Vertical Conveyor for Unit Loads

The NERAK S-Conveyor

NERAK FÖRDERTECHNIK

EXPERTS IN VERTICAL CONVEYING

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FÖRDERTECHNIK

Continuous Horizontal-Vertical Conveying of Unit loads

**As experts in vertical conveying we offer you the most practical solution for every task.
This means: cost effective in investment; reliable and durable in operation.**

Throughout the industry the name NERAK is synonymous with S-Conveyors in unit load handling.

By combining innovation with well established and proven design techniques, NERAK have developed a classical solution.

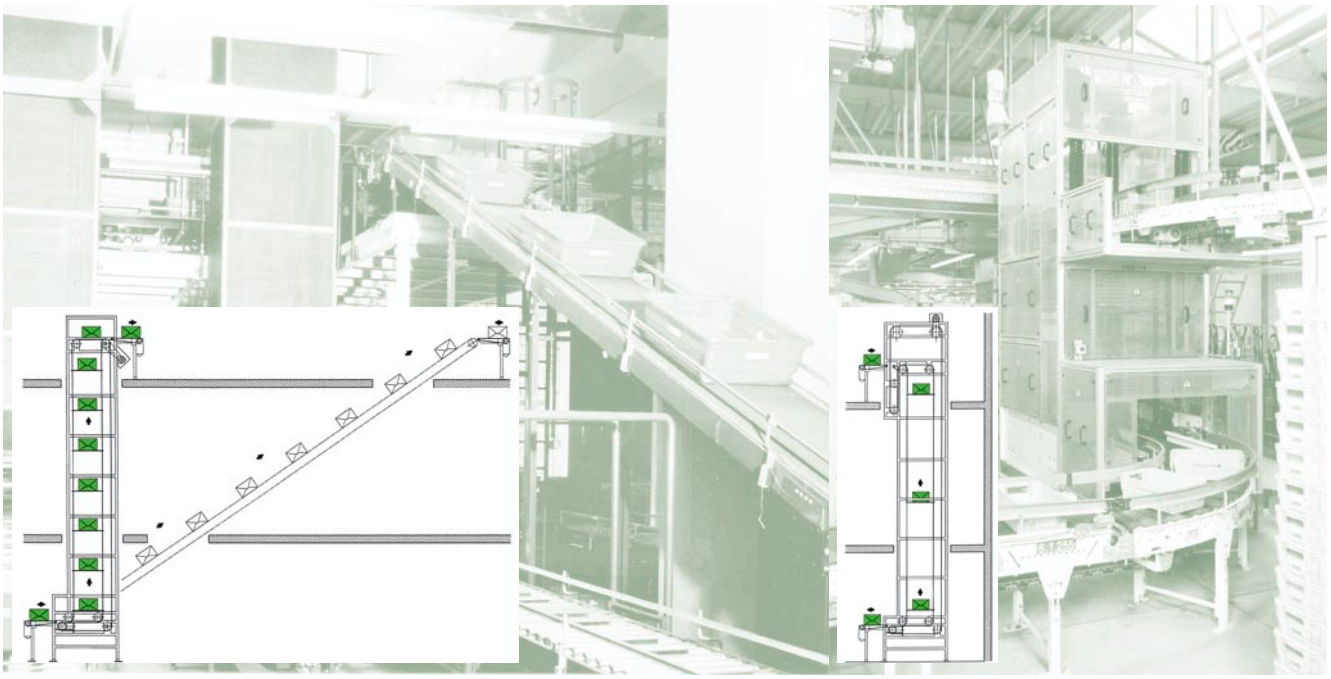
NERAK S-Conveyors have become established in logistic systems overcoming height differences with high throughputs particularly where the process is timecritical e.g. in the car industry, distribution centres and international airports check-ins.

