

# U-Korb



**FRANK**<sup>®</sup>

# U-Korb continuous high chairs

Continuous high chairs are used as spacers between the lower and upper reinforcement layers in bases, slabs and walls. They fix the distance between both reinforcement layers and hold them in the correct structural position.

They secure the concrete cover, the structural properties and the formwork.

- Save labour time and material due to the rapid laying and a support width of 20 cm
- Non-tipping due to a stable contact surface on the lower reinforcement
- No contact with the formwork, therefore no damage to the formwork skin and no rust stain formation on the concrete surface
- Stable, supports foot traffic due to the vertical uprights at the buckle points of the continuous high chair
- Especially suitable for fixing mats and steel rod reinforcements
- Conforms to DIN 1045 fig. 13.1 and can be costed to VOB (German contract procedure for building works)



# U-Korb continuous high chairs

## for upper reinforcement in bases, slabs and walls

- The benefits speak for themselves -

■ Individual fixing due to the simple bending around apertures, installations, wall projections etc.

■ No protruding longitudinal bars. An upright always forms the end of the high chair to enable a perfect force transmission  
→ therefore complete use of the support length of 200 cm

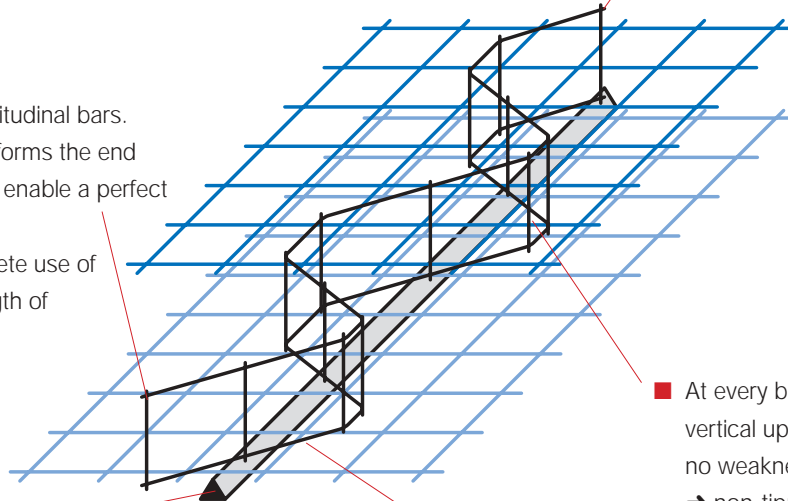
■ FRANK fibre concrete spacers

■ Saves labour time and material due to a support width of 20 cm

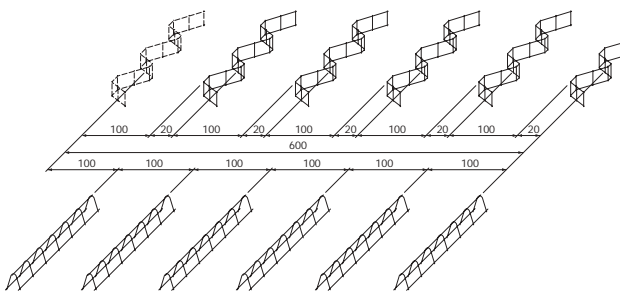
■ Stable supporting area for upper reinforcement  
→ due to the fact that the vertical upright protrudes slightly the continuous high chair anchors itself to the upper and lower reinforcement and exactly sustains the upper reinforcement layer.

■ At every buckle point there is a vertical upright, therefore there is no weakness at the buckle points  
→ non-tipping and suitable for foot traffic

■ No contact with the formwork  
→ stands on the lower reinforcement



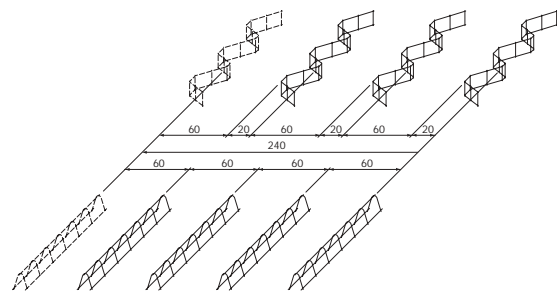
### Comparison between FRANK continuous high chairs and linear supporting systems



#### Clear support interval 100 cm:

Required amount of FRANK continuous high chairs = 5 pcs. = 100%

Required amount for linear system = 6 pcs. = 120%



#### Clear support interval 60 cm:

Required amount of FRANK continuous high chairs = 3 pcs. = 100%

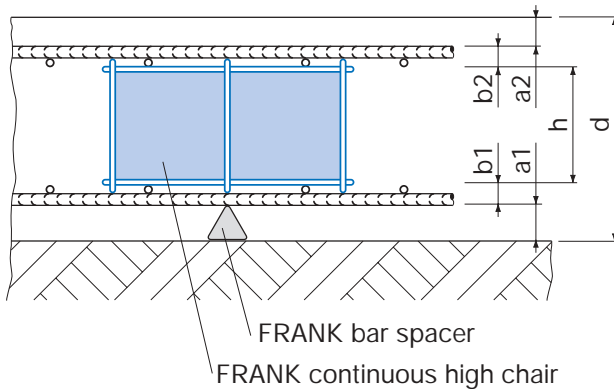
Required amount for linear system = 4 pcs. = 133%

When using supporting chairs with linear shapes you will need 20 to 33% more material, and therefore up to 33% higher labour costs will be the result.

# U-Korb continuous high chairs for slabs and bases

## System construction "slab" + "base"

Support width 20 cm!



