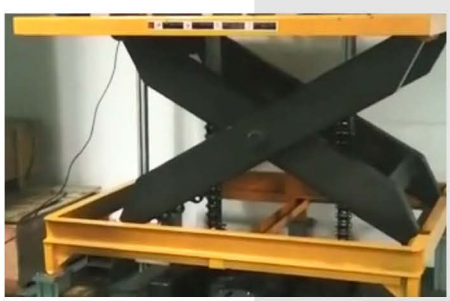
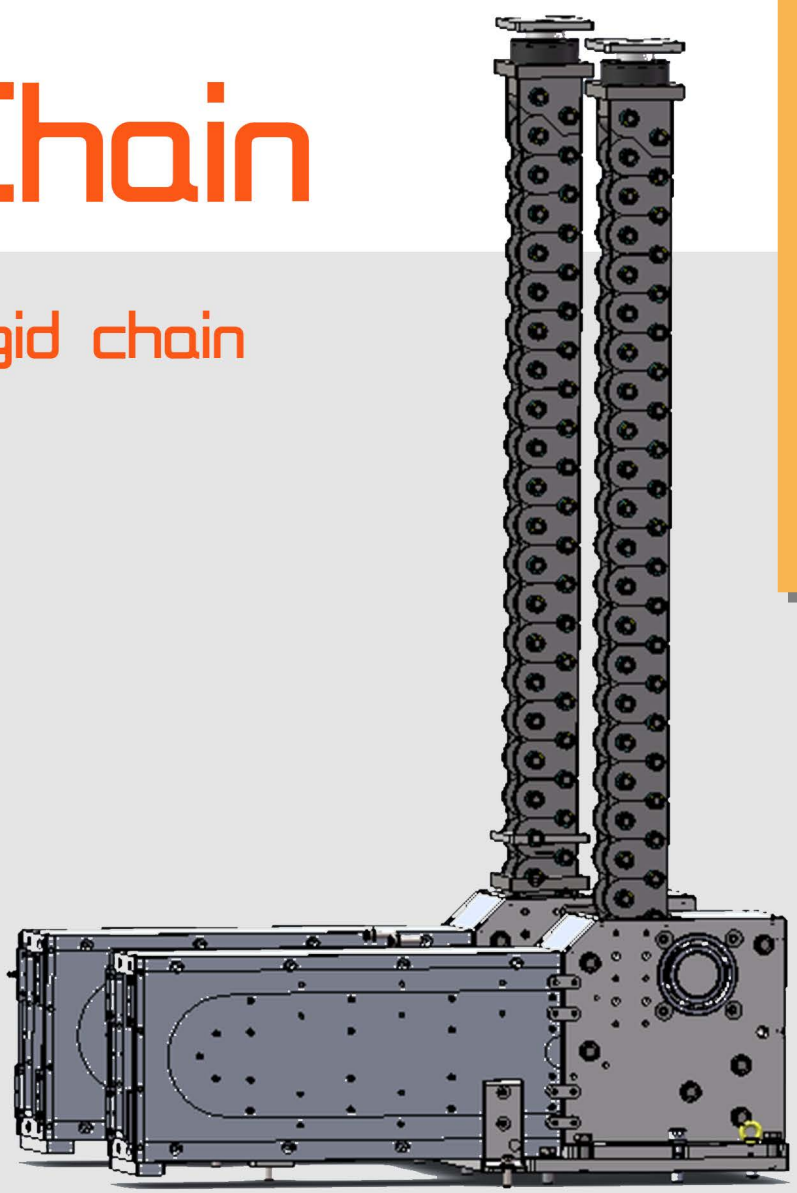
LINK-MINT
上海灵铭机器人科技有限公司
Link - Manufactory Intelligence

VT Chain

Vertical rigid chain





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INDUSTRY

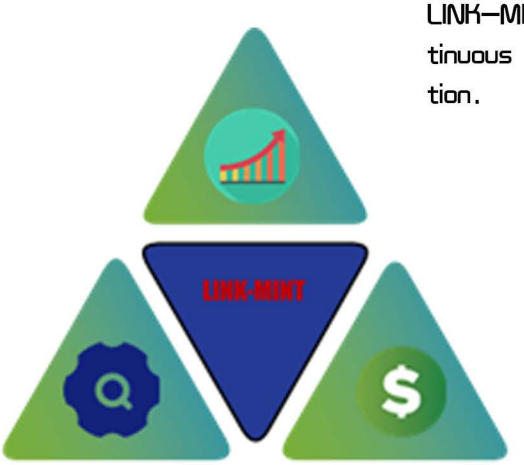
LINK-MINT is a world leader in Rigid Chain Technology (RTC) and offers high-performance solutions through a broad range of mechanical jacks that meet all horizontal transfer and load-raising requirements, whatever the field of activity. It is an efficient, controlled and clean alternative to hydraulic technology.

