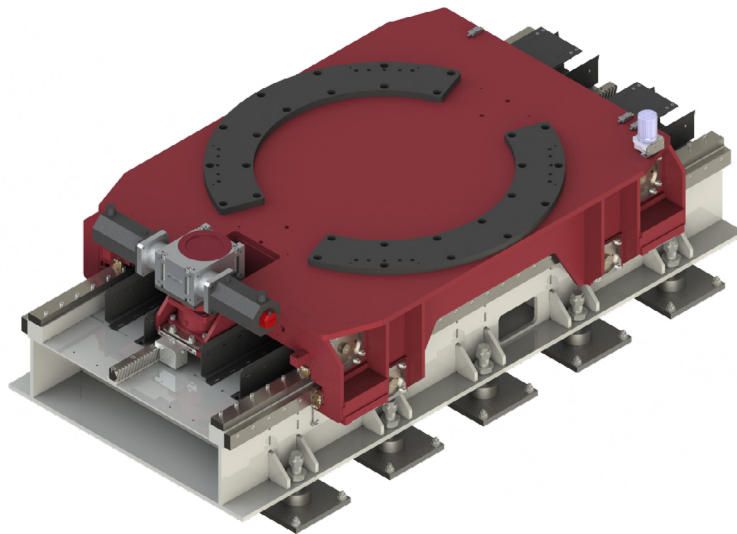


Heavy-duty TrackMotion

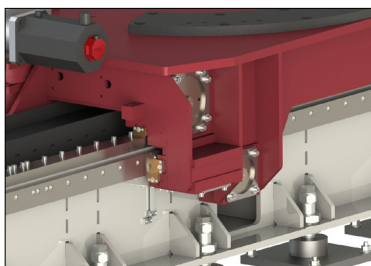
Unique solution for the highest payloads Move the heaviest robots with the TMF-6 floor mounted linear axis



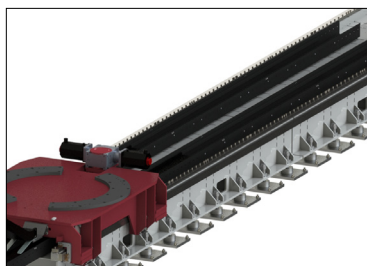
The TMF-6 floor mounted linear axis

Güdel's TMF (TrackMotion Floor) product range includes models for robots of every size, which ensure that production processes operate smoothly and efficiently. Apart from the TMF in size four (TMF-4) for universal applications, Güdel developed the TMF-5 for loads just over 10 tons. The next size up, the TMF-6, is globally unique. The TMF-6 moves static payloads of 20 tons,

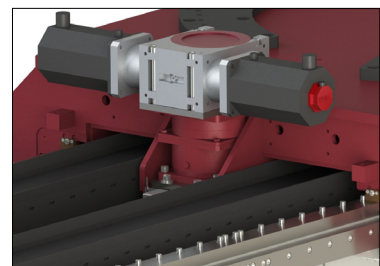
including articulated robot payloads of up to 14.2 tons. The seventh axis enables an efficient extension of the operating area by substituting several robots. The TMF-6 is yet another example of Güdel's innovative spirit. Regardless of the size of the load to be moved Güdel offers the right sized linear axis solution for every robot.



Cartridge mounted heavy-duty rollers in carriage. Eccentric adjustment, dirt resistant, easy replacement.



Moves the largest articulated robots with total weight of 14.2 metric tons.

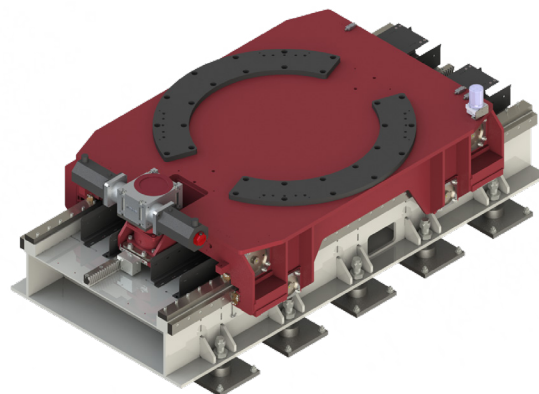


Güdel gearbox combination minimizes interference contours on the carriage plate.

TMF-6 moves heavy industrial robots:

Fanuc M-2000iA / 900L
 Fanuc M-2000iA / 1200
 Fanuc M-2000iA / 1700L
 Fanuc M-2000iA / 2300

Industrial robots from other manufacturers on request.



