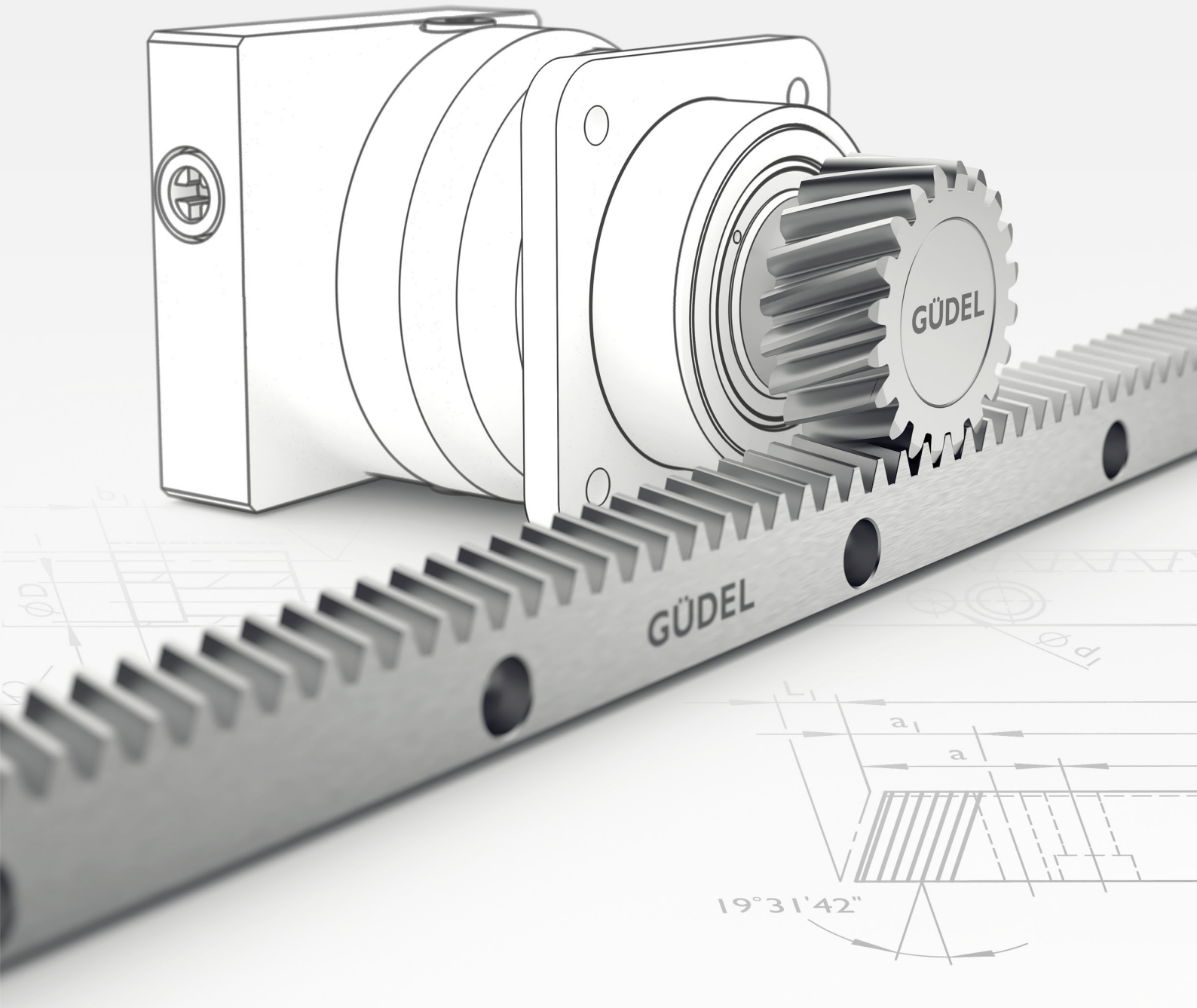