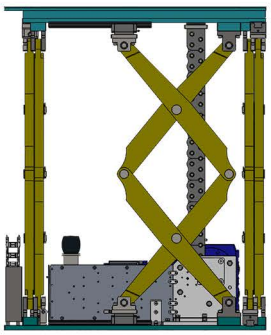
High-performance products to meet every application regarding specific environments

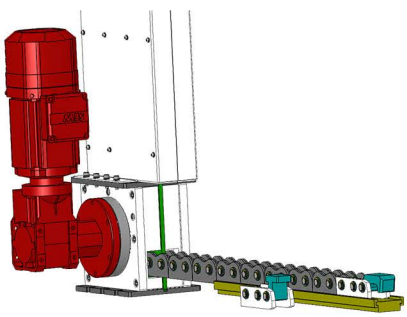
Elevators, scissor lift, platform lifting, container transfer, roof opening and bay windows, oven loading, palletizing of gas cylinders, telescopic mast, tool pusher, self-propelled trolley and rail trolley with integrated pusher are just a few examples of LINK-MINT applications.
Mainly automotive, nuclear, aeronautics, iron and steel, food, building, military, aerospace, thermal, chemical, petrochemical, medical.

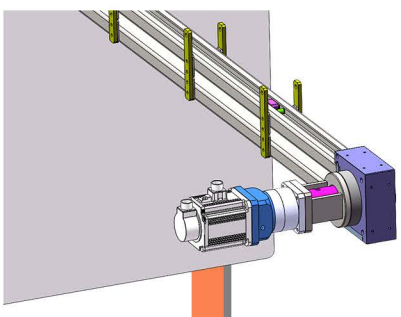
LINK-MINT is Industrial Mobility Designer around YOU

LINK-MINT mission is to exceed the expectations of their customers by providing: PERFORMANCE, OPTIMISED COST and QUALITY in LINK-MINT service.
LINK-MINT relies on its well qualified and motivated staff to provide continuous improvement and innovation in order to ensure customer satisfaction.





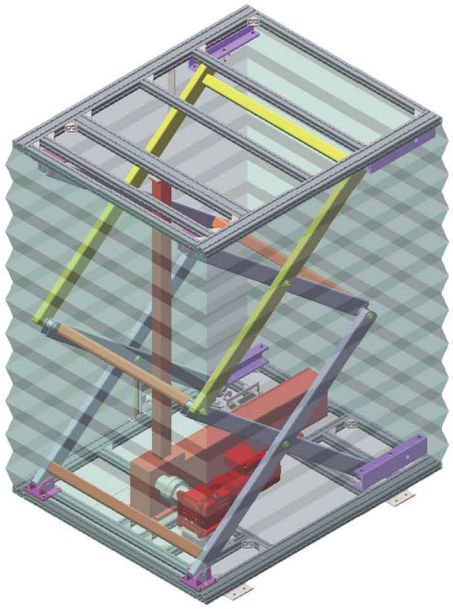




VT Chain

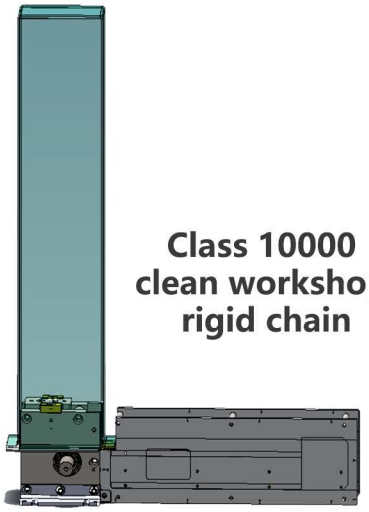
LIFT SYSTEMS

Linear telescopic lifting columns



LINEAR TELESCOPIC LIFTING COLUMNS FOR INDUSTRIAL APPLICATIONS

LINK-MINT has been designing, manufacturing and distributing a wide range of telescopic and linear actuators. Its field of application is focused on the moving of loads, linear transfers and lifting systems, in all areas of industrial activity.
These telescopic actuators are designed on the simple mechanical principle of the Rigid Chain, which allows the transfer of loads from a few kilograms to several hundred tonnes. This technology is based on the locking and unlocking of connected, linked elements. When lifting a load, the specially shaped chain links interlock with each other, forming a rigid bar or column. When lowered, the links unlock, allowing it to bend to store into a compact package.