High quality specifications for materials and components ensure long term reliability with low maintenance and a complete range of in-house manufacturing facilities guarantees a continuous high quality standard. For single solutions as well as complete lines, OEMs and end users select the NERAK S-Conveyor or C-Conveyor for an efficient solution in vertical conveying. We offer the complete package from design through manufacture and assembly to final installation and commissioning.

The NERAK S-Conveyor finds applications in many fields for unit load conveying.

- trays
- cartons
- EURO-pallets
- sacks
- shrink-wrapped goods
- soft packaging
- work pieces
- luggage
- other unpacked goods

All parts are conveyed carefully and quickly. Different shapes and sizes can be accommodated without change-parts or adjustments.



S-Conveyor

C-Conveyor

With synchronised speeds the goods are transferred smoothly from the indexing horizontal conveyor to the platform of the S-Conveyor.
As it travels horizontally a solid level platform is formed for carrying loose items.

FEEDING

The space saving design creates an optimum layout for vertical conveying, up or down particularly when compared to an inclining belt conveyor.

The continuously running system of the NERAK rubber block chains provides for vibration free, silent operation with high throughputs. Depending on product size, up to 3000 items per hour.

NERAK S-Conveyors can be fabricated from aluminium, mild steel or stainless steel profiles with appropriate guarding to suit all applications and operating conditions. Large access doors are provided for maintenance and cleaning.

Where a standard elevator doesn't quite fit the bill, NERAK can supply a machine tailor made to suit individual requirements.

DISCHARGE

At the discharge the platforms travel around the idler wheels transferring the goods smoothly onto the downstream conveyor.

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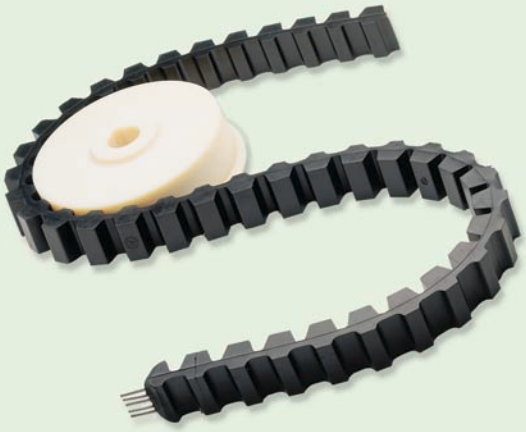
A drive system for rapid transfers

The NERAK unique steel cable reinforced rubber block chains used for the drive system give smooth, quiet and very high efficiency running, and without the need for lubrication provide a clean environment with extremely low maintenance requirements.

For heavy duty applications platforms are attached with special brackets to the rubber block chains in order to provide an even distribution of the load.



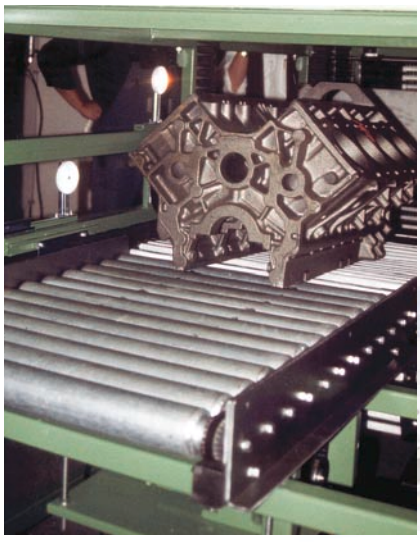
The platforms are fabricated from reinforced polyester rods with a PVC covering to provide a slip free surface.

