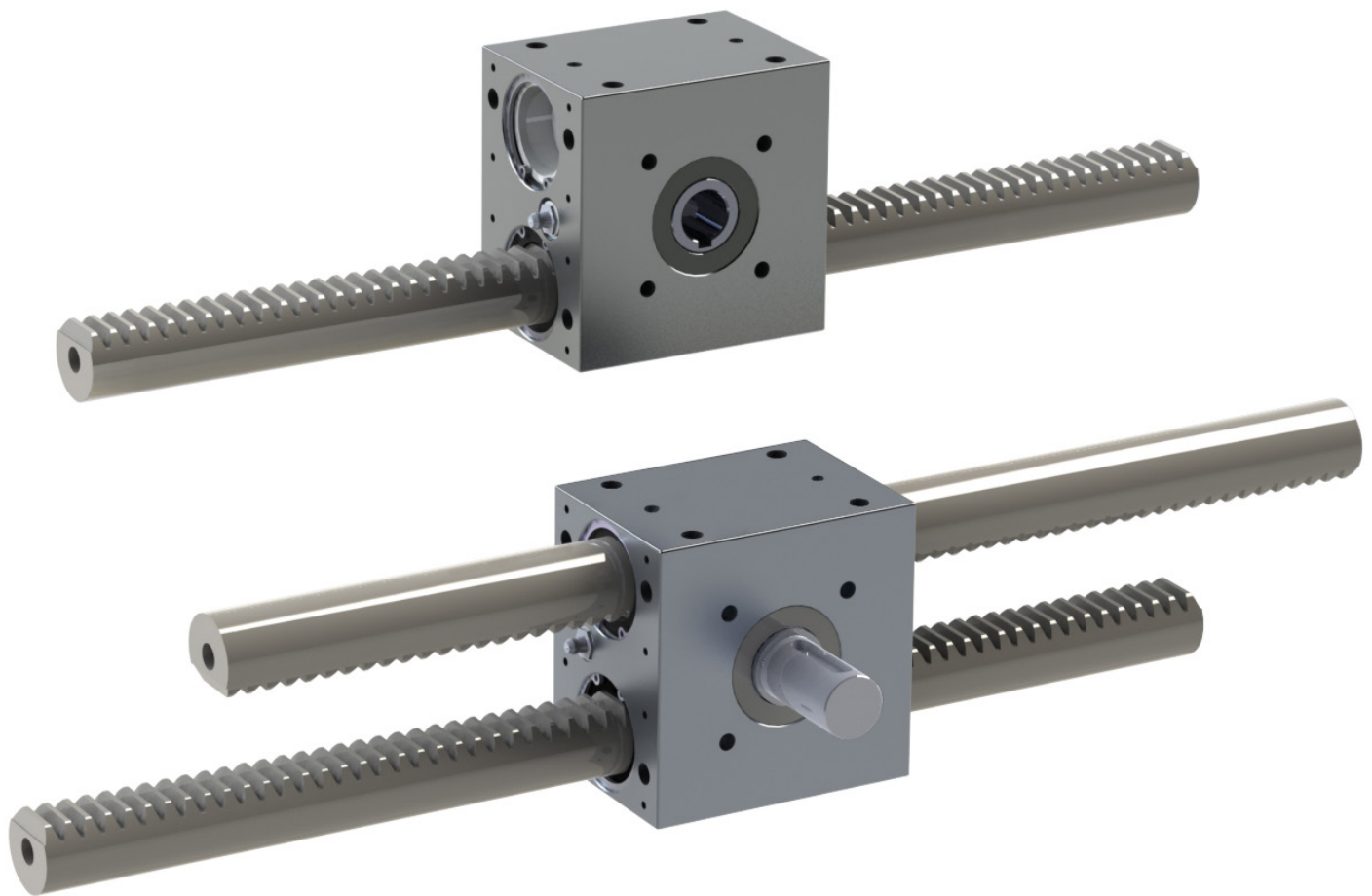


RACK JACK

Synchronous Lifting Systems

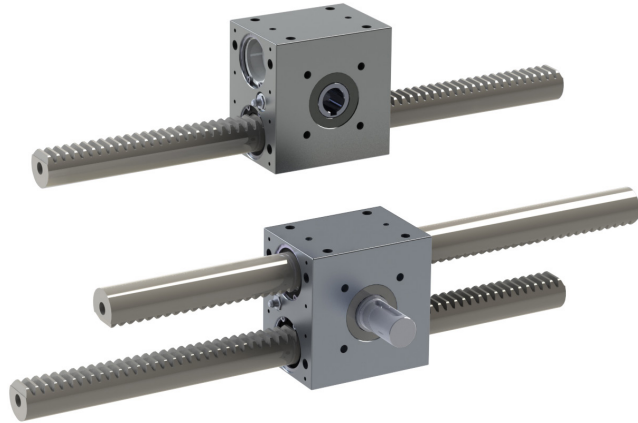


WMH Herion
part of your drive

ANDANTEX
USA Inc.