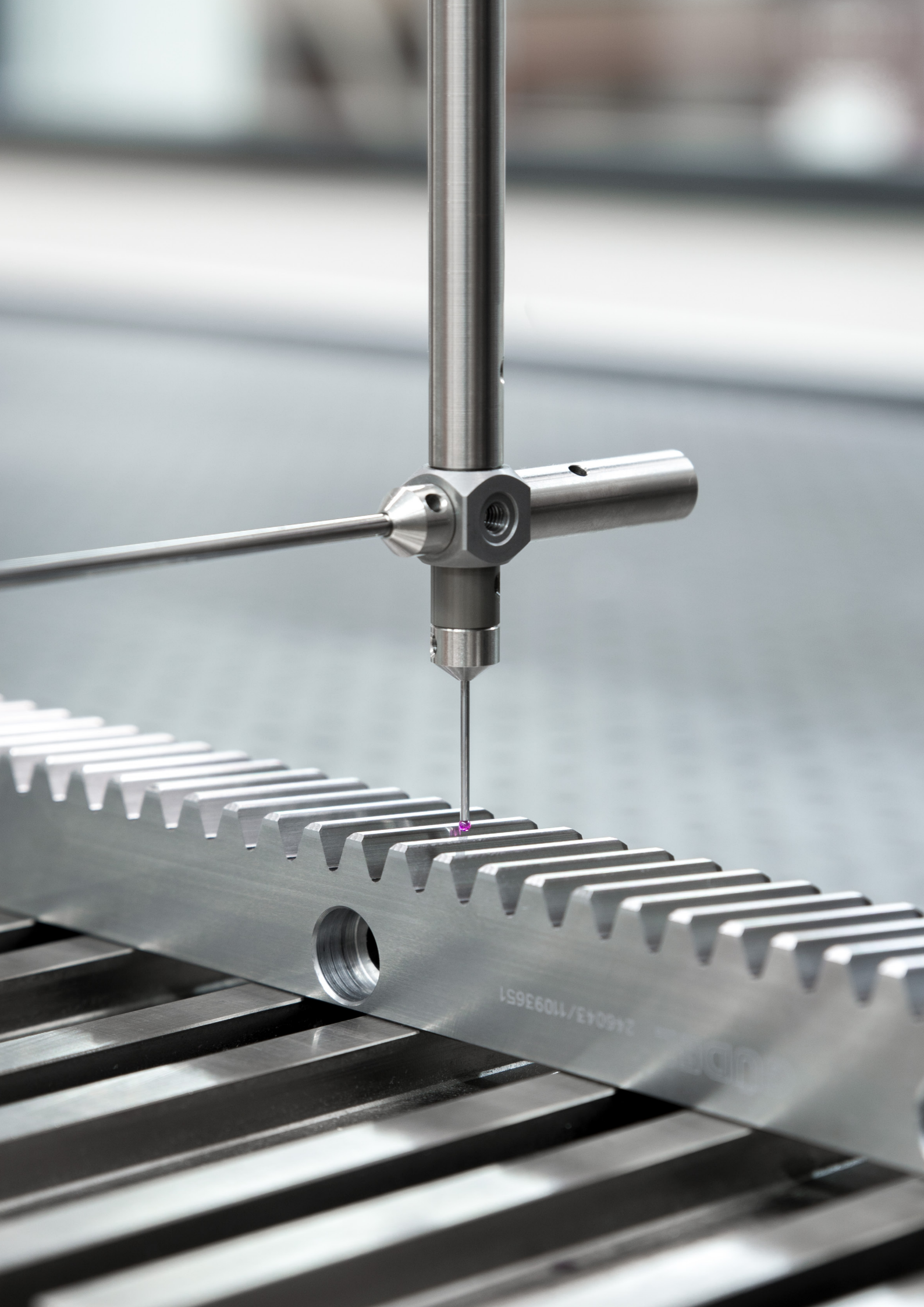
GÜDEL