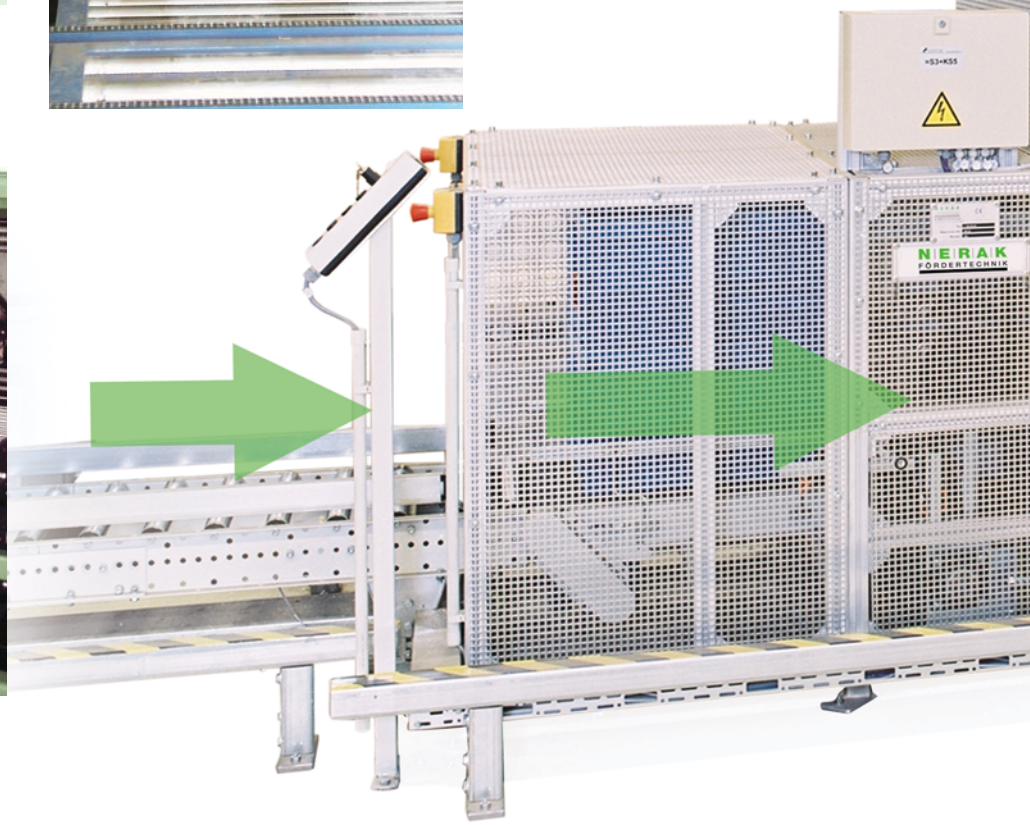
For special applications or where very small goods are to be conveyed the surface of the platforms comprises close fitting plates ensuring a smooth transfer to and from the platforms.