Class 10000 clean workshop rigid chain

Advantages of LINK-MINT range

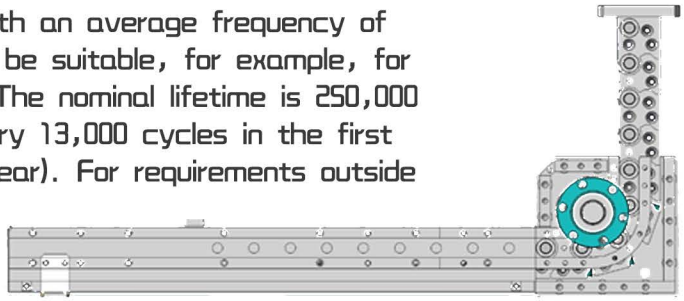
Our rigid-chain technology combines the strengths of other transfer methods, such as hydraulics, belts or spindle screws, and at the same time it eliminates their weaknesses:

- a robust design allowing a long service life and the
- use in harsh environments: clean-room conditions, dust, temperature, humidity, radiation
- repeatable positioning in the millimetre range, even at high speed
- designed for low vibration and noise
- low maintenance
- maintains position with no drift
- specific applications on request: stainless steel, suitable surface treatment, specific heat treatment
- options and accessories : limit switch, encoder, protective bellow, interface, special hub, output shaft

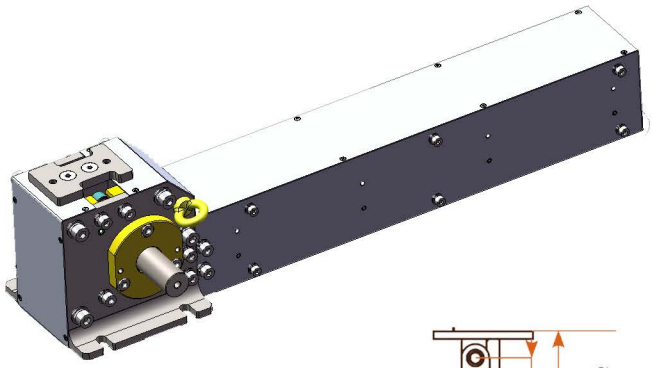
VT–L Chain

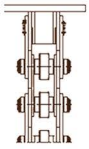
Proven reliability

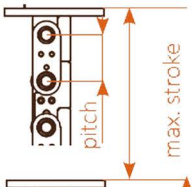
The VT–L Chain is designed for applications with an average frequency of use, between 5 and 15 cycles per hour. It will be suitable, for example, for a workbench lift in automotive manufacturing. The nominal lifetime is 250,000 cycles. Lubrication maintenance is required every 13,000 cycles in the first year and then every 50,000 cycles (or every year). For requirements outside of our specifications, please contact us.

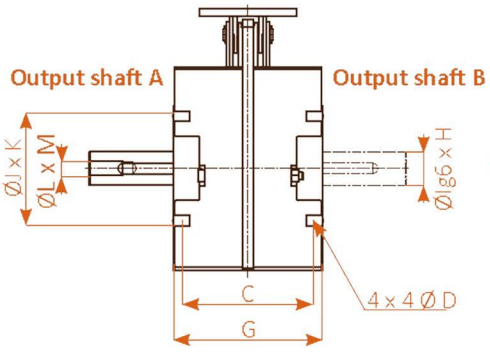


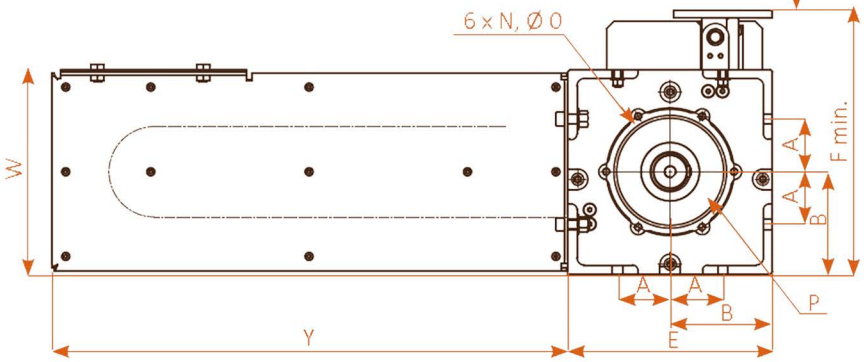
VT-L Chain (standard model range)		
	VT-L 40	VT-L 60
stat capacity (kN)	7,5	20
max. stroke (m)	1	2
max. speed (mm/s)	200	200
pitch of link (mm)	40	60
primitive radius (mm)	40	60
weight of chain (kg/m)*	8.58	16.83
weight of drive housing (kg)*	18,2	39,7
weight of double-return magazine (kg/m)*	11,7	17,2