Racks & Pinions



Racks & Pinions

GÜDEL



Content

Racks & Pinions

Technical data sheets

Your ideal drive train

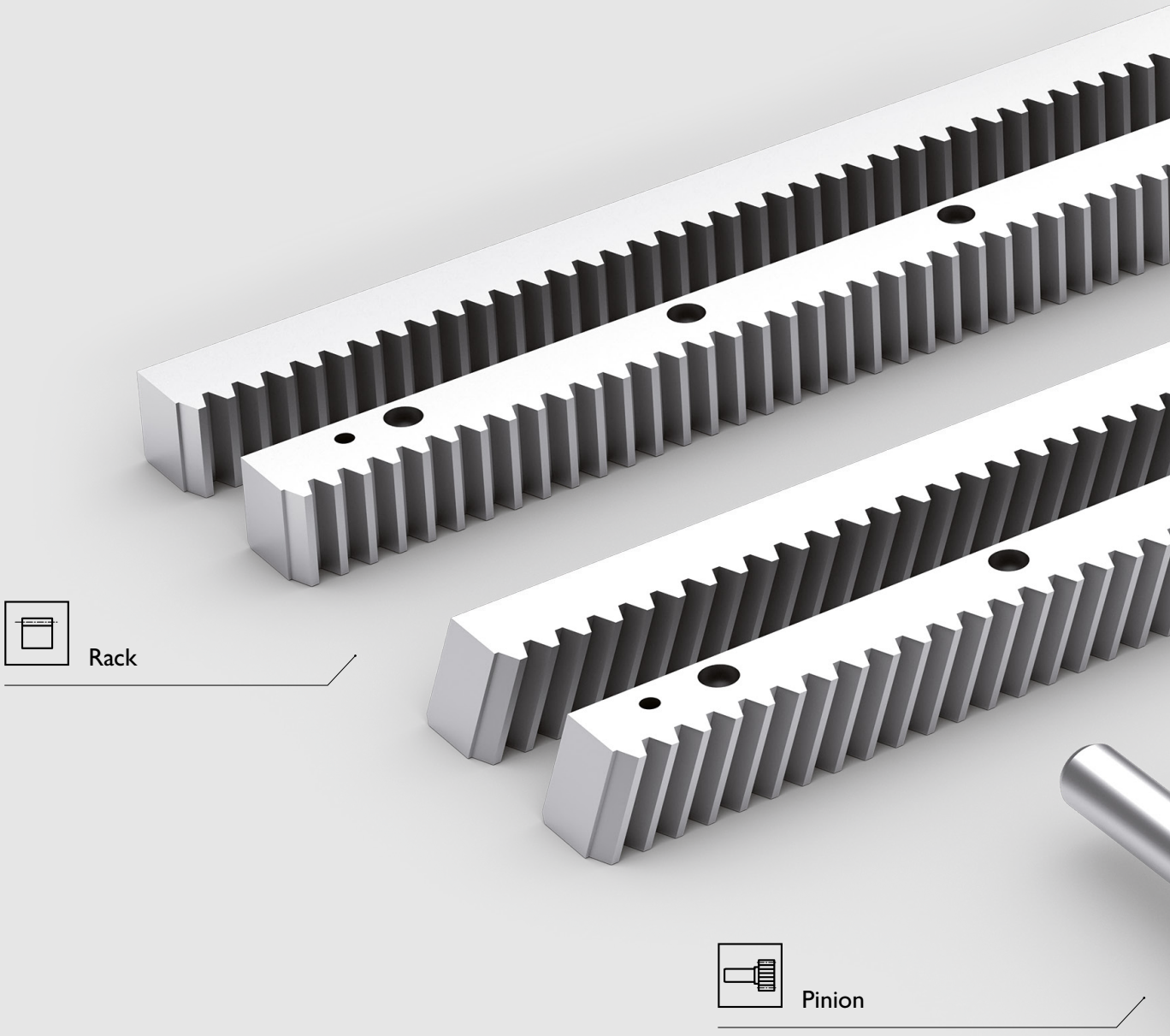
Accessories

Technical information

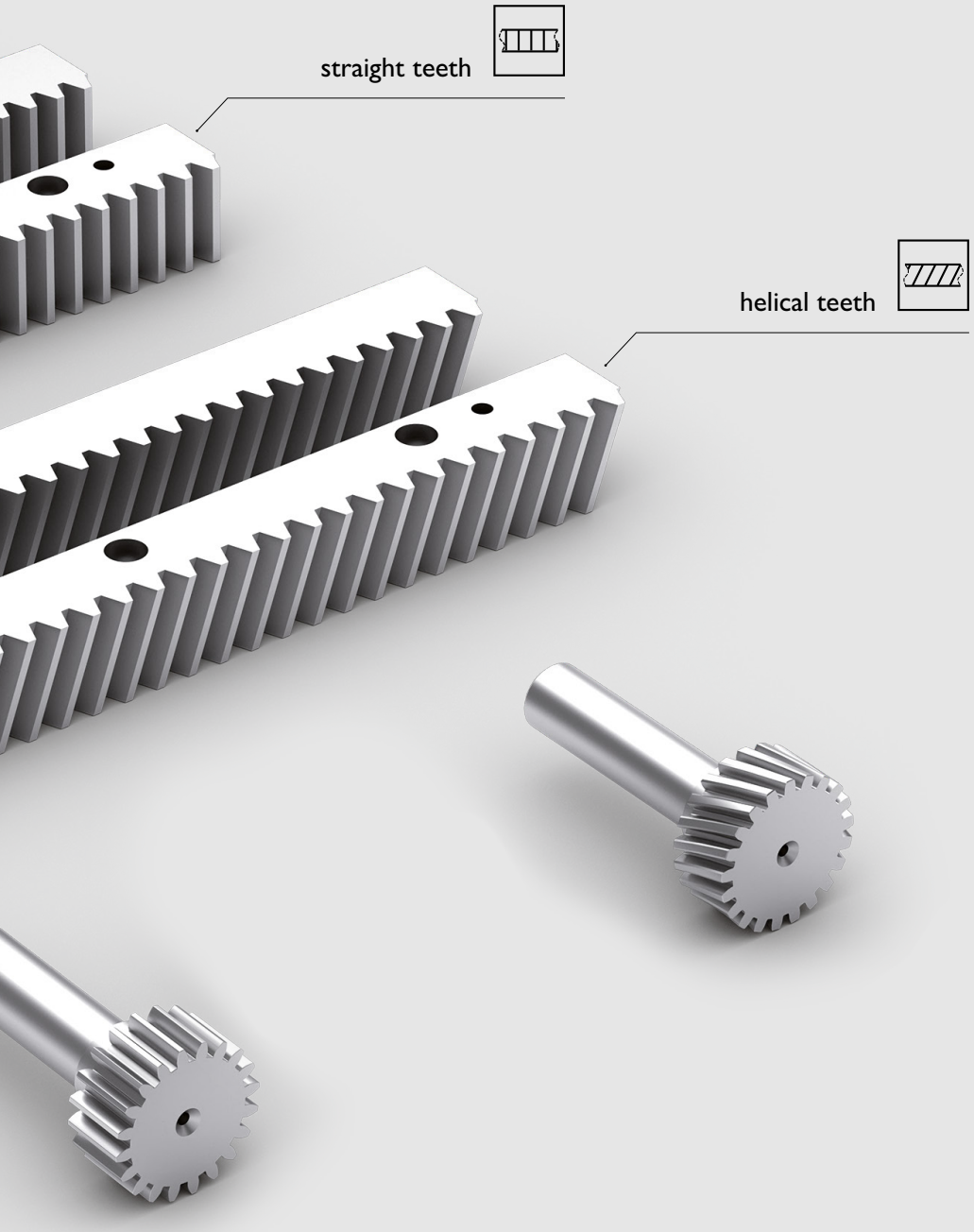
Güdel worldwide

Tooth to tooth – Rack and pinion precision

We offer our racks and pinions in different qualities and finishes. In addition to our standard portfolio shown here, we are also able to produce your application-specific designs. In this way, we provide you with the right product for every application and industry.