Operation

The Rack Jack from WMH Herion provides simple synchronous lifting motion. The system of rack and pinion transforms linear motion to rotation and vice versa. The force-locked connection between the lifters or drive components is achieved by shafts with round profiles.



The rack jacks are available with one or two racks. In the double version, the racks move in opposite directions.

This simple mechanical principle ensures a failure-free, durable and reliable operation of the product. Thanks to its compact construction in robust square housings, the lifters are particularly insensitive to external influences.

Characteristics

- Simple and cost-effective lifting devices
- Robust design for long service life and continuous use
- High bending stiffness due to the large diameter and wide teeth on the rack
- Robust sliding guide for the rack
- Simple structure, high repeatability
- Average lifting speed, precise positioning in the lifting direction
- Complete range consisting of 3 sizes with 800 N (180 Lbs.) - 8000 N (1800 Lbs.) lifting force
- All sizes with same design principle and function
- Numerous mounting options incl. flange connection
- 4 pinion shaft interface options for each size.

Application Areas

- Lifting of frames of all kinds
- Feed devices
- Feeding system for nozzels, suction devices, etc.
- Gripper movement / closing movement
- Sequential width adjustment
- Lifting columns for the raising and lowering of conveyor belts or other conveyor systems
- Height adjustment on pivoting devices
- Turning and tilting systems
- Lift tables for the lifting of car bodies in the automotive industry
- Lift tables with different structures, such as roller conveyors and clamping frames (used in automobile production)
- Centering and pushing together bottles on filling machines
- Pushing in / pushing forward packages in the packaging industry
- And many more...

Performance Data - Rack Jack (Round Rack Type)

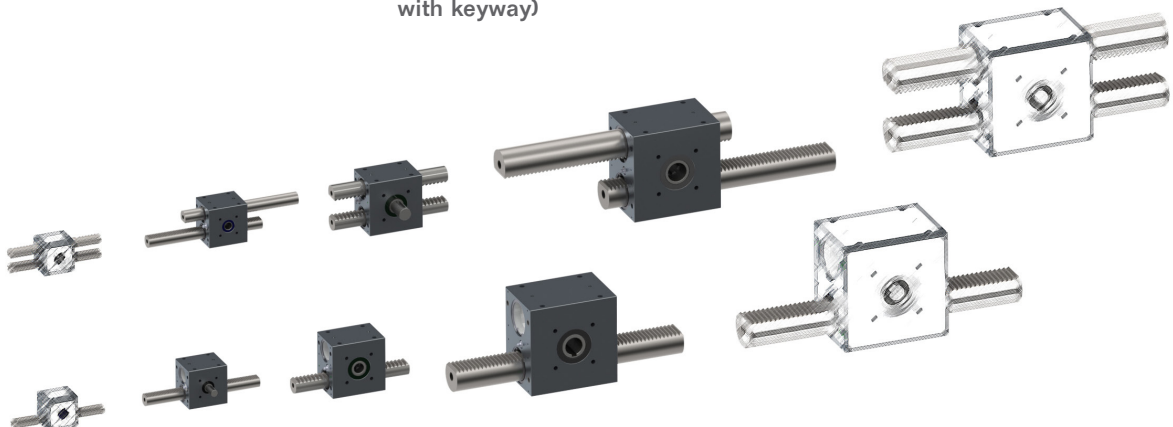
Size

	Unit	1	2	3
Lifting force - F_{max}	N	800	2000	8000
	(Lbs.)	180	450	1800
Lifting Speed - V_{max}	m/s	0.6	0.6	0.6
	(in/s)	24	24	24
Acceleration - a_{max}	m/s ²	30	30	30
	(in/s ²)	1180	1180	1180
Torque - $M_{t max}$	Nm	8	40	240
	(Lb.In.)	36	354	2125
Pitch circle diameter - $\varnothing d$	mm	20	40	60
	(in.)	0.79	1.57	2.36
Ratio - Stroke	mm/360°	62.8318	125.6637	188.4955
	(in./rev.)	2.474	4.947	7.421

