

Linear axes

Fast, precise and low-noise production handling High flexibility for payloads of up to 200 kg – the ZP-4 two-axis gantry



The two-axis gantry in size four (ZP-4)

Güdel's gantry concept has proven to be a guarantee for high reliability and short cycle times. With the size-4 two-axis gantry, the payload has been increased from 160 kg to 200 kg. Helical racks ensure smooth operation and reduced noise. In addition to optimized ease of maintenance, the tooth flank backlash can also be adjusted easily with an eccentric ring.

The expanded Güdel option portfolio offers more flexibility and safety in production. With the steel Z-axis (option I30), Güdel offers an efficient solution to

counter bi-metal effects between the aluminum profile and steel rails at high temperatures.

For an X-compensation on the Z-axis (option I35), the attachments below the Z-axis can be adjusted by +/- 15 mm in the X-direction. This is particularly useful with H-loaders. An impact protection for the Z-axis (option I36) has also been developed. The sensor triggers a system stop in case of a collision while lowering the Z-axis. The safety stroke of 106 mm is to avoid damage.



Steel Z-axis



Z-axis X-compensation



Z-axis impact protection

Impressive features of the ZP-4 from Güdel:

- Payloads up to 200 kg
- Reduced installation height
- Increased Z-axis bending and torsional stiffness
- Improved automatic lubrication unit
- Optimized set-up and maintenance aids
- New standard options



Maximum payload	200 kg
Optimum payload	125 kg
Highly dynamic payload	80 kg
Guideway system	Güdel medium duty linear guideway series
Drive system	Güdel helical racks and pinion, hardened and ground. Güdel gearbox HPG 60. Motor: Siemens*
Y-stroke	Up to 100 m
Z-stroke	Up to 2.1 m

* Other motor models on request

Güdel Group

The Güdel Group 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, intralogistics, pharmaceutical, renewable energy, wood, and aerospace industries. The Güdel Group has a workforce of approximately 1,200 employees worldwide in over 30 locations. The Güdel Group has its headquarters in Switzerland.

ZP-4 technical data

Y carrier – energy chain

Weight of carrier unit	60 kg*
Y-axis energy chain	H4.42.20.200.0
Z-axis energy chain	H4.42.11.150.0
Y-axis energy chain weight	2.2 kg/m
Z-axis energy chain weight	1.96 kg/m
Connection element with tiewrap plate, Y-axis	E4.420.20.1.2.C
Connection element with tiewrap plate, Z-axis	E4.421.11.1.2.C
Energy chain cross section, Y-axis	Height: 42 mm, Width: 200 mm
Energy chain cross section, Z-axis	Height: 42 mm, Width: 108 mm
Precision	+/- 0.02 mm



* Weight without motors, electrical boxes, cables.