FRANK bar spacers should always be placed directly beneath the U-Korb continuous high chair. This results in considerable improvements to the reinforcement cage inherent stability.



## Determination of necessary chair height:

Determination of the necessary chair height taking the required concrete cover and design slab thickness into account

		e.g.
1. Lower reinforcement concrete cover	a1	30 mm
2. Upper reinforcement concrete cover	a2	20 mm
3. Lower reinforcement thickness*	b1	15 mm
4. Lower reinforcement thickness*	+ b2	15 mm
	<b>Total x</b>	<b>80 mm</b>

\* Please take mesh overlap into account

Required slab thickness "d" minus total "x" gives necessary chair height "h".

In our example with a required slab thickness of 200 mm:  
200 – 80 = 120 mm chair height.

This calculation pattern is also used for the wall system construction (see page 25).

## Standard product range:

Article number	Height h cm	Designation	Pcs./pallet	Weight kg/pallet
UKN02	2	2/200	2000	660
UKN03	3	3/200	2000	688
UKN04	4	4/200	2000	716
UKN05	5	5/200	1500	564
UKN06	6	6/200	1500	585
UKN07	7	7/200	1000	511
UKN08	8	8/200	1000	524
UKN09	9	9/200	1000	538
UKN10	10	10/200	900	500
UKN11	11	11/200	800	458
UKN12	12	12/200	700	414
UKN13	13	13/200	600	367
UKN14	14	14/200	600	376
UKN15	15	15/200	600	407
UKN16	16	16/200	500	409
UKN18	18	18/200	500	425
UKN20	20	20/200	400	358
UKN22	22	22/200	400	468
UKN24	24	24/200	300	368
UKN26	26	26/200	300	378
UKN28	28	28/200	300	387
UKN30	30	30/200	300	397
UKN32	32	32/200	300	424
UKN34	34	34/200	200	300
UKN36	36	36/200	200	307
UKN38	38	38/200	200	314

Packaging: Bundles of 25 pcs. on non-return pallet

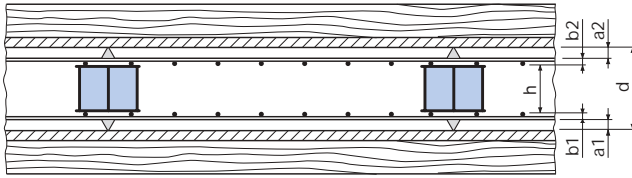
**Standard length: 245 cm**

**Support length: 200 cm**

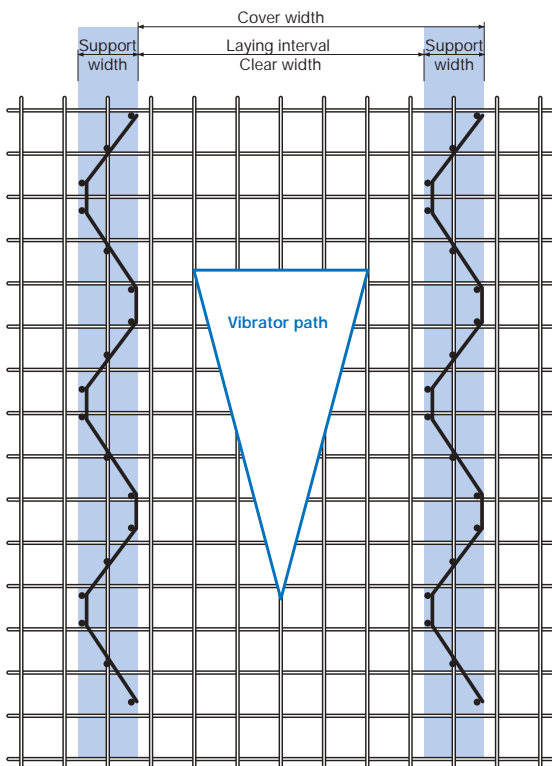
**Support width: 20 cm**

# U-Korb continuous high chairs for walls

## Standard wall construction



The chair height is determined as shown for bases/slabs.



### Costing to VOB:

The continuous high chair weight can be costed together with the reinforcement. As an aid we include an extract from VOB, Part C:

5.3 In case of separate reinforcement costing

5.3.1 The weight of unstressed reinforcement is calculated in accordance with the design drawings, for pre-stressed reinforcement the weight of the stressing steel is costed in accordance with the steel schedules.

Also included in the reinforcement are the chairs, e.g. steel chairs, steel spacers, also spiral reinforcement, bracings, trimmers, replacements, fixing steel etc.

Accessories for stressing reinforcement, e.g. sleeves, stressing heads, coupler pieces and injection mortar are not reimbursed separately.

### Determining number required:

The following number of continuous high chairs are required for normal construction loadings (following the "Concrete cover" Code of Practice from DBV):

This table is only a guideline for determining the number required. The exact laying interval must always match the requirements of the reinforcement and concrete cover and must be checked on site.

The decisive factor is which deflections can be accepted when the reinforcement is walked on (when concreting). The weight of the upper reinforcement usually plays a less important role.

Stability of reinforcement - Ø supporting bar -	Laying interval	Requirement approx. Pcs./m <sup>2</sup>
$d_s \leq 6,5 \text{ mm}$	50 cm	1.0
$6,5 > d_s \leq 12 \text{ mm}$	70 cm	0.7
$d_s > 12 \text{ mm}$	70 cm	0.7

**If the reinforcement is not walked on**, such as in pre-casting plants or when using continuous high chairs for wall constructions, the required amount determined as above can be reduced by 10 – 20% without problems.

FRANK



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