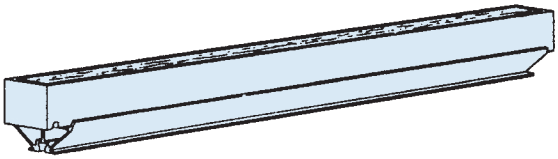
Where formwork has to be erected for downstand beams, U-HV represents the ideal solution. The U-HV beam clamps can be reused at the same rate as the HV system, i.e. they do not require any additional stocks or different striking times. The beam formwork is placed on the beam clamps and can compensate for dimensional tolerances during erection of the formwork.

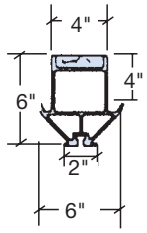
TITAN U-HV supported on trimmer beams



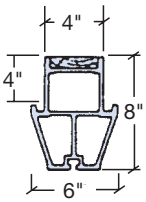
Dimensions

Main beam V





Main beam
1.15 m, 1.70 m
3.50 m



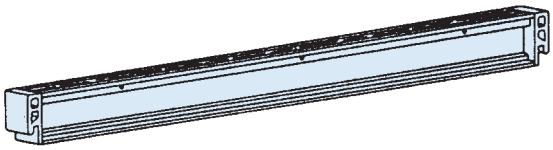
Main beam
2.30 m

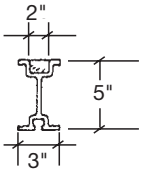
Length	Weight	Colour coding	Grid size (length + 4")
3'-10" (1.15 m)	19 lbs.		4'-1"
5'-7" (1.70 m)	28 lbs.		5'-11"
7'-7" (2.30 m)	40 lbs.		7'-11"
11'-6" (3.50 m)	63 lbs.		11'-10"

Beam 1.15 m;
1.70 m; 3.50 m:

I_x = 14.16 inch^4
M_x = 5,082 lbs x ft
W_x = 3.64 inch^3
Q_x = 5,953 lbs
$E \cdot I_x$ = 1,430 lbs/inch^2

Secondary beam H





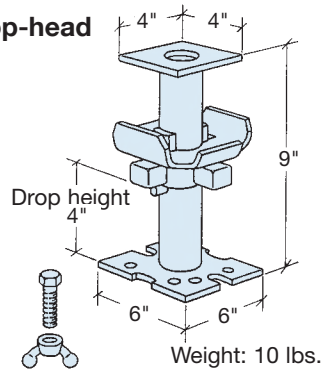
Secondary beam

Length	Weight	Colour coding	Grid size (length + 4")
3'-10" (1.15 m)	8 lbs.		4'-1"
5'-7" (1.70 m)	12 lbs.		5'-11"

Secondary beam 1.15 m; 1.70 m:

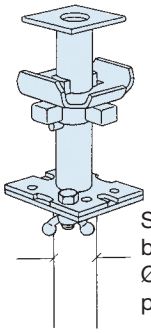
I_x = 4.21 inch^4
M_x = 2,434 lbs x ft
W_x = 1.77 inch^3
Q_x = 2,040 lbs.
$E \cdot I_x$ = 4,259 lbs./inch^2

Drop-head



2 No. Fix 35 bolts required for fixing

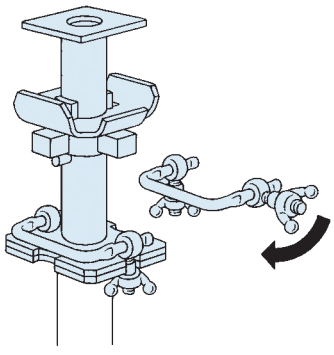
Connecting drop-head to prop with fixing bolts



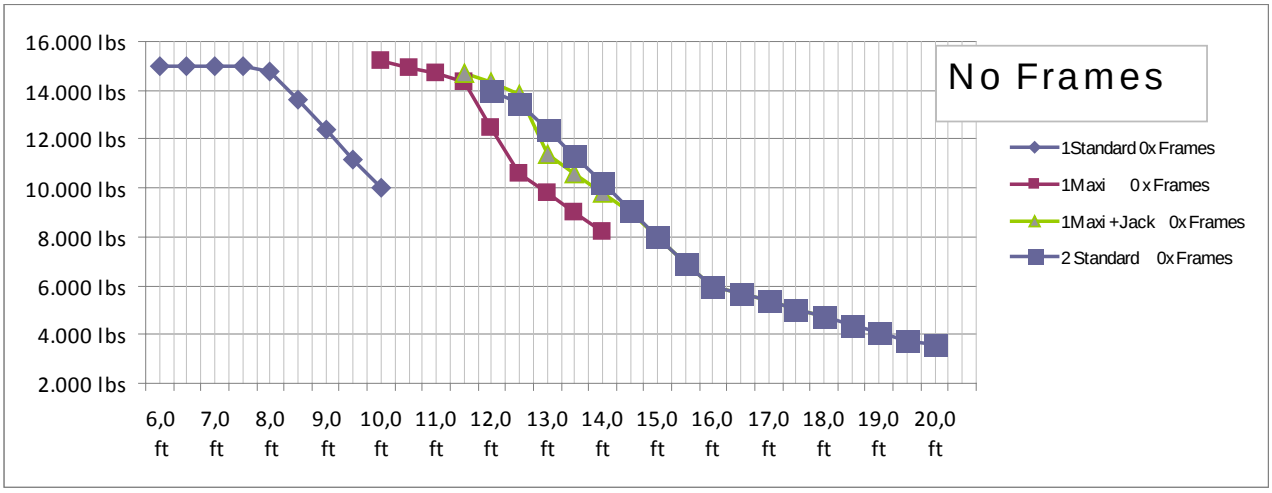
Speed-thread bolts for max. Ø 2.5" steel-post