Drive data

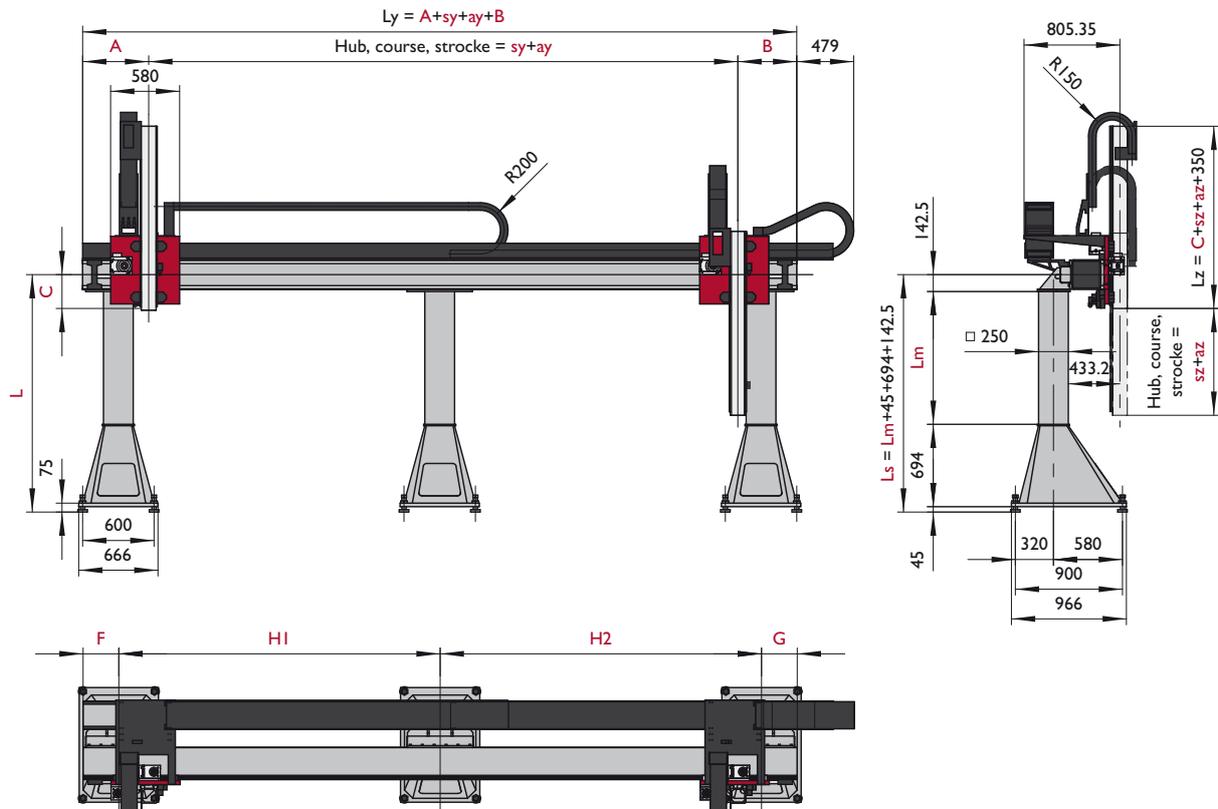
Axis	[mm]	Y			Z		
		S _y ≤ 100050*			Z _y ≤ 1200*		
Stroke	[mm]	800	1250	2000	800	1250	2000
Max. payload	[N]	800	1250	2000	800	1250	2000
Speed:	[m/min]	200	120	75	120	75	45
Acceleration:	[m/s ²]	5	4	2	7.5	2.5	1.5
Gearbox ratio:	[-]	3	5	8	5	8	13.33
HPG type gearbox:	[-]	60	60	60	60	60	60
Linear feed per motor revolution	[mm/min ⁻¹]	44.43	26.66	16.66	26.66	16.66	10.00
Acceleration time:	[s]	0.67	0.50	0.63	0.27	0.50	0.75
Acceleration stroke:	[m]	1.11	0.50	0.39	0.27	0.31	0.28
Motor speed n I:	[min ⁻¹]	4500	4500	4500	4500	4500	4500
Static motor torque	[Nm]	1.8	1.3	1.1	7.0	6.1	5.6
Maximum motor torque	[Nm]	11.1	6.8	3.4	12.1	7.6	6.2
Reduced mass moment of inertia of the axis	kgm ²	1.2E-02	5.1E-03	2.6E-03	2.6E-03	1.4E-03	7.6E-04

* Longer strokes on request

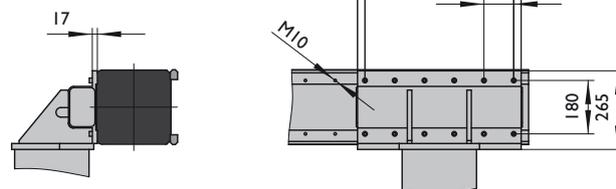
Options

No.	Designation	No.	Designation
50	Cam rails and cams	136	Z-axis impact protection
51	Mechanical multi-limit switch and holder	140	Leg attachment plates
52	Zero position mark	141	Single-piece leg
60	Automatic lubrication system	145	Beam leveling kit (leg beam)
70	Manual lifting and safety unit for vertical axes	150	Standard floor leveling kit
75	Redundant holding brake	151	Anchor rods for floor leveling kit
80	Güdel racks with hardened and ground teeth Q6 (on horizontal axes)	155	Floor leveling kit with welding plates
81	Coated rollers, guideways, racks, and pinion	156	Anchor rods for floor leveling kit with welding plates
90	Y-multiple carriages coupled with a drive	160	Vertical dividers, insertable shelves for energy chains
91	Y-multiple carriages, each with a drive	162	Enclosed energy chain (IGUS)
96	H loader with 2 vertical axes on coupled Y carrier	164	Extended energy chain support
100	Reinforced Z-Axis mounting	166	Bottom plates in energy chain duct
110	C-axis. Other axes on request	300	Documentation in other languages
120	Telescope axis	310	Special paint at customer request
130	Steel Z-axis	311	Gaskets for low temperature environments
135	Z-axis X compensation	320	ATEX certification 2G / 3G

Technical drawings



	min.	max.
sy+ay	550	100050
sz+az	600	2100
A	555	-
B	495	-
C	300	1300
F/G	300	1500
HI/H2...	600	8000
L	900	3500



ay	50 mm
az	50 mm

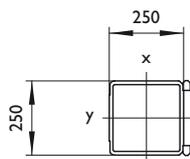
sy
sz

Overtravel
Minimal recommended value

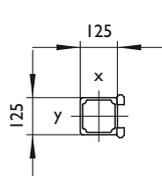
Working stroke

Bending and torsion characteristics

Y-axis



Y-axis



Axis	Material	m* (kg/m)	Ix* (cm ⁴)	Iy* (cm ⁴)	It (cm ⁴)
Y	S355J2H	94.8	12515	12100	17025
Z	EN AW-6063 T6	21.8	1545	1405	1442

* With rails