Configuration - Rack Jack (Round Rack Type)

541 - X X X - X X X

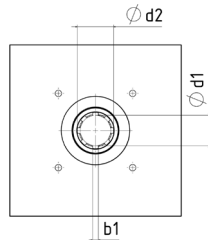
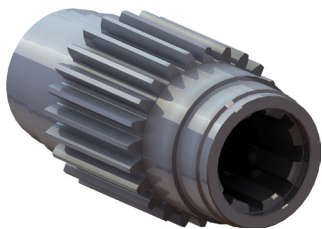
Type	Size	Pinion Shaft Design	Number of Racks	Length of Rack
541 = Rack Jack (Round Rack Type)	1	1 = Pinion shaft (spline profile)	1 = Version with 1 rack	Please state here the desired total length of the rack by indicating the Number of teeth of the rack
	2	2 = Pinion shaft (shaft end on one side)	2 = Version with 2 racks	
	3	3 = Pinion shaft (shaft end on both sides)		
		4 = Pinion shaft (hollow shaft with keyway)		



TECHNICAL DATA - PINION SHAFTS

For each size of the rack jack, 4 pinion shaft designs for a variety of connection options are available. The pinion tooth geometry is identical in each size for all rack jack types. Customized pinion shafts are available on request.

1. Pinion shaft with spline profile - splined bore dimensions

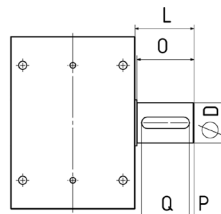
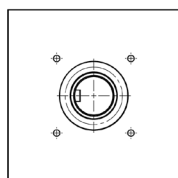
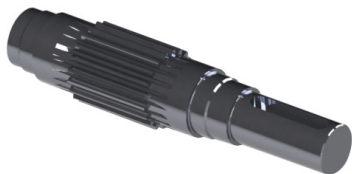


Spline profile DIN ISO 14

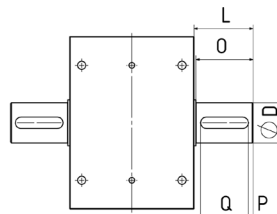
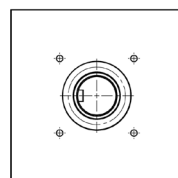
a: Number of splines
(drawing shows size 3)

Size	$a \times d_1 \times d_2$	b_1
1	6 x 11 x 14	3
2	6 x 16 x 20	4
3	8 x 32 x 38	6

2. Pinion shaft with shaft end on one side - shaft extension dimensions



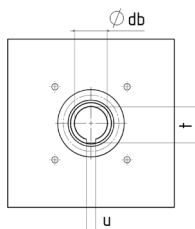
3. Pinion shaft with shaft end on both sides - shaft extension dimensions



Keyway acc. to DIN 6885 P9

Size	$\varnothing D^{h7}$	L	O	P	Q
1	14	32	30	2	25
2	25	47	45	5	36
3	42	62	60	5	50

4. Pinion shaft (hollow shaft) with keyway - bore dimensions

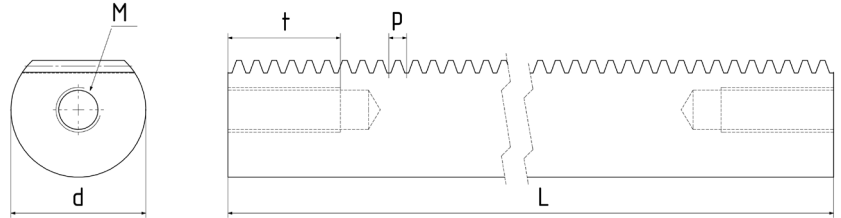


Keyway acc. to DIN 6885 P9

Size	$\varnothing D^{h7}$	u	t
1	10	3	11.4
2	20	6	22.8
3	35	10	38.3

In the rack jack, the racks transfer tension and compression forces; they do not accept transverse forces. Slide bushings are used to support the racks.

Material ETG® 100
Straight teeth
Pressure angle 20°
Tooth quality 8 h27
Outer diameter is ground h6



For Size	Module	d ^{h6}	M x t	[kg/m]	p	L = z x p
1	1.0	25	M10 x 30	3.50	3.1416	acc. to customer specifications, please state the required number of teeth in your request & order
2	2.5	32	M12 x 35	5.50	7.8540	
3	2.5	60	M20 x 50	19.10	7.8540	

z: Number of teeth
p: Pitch

ETG® 100 is a high-quality alloy steel with a tensile strength of 960-1100 N/mm².