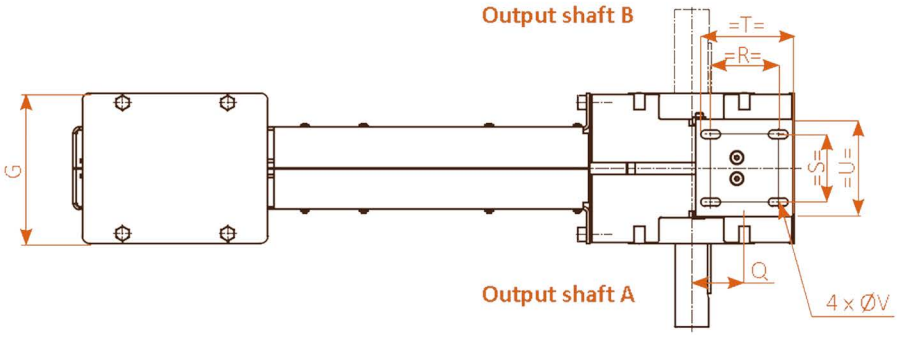






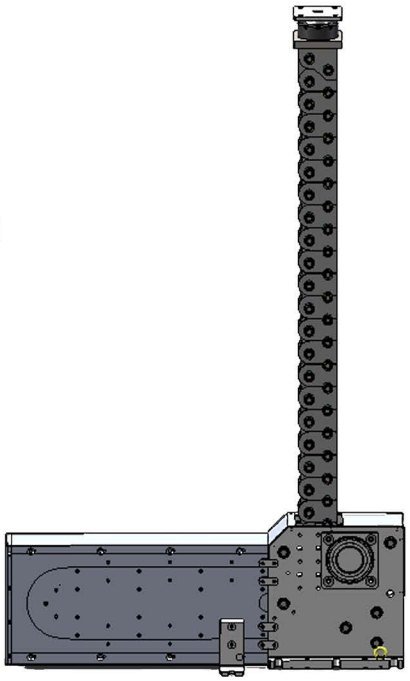






VT Chain lifting chain

For heavy loads and important strokes



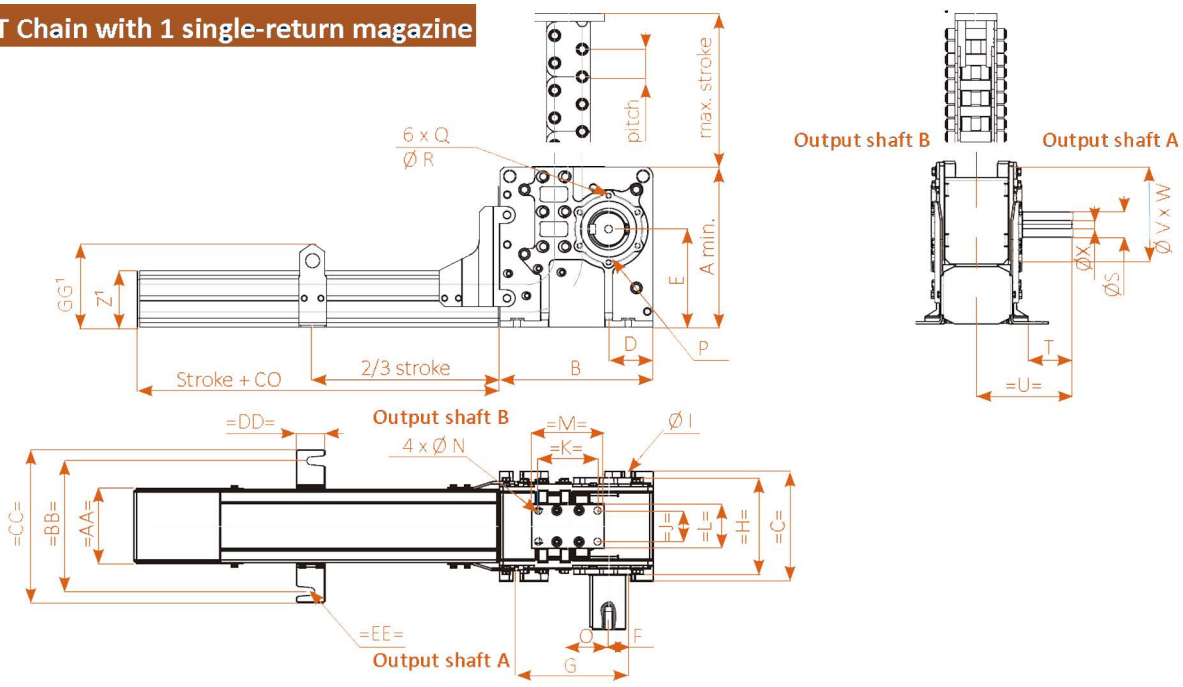
The VT Chain was specifically developed for the needs of the theatrical industry, but it has proven to be equally well-suited for industrial applications.
It is suitable for low frequency applications (< 5 cycles/hour), for example, lifting manufacturing work platforms. The lifetime is 50,000 cycles (standard) or 250,000 cycles (MD – Medium Duty version) with a maintenance of lubrication that is required every 2,000 cycles (standard) and 13,000 cycles (MD) the first year; then every 10,000 cycles (standard), 50,000 cycles (MD) or every year.
For requirements outside of our specifications, please contact us.