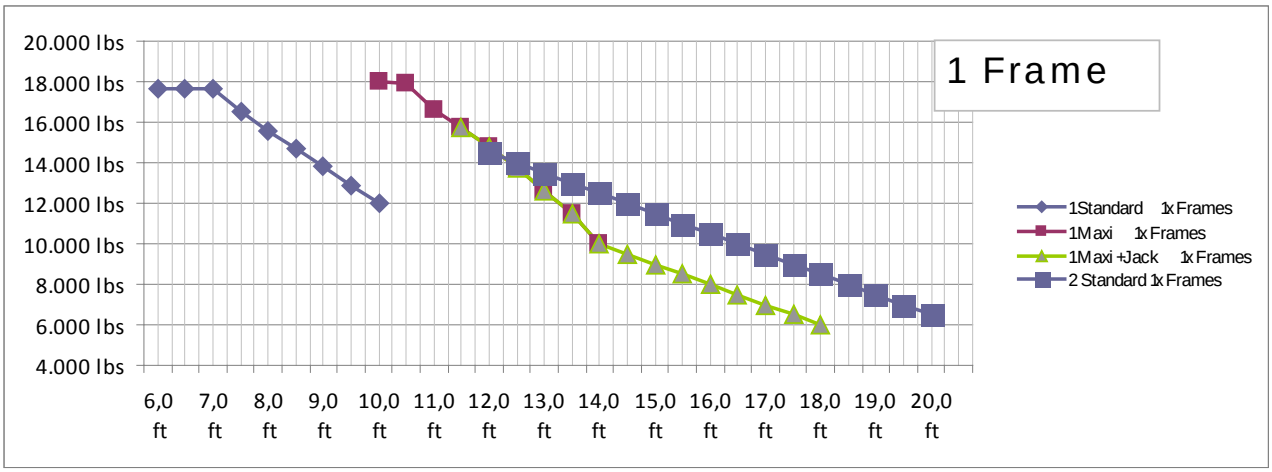
Always tighten nuts securely!

Connecting drop-head to prop with special fixing bracket

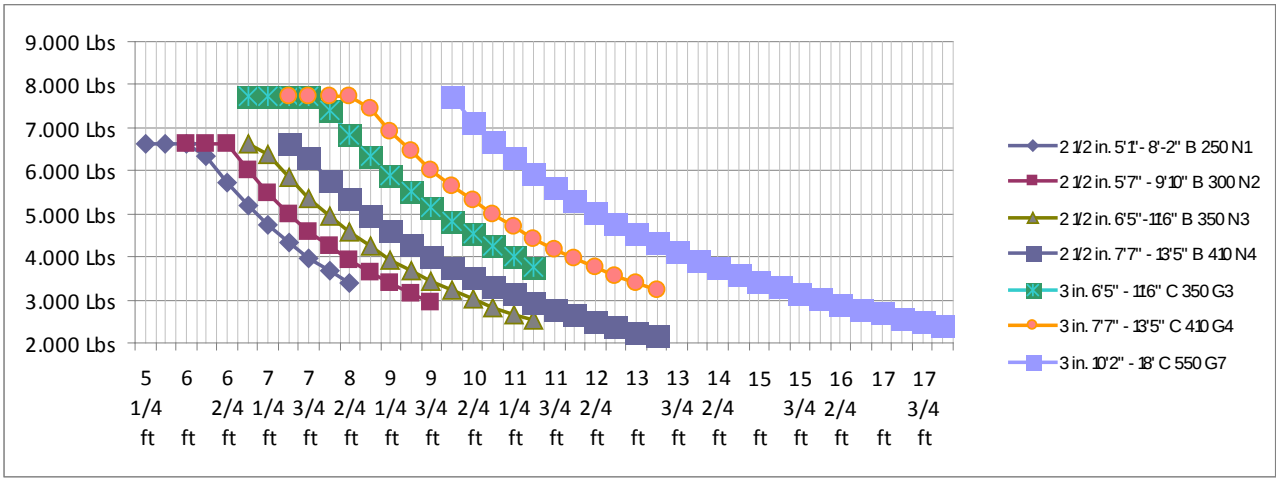


ISCHEBECK HV PROP Load Charts





Steel Post Shore Load Chart



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