Platform for barrels

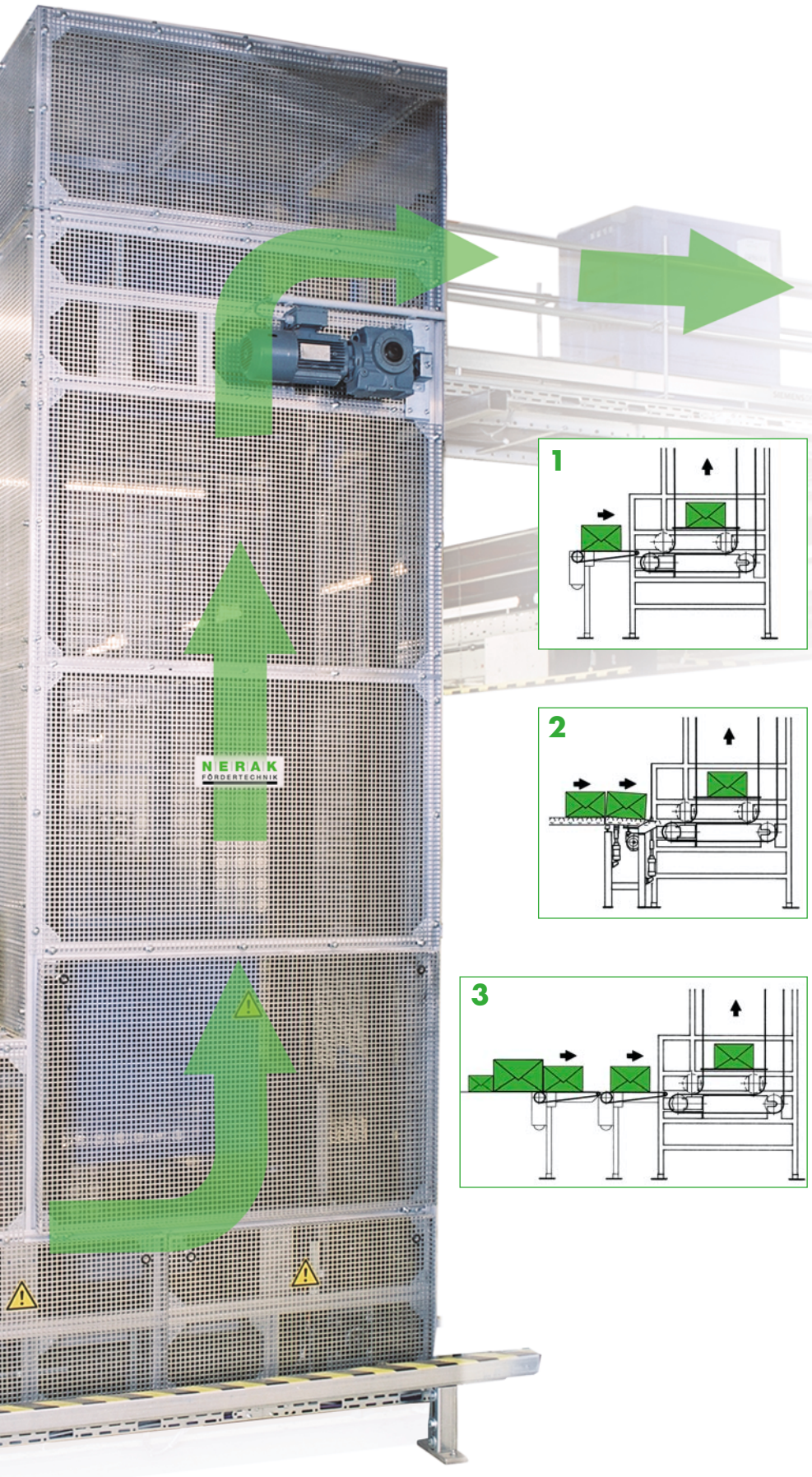
Platform for Euro-pallets

Platform for motor blocks





Operational cycle



Photoelectric cells detect approaching goods and stop the infeed conveyor until the platforms are in the correct position. The infeed conveyor then restarts transferring the goods smoothly onto the platform.

There must always be a gap between goods arriving on the indexing conveyor **(1)**. If not, separation can be achieved by a gating mechanism **(2)** or by a and separationng conveyor **(3)**.

Where stand alone operation is required the elevators can be controlled by a small plc, alternatively when used in a production line, the photoelectric cells can be wired to a local terminal box for connection to the main control cabinet.

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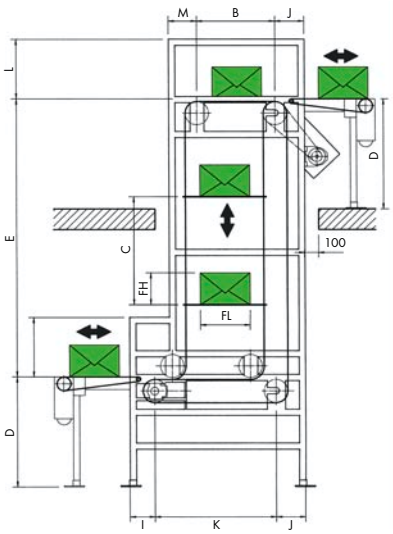
Type description S- and C-Conveyor