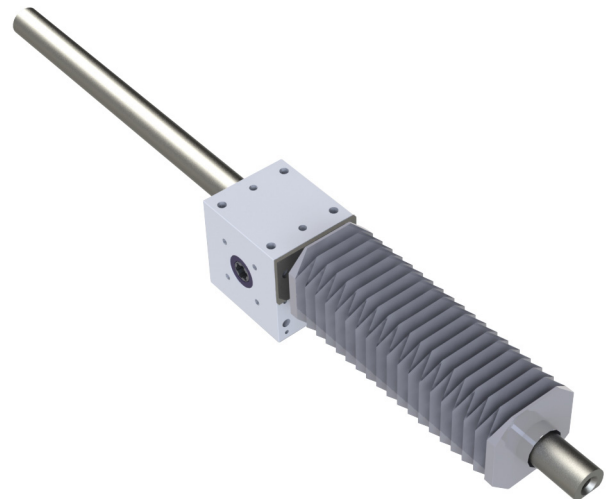
The standard design of the rack includes a mounting thread (M x t, stated in the table) on both ends. Please inquire for custom machined rack ends according to application requirements and drawings.

Protective Cover & Fastening Device

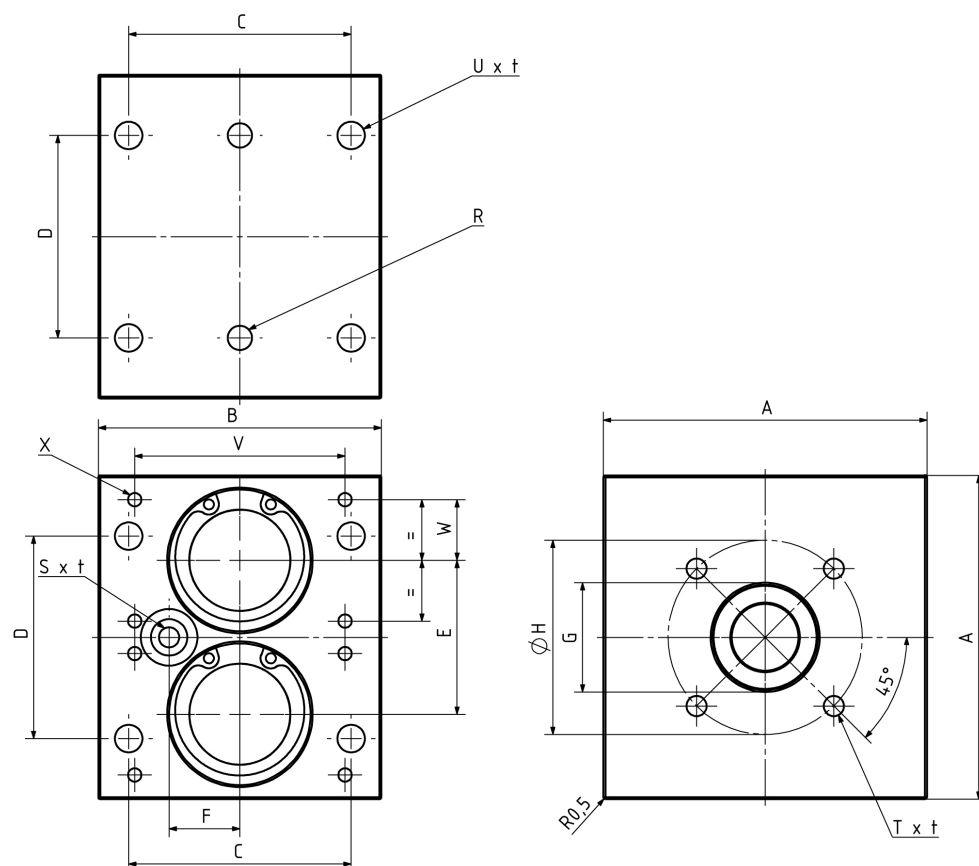
For use in environments that are heavily contaminated with dust or metal abrasion, our rack jacks can be equipped with a protective cover.

Bellows protect the racks from contamination and accumulation of dirt and dust and prevent damage to the rack jack by foreign particles.

The protective cover is easy to use and is designed and customized for each rack jack. In case of need, please mention this in your inquiry.