VT CHAIN (standard model)

VT Chain (standard model)							
	VT32	VT50	VT50R	VT80	VT80R	VT100	VT100R
Static capacity per lifting column							
max. load (kN): stroke limit (m)	**20 : 1,9**	**50 : 2**	**70 : 1**	**100 : 3,5**	**125 : 2**	**130 : 6**	**200 : 3,5**
load limit (kN): **max. stroke (m)**	**20 : 1,9**	**10 : 4**	**10 : 4**	**40 : 6,4**	**40 : 6,4**	**70 : 8**	**70 : 8**
Dynamic capacity per lifting column							
max. load (kN): stroke limit (m)							
load limit (kN): **max. stroke (m)**	**10 : 1,9**	**10 : 4**	**10 : 4**	**40 : 6,4**	**40 : 6,4**	**70 : 8**	**70 : 8**
Other specifications							
nominal speed, up to (mm/s)	200	200	200	200	200	200	200
system efficiency rate (%)	80	80	80	80	80	80	80
chain pitch (mm)	30	50	50	80	80	100	100
primitive radius (mm)	30	50	50	80	80	100	100
minimum height (mm)	190	2905	2905	460	460	572	572
weight of chain (kg/m)*	15	21	22	46	50	67	70
weight of drive housing (kg)*	8	29	33	80	90	192	213
weight of single-return magazine (kg/m)*	24	5	5	10	10	155	155

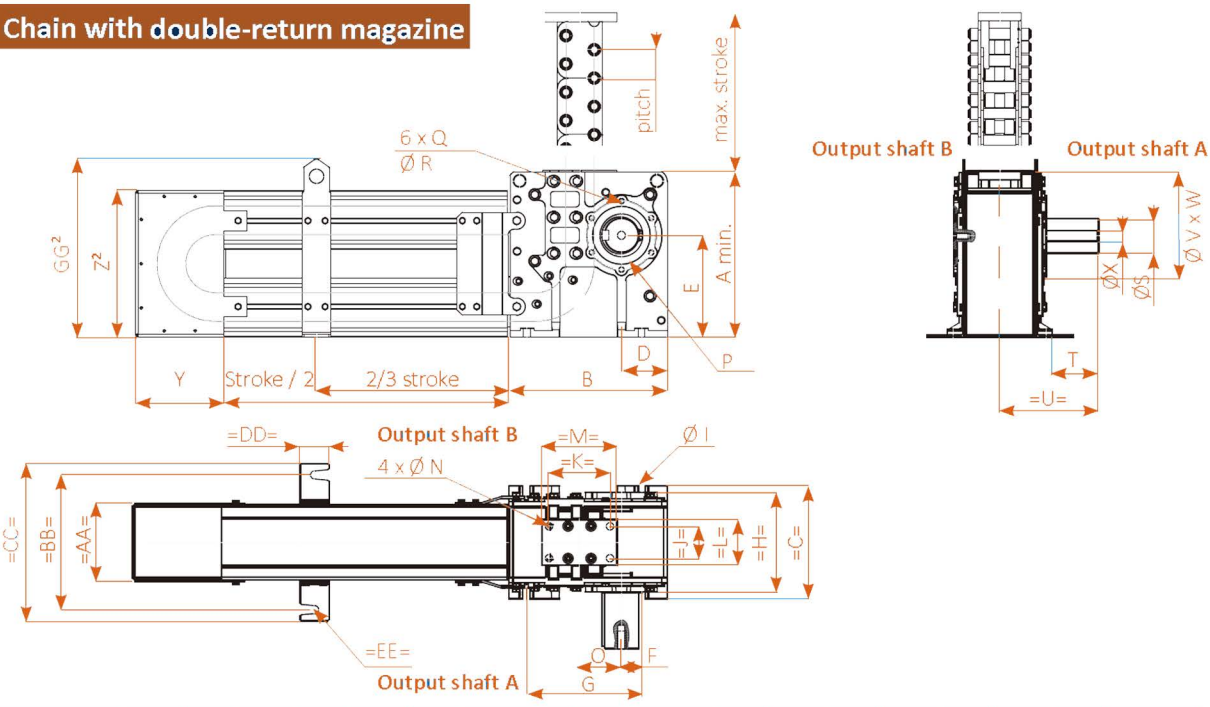
Note: load capacity and stroke are given relative to each other – a lower stroke allows a higher load and vice versa. For example: "50: 2" means the maximum load is 50 kN up to a stroke limit of 2 m; "10: 4" means the maximum stroke is 4 m up to a load limit of 10 kN. Please note maximum speed cannot be combined with maximum load or stroke.