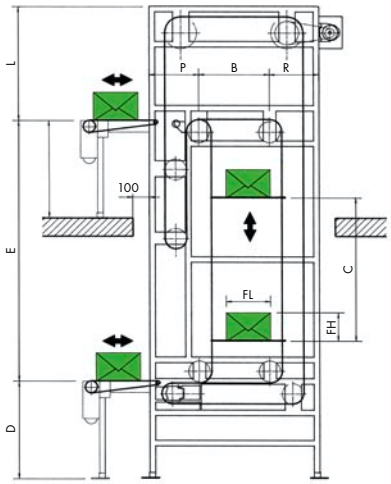
	LIGHT max 30 kg	MEDIUM max 100 kg	HEAVY max 200 kg	HEAVY XXL 300 - 1500 kg lengthwise conveying
Type	**S 169/33/32**	**S 253/33/50**	**S 316/43/70**	**S 631/55/70**
A	200-1000	300-1500	600-2000	1000-1800
	Steps all 100			
B	462, 561, 660, 759, 858, 957, 1056, 1155 Step 33		731, 860, 989, 1118 Step 43	1045, 1210, 1375, (FL+150) Step 55
C		min. B+FH+100	min. B+FH+150	min. B+FH+200
D	min. 400	min. 500	min. 650	800
E	Lifting heigt			
FL	max. lenght of conveying goods			
FB	max. width of conveying goods			
FH	max. hight of conveying goods			
I	180	260	500	460
J	210	250	340	423
K	B + approx. 350	B + approx. 400	B + approx. 400	B + approx. 856
	Exact dimension after fixing dimension B and E			
L		FH + 150		FH + 250
M	204	250	340	528
O	281	330	395	420

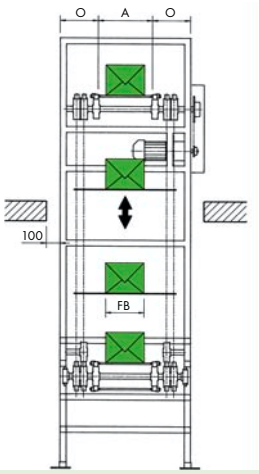
	LIGHT max 30 kg	MEDIUM max 100 kg	HEAVY max 200 kg
Typ	**SC 169/33/32**	**SC 253/33/50**	**SC 316/43/70**
A	200-1000	300-1500	600-2000
	Steps all 100		
B	462, 561, 660, 759, 858, 957, 1056, 1155 Step 33		731, 860, 989, 1118 Step 43
C	approx. 3B to 4B		
D	min. 400	min. 500	min. 650
E	Lifting heigt		
FL	max. lenght of conveying goods		
FB	max. width of conveying goods		
FH	max. hight of conveying goods		
P	393	503	728
R	393	400	512
L	Head hight		
M	204	250	340
O	281	330	395

all dimensions in mm without obligation



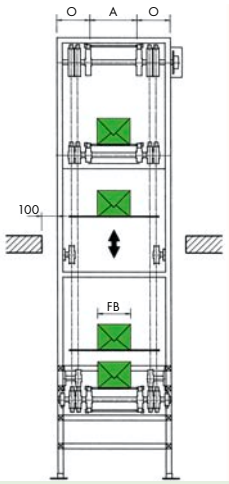
A – Platform width
B – Platform lenght
C – Platform pitch
D – Inlet height
E – Lifting height
FL – Length of conveying goods
FB – Width of conveying goods
FH – Height of conveying goods
v – Speed m/s