TECHNICAL DATA - RACK JACK (ROUND RACK TYPE)



Gearbox dimensions

Size	A	B	E	F	G	S x t	X x t
1	80	70	38	20	26	M10 x 10	M4 x 6
2	110	80	61	15	47	M10 x 10	M4 x 8
3	180	130	99	15	72	M10 x 10	M4 x 8

- G** Centering flange (when using gasket please remove)
t Depth dimension
S Lubrication hole
X Rack protection

Mounting dimensions

Size	C	D	H	R ^{H7} x t	T x t	U x t (Ø **)	V	W
1	55	50	48	6 x 5	M6 x 12	M8 x 16 (Ø 6,8)	52	15
2	60	72	72	6 x 3	M8 x 12	M10 x 20 (Ø 8,5)	60	18
3	105	120	110	6 x 5	M10 x 20	M12 x 27 (Ø 10,2)	100	35

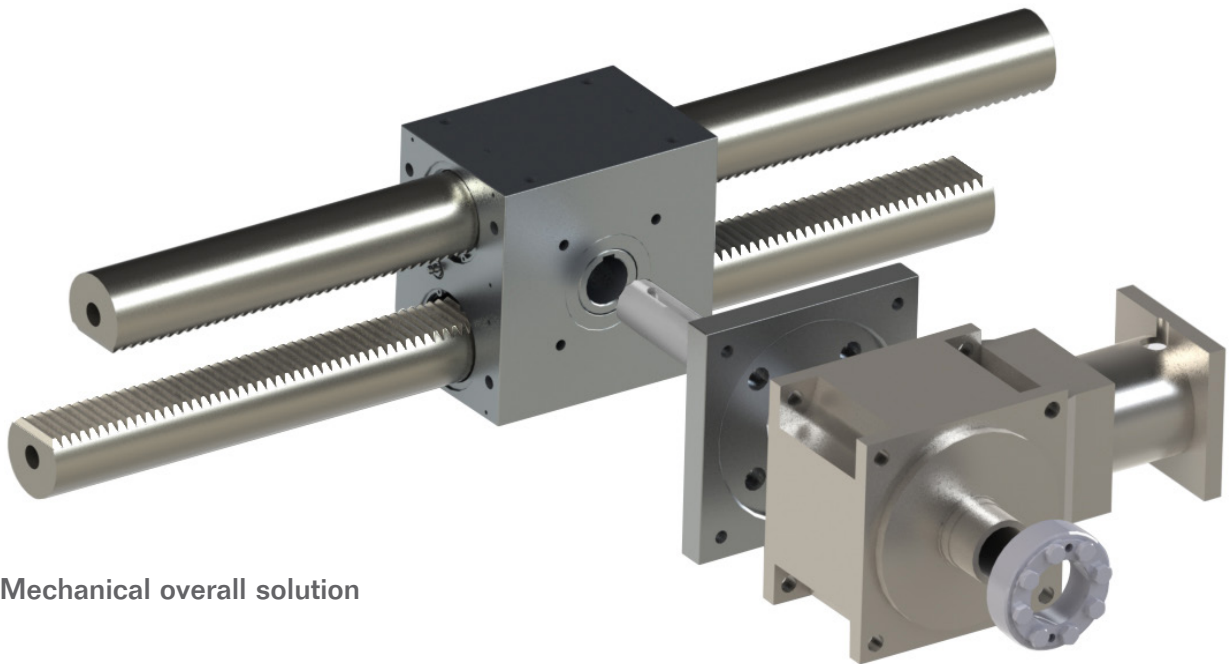
- t** Depth dimension
Ø ** Value in brackets corresponds to the through hole below the thread

Custom solutions available on request to meet installation space constraints - we offer the design and manufacturing of housings according to customer specifications. Please contact us to define the dimensional requirements.

In addition to our standard product range, we manufacture rack jacks according to your requirements. Please send us your inquiry with application details and we will advise regarding design, construction and manufacturing capabilities.

Variations & Customization

- Technical design and complete manufacturing of customized rack jacks (in terms of performance, travel speeds, stroke, the connection of multiple rack jacks, etc.)
- Individual housing designs
- Pinion shafts, custom-made for different connection options, such as pinion shafts with different inner profiles or design of the shaft ends according to customer requirements and drawing
- Rack lengths and end machining according to customer requirements and drawing.
- Rack protection (individually, adapted to stroke length)



Mechanical overall solution

Service

- Calculation tool
- 3D-CAD data files

can be provided upon request.



1705 Valley Road • Wanamassa, NJ 07712

Phone: 800.713.6170 • 732.493.2812 • Fax: 732.493.2949 • E-mail: info@andantex.com • www.andantex.com