VT Chain with 1 single-return magazine



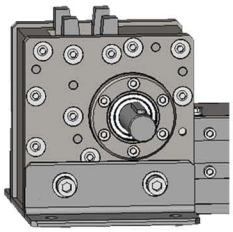
Model	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	CO
HT 30	190	165	134	45	115	30	135	142	4xØ9	40	80	55	100	Ø9	46.5	30	M8x20	50
HT 50/50A	291	270	199	70	177	35	200	173	4xØ12	56	106	80	130	Ø13	75	50	M8x25	200
HT 80/80A	460	424	306	112	280	60	320	270	4xØ18	80	180	120	220	Ø18	120.0	80	M12x25	200
HT 100/100A	572	530	387	140	348	75	200+200	347	6xØ18	110	220	150	280	Ø21	150	100	M12x30	200

VT Chain with double-return magazine



Model	R	S	T	U	V	W	X	Y	Z1	Z2	AA	BB	CC	DD	EE	GG1	GG2
HT 30	80	Ø30	62	133	70	25	M10x20	114	78	170	99	155	195	35	Ø11	130	210
HT 50/50A	120	Ø45	100	175	100	4	M16x32	154	103	255	137	237	277	50	Ø14	150	310
HT 80/80A	220	Ø70	130	290	200	5	M20x40	209	166	402	205	304	344	75	Ø14	225	460
HT 100/100A	250	Ø80	163	368	220	6	M20x40	272	198	497	255	335	395	100	Ø18	260	570

Main VT Chain options

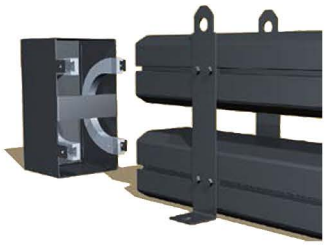


Long guides

The drive housings can be fitted with standard or long guides. The long guides are required in the following two cases:
1. to reduce deflection when the stroke is long.
2. to stabilise the chain when exiting or entering the drive housing at speeds above 200 mm/s.

Load monitoring

The VT Chain load cell allows load monitoring at the top of the lift column, the point where the force is applied.
The deformation body contains a force transducer with a thin film sensor for high accuracy.

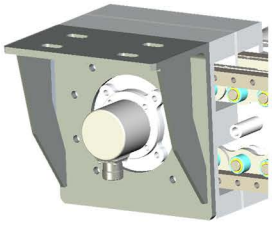


Modular magazine

Our standard dual-line magazines consist of two parallel aluminum tubes with a 180° curve piece connecting them at one end; the tubes can be cut to any size. This allows the magazines to be fitted exactly to the length of the lifting column. In installed lift systems, if the stroke is to be extended, additional storage space can be obtained by simply replacing the tubes.

Positioning control using an encoder

An encoder can be connected to the drive shaft with an appropriate mounting bracket. With a resolution of 1 024 points per travel, the positioning accuracy obtained at the end of the column is 0.5 mm.



Other VT Chain options

- special forms for drive shaft output
- mounting flange for gear reducer
- cardan / U–joint shafts and couplings
- low–profile, single–line magazine or multi–line
- magazine; special magazine designs on demand
- intermediary pick–up frame allowing lifting heights above standard
- end–of–stroke sensor
- special paint or coating
- design support, custom project study, assistance in configuration of lift systems

*Important design hints:

- Consider the cumulated efficiency values of each part
- Systematically incorporate a safety brake or a double motor brake
- Account for the uneven distribution of loads on the columns and rigidity of the platform
- Use torsion–stiff shafts and couplings
- Power the motor using a frequency converter to avoid generating shock during start–up and shut–down
- Consider the forces generated by a shut–down due to a power loss, particularly with speeds above 100 mm/s

Lengths and weights of VT Chain standard magazines

The total length of the magazine (M) is composed of the basic length, which depends on the model for a stroke of 500 or 1 000 mm, and the length of the doublereturn magazine that is also required. This is measured in standardised steps, where the base is extended by 50 mm per 100 mm stroke (no intermediate dimensions). In the basis length, the 180 ° deflection, the brackets, the housing connection and two links contain a storage reserve.