Impressive features of the Güdel TMF-6:

- Moving payloads of up to 20 tons
- High dynamics in relation to size and moving load
- Variable adapter plates for easy connection of robots and tool holding devices
- Compact and durable design

Static payload	20.000 kg
Robot weight incl. payload	14.200 kg
Number of carriages	Up to 2 carriages – More on request.
Guideway system	Heavy-duty guideway system with flat rails and double roller support.
Drive system	Rack and pinions with helical gearing, hardened and ground. Güdel NR-240 planetary gearbox with optional Güdel HPG-120 angle gearbox for additional performance. Motors from Fanuc as standard, further motor types on request.
Length and stroke	Track length from 4 m to 100 m in 1 m steps. Strokes from 1.33 m to 97.33 m.
Riser	max. 500 mm
Floor mounting	Welding plate including anchor rods. Floor thickness min. 250 mm. Pressure absorption of 5 t/m ² . Concrete quality min. C25 (250 kp/cm ²)
Noise emission	max. 75 dB(A)

Güdel company profile

Güdel is a manufacturer of high-precision machine components and provider of sophisticated automation solutions.

Its spectrum of products ranges from linear guideways, racks, pinions and drives right through to linear axes and gantry robots. Güdel assembles its products into systems

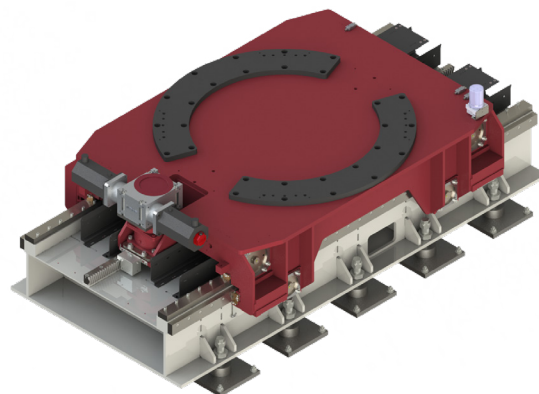
with a high degree of control intelligence and complete plant installations, which can be used in the automotive, tire, metal, rail, intra-logistics, pharmaceutical, renewable energy, wood, and aerospace industries. Güdel's technology is characterized by its innovation, quality and modularity.

TMF-6 Technical data

Carrier – Energy chain

Carriage Weight	2,460 kg*
Energy chain	2× H4.80.20.300.0
Weight of energy chain	5.7 kg/m
Mounting bracket with tie-wrap clamp	E4.800.20.1.12.C
Energy chain cross section (internal dimension):	Height: 80 mm, width: 200 mm
Precision (Repeatability)	+/- 0.05 mm

* Weight without motors, electrical boxes, cables



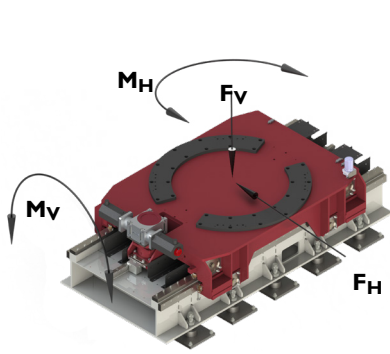
Drive data

Robo type	FANUC				Static Load	
	900 L / 1200		1700 L / 2300		-	
Gearbox configuration	NR 240	NR 240 & HPG 120	NR 240	NR 240 & HPG 120	NR 240	NR 240 & HPG 120
Static payload [N]	-	-	-	-	200'000	200'000
Speed [m/min]	35	60	30	45	30	45
Acceleration [m/s²]	1	1	0,5	1	0,5	1
Gearbox ratio [-]	30	20	35	25	40	25
Linear stroke per motor revolution [mm]	13,3	20	11,4	16	10	16
Acceleration time [s]	0,9	1,54	1,54	1,16	1,54	1,16
Stroke of axis while accelerating [m]	0,28	0,82	0,41	0,46	0,41	0,46
Motor speed [min⁻¹]	2625	3000	2625	2813	3000	2813
Stall torque of motor [Nm]	15	12	16	12	19	17
Max. torque of motor [Nm]	58	45	41	45	47	58
Reduced inertia of axis [kgm²]	6,5E-02	6,1E-02	6,3E-02	6,1E-02	6,3E-02	7,9E-02
Motor type	1× aiF40/3000	2× aiF40/3000	1× aiF40/3000	2× aiF40/3000	1× aiF40/3000	2× aiF40/3000