S

Types



C

Types

Calculation of the throughput for S-Conveyors

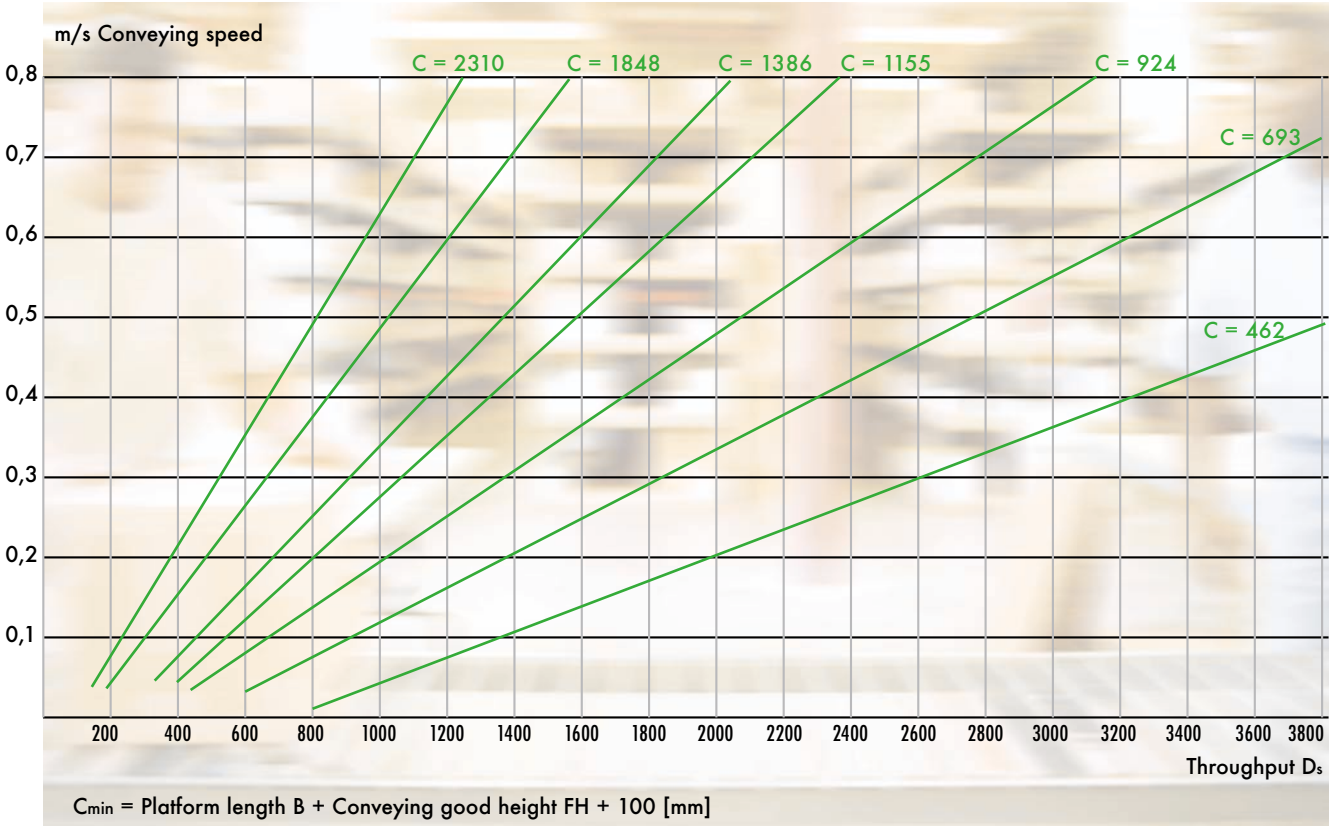
To determine the maximal throughput for an S-Conveyor first calculate the minimum platform pitch C_{min} [mm] (see table).

The result must be rounded up or down, so that the length is divisible by the pitch of the chain (33 mm / 43 mm / 55 mm).

If the required throughput D_S (Platforms/h) is less than the maximum the platform pitch can be increased (up to 2500 mm).

$$D_s\ [\text{Platforms/h}] = \frac{v\ [\text{m/s}] \times 3600 \times 1000}{C\ [\text{mm}]}$$

Note:
This throughput calculation is only valid for S-Conveyors, for C-Conveyors, please refer to NERAK.



C_{min} = Platform length B + Conveying good height FH + 100 [mm]

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