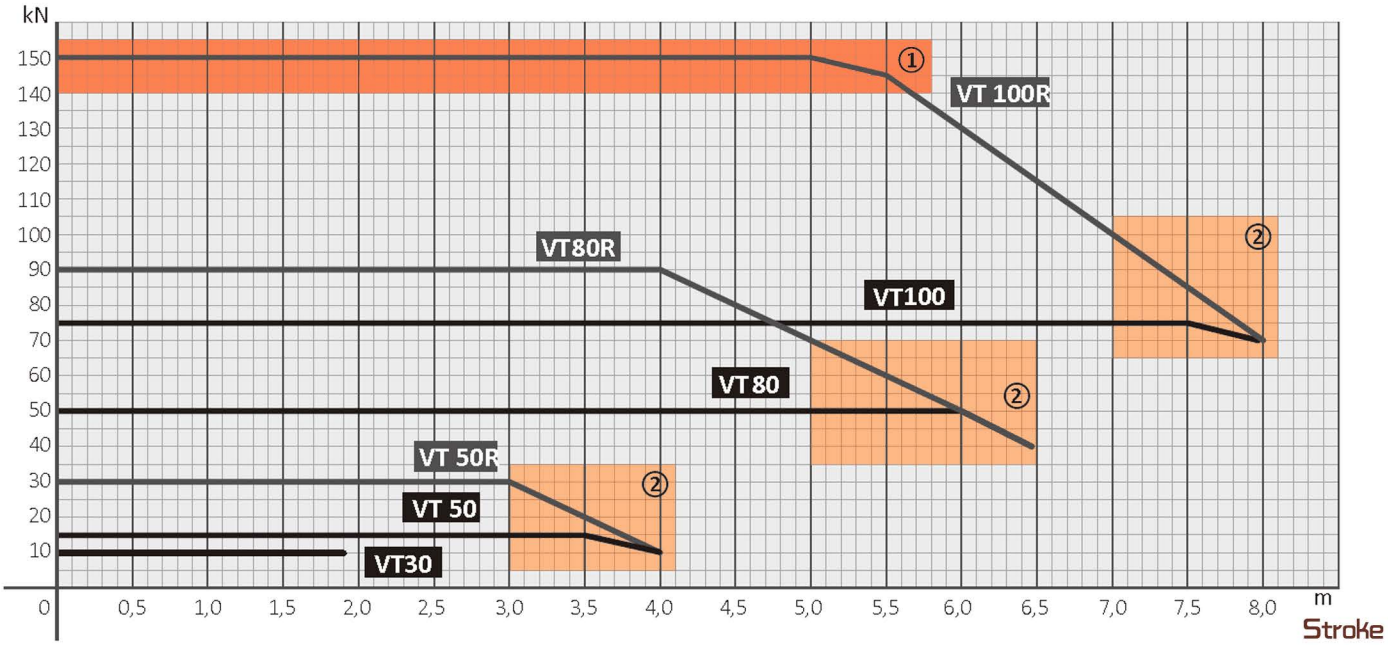
Values are given for all VT Chain models in the table below.

The weight of the magazine consists of the weight of the base and the weight of the double–return magazine, depending on the stroke (in m). The corresponding values can also be found in the table below.

Lengths and weights of magazines				
Model	VT Chain 30	VT Chain 50/50R	VT Chain 80/80R	VT Chain 100/100R
Length of standard magazines				
at 500 mm stroke (mm)	493	-	-	-
at 1 000 mm stoke (mm)	-	826	939	1 103
Weight of the double-return magazine				
basis (kg)	2	5	16	27
magazine - brackets, return (kg/m)	25	45	10	16