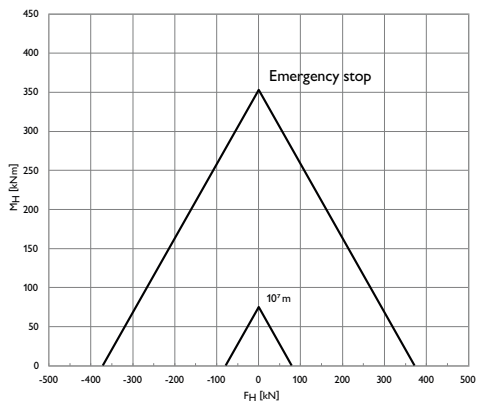
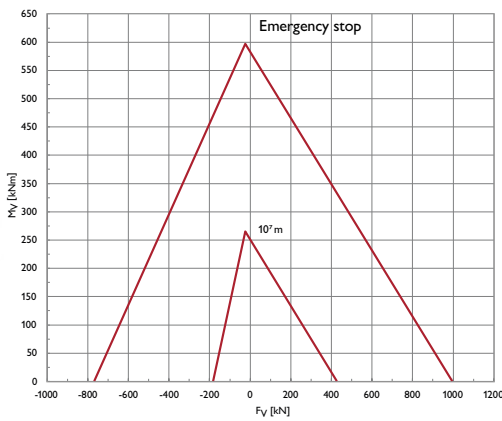
Options

Nr.	Bezeichnung	Nr.	Bezeichnung
52	Zero position mark	162	Enclosed energy chain
60	Automatic lubrication system	172	Riser
81	Coated rollers, guideways, racks, and pinion	180	Bronze wiper
91	Independent Y-multiple carriages, each with a drive	300	Documentation, other languages, on paper
160	Vertical dividers, insertable shelves for energy chains	310	Special painting at customer request

Load diagram

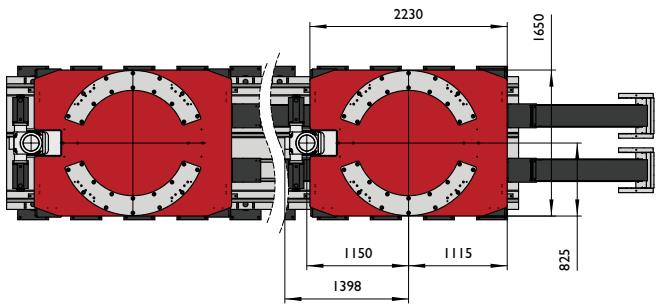
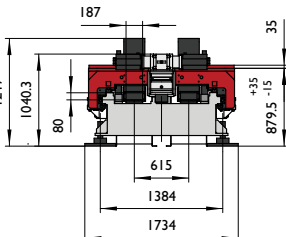
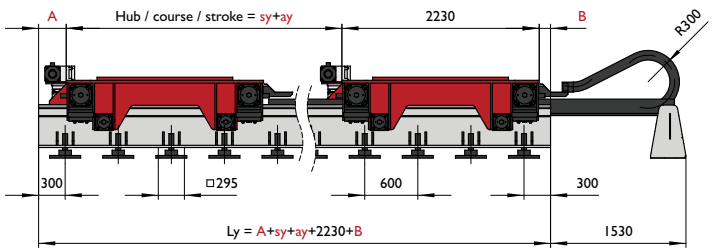


F_V max. (kN): Vertical force
 M_V max. (kNm): Vertical moment
 F_H max. (kN): Horizontal force
 M_H max. (kNm): Horizontal moment



Recommended basic values for dimensioning the linear axis (M_V , F_V , M_H , F_H), emergency stop and service life

Dimensions

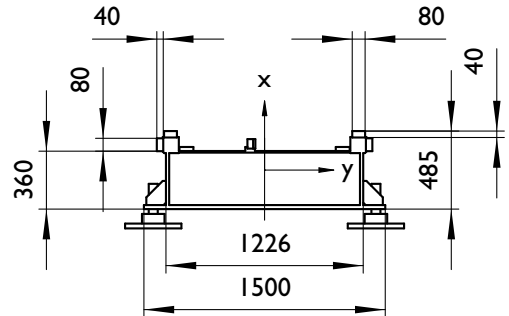


	min.	max.	
L_y	4000	100000	
$s_y + a_y$	1330	97330	in 1 m steps
A	312	-	
B	128		

Minimum recommended safety stroke $a_y = 50$ mm

Bending and torsion values

Y-axis



Axis	Mat.	m^* (kg/m)	I_x^* (cm ⁴)	I_y (cm ⁴)
Y	S235JR	1025	2407025	323930

* With rails