Static & dynamic capacities VT Chain

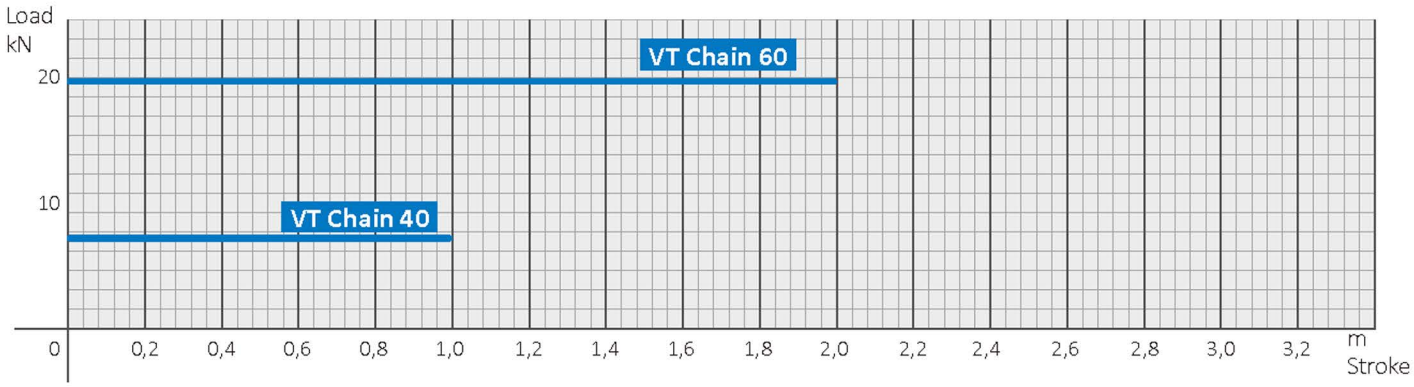
Load



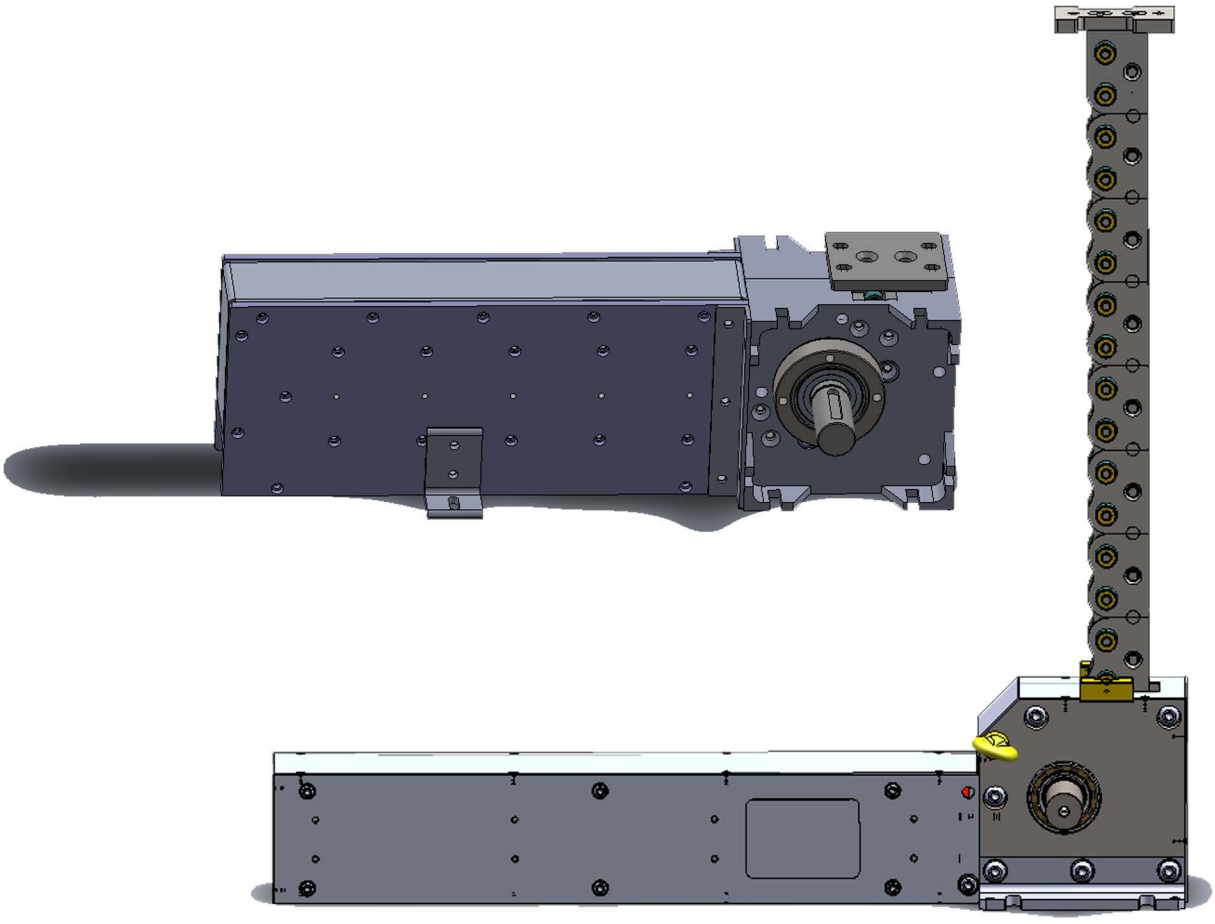
To ensure stability in the upper portions of the operating ranges, the VT Chain' s drive system uses special components, in particular a double–key or splined shaft and longer drive guides.
For loads above this limit, the drive system is equipped with a double–key or splined drive shaft.
For strokes above this limit, the drive system is fitted with long drive guides.

Long guides increase the lowest possible position of the platform above the nominal closed height of the VT Chain as follows:
VT Chain 50 / 50R: 366 mm (: + 75.5 mm)
VT Chain 80 / 80R : 580 mm (: + 120 mm)
VT Chain 100 / 100R: 722 mm (: + 150 mm)

Dynamic capacity of VT–L CHAIN



VT Chain



Typical applications:

Industrial lifting platform
Logistics transmission line stacking
Warehouse state library
Lift the storehouse
Contact the garage
New energy vehicle level change station

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