We offer you nine sizes from module 1.5 to 10, with the option of straight or helical teeth.



Module

m_n	p_n	p_t
1.5	4.72	5.00
2.0	6.28	6.66
2.5	7.85	8.33
3.0	9.42	10.00
4.0	12.57	13.33
5.0	15.71	16.66
6.0	18.85	20.00
8.0	25.13	26.66
10.0	31.42	33.33

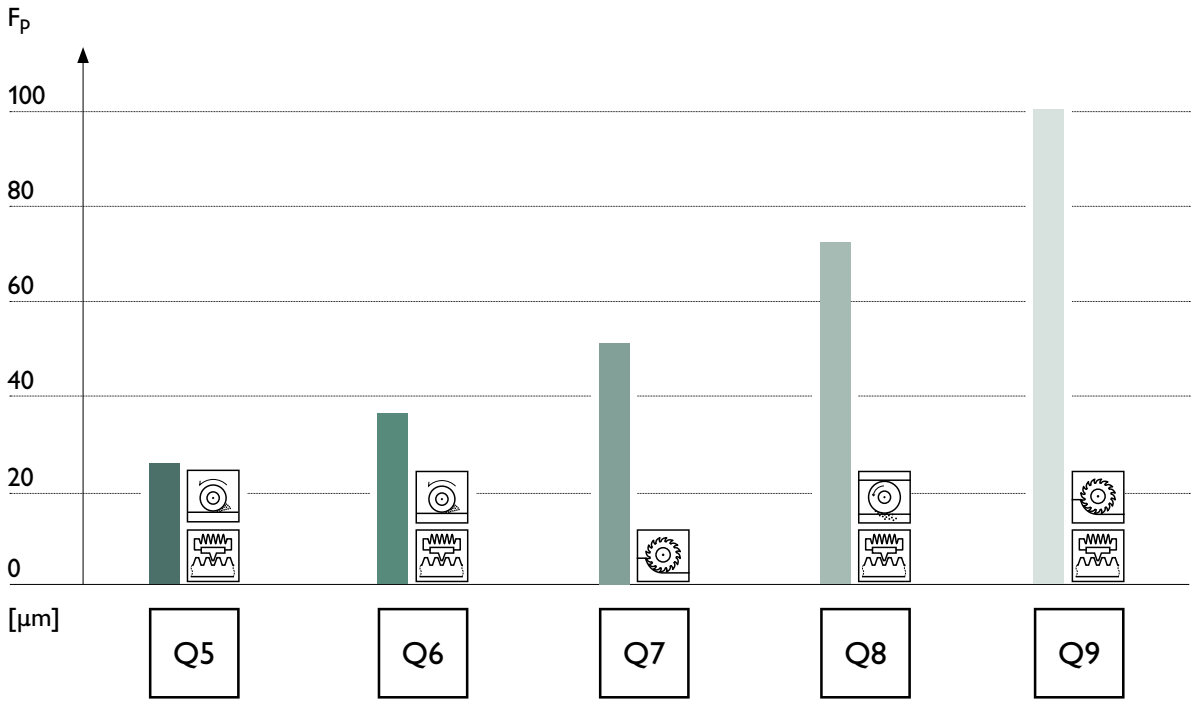
m_n: Normal module, P_n: Normal pitch
P_t: Transverse pitch (for helical teeth)

Demand-oriented performance – Quality according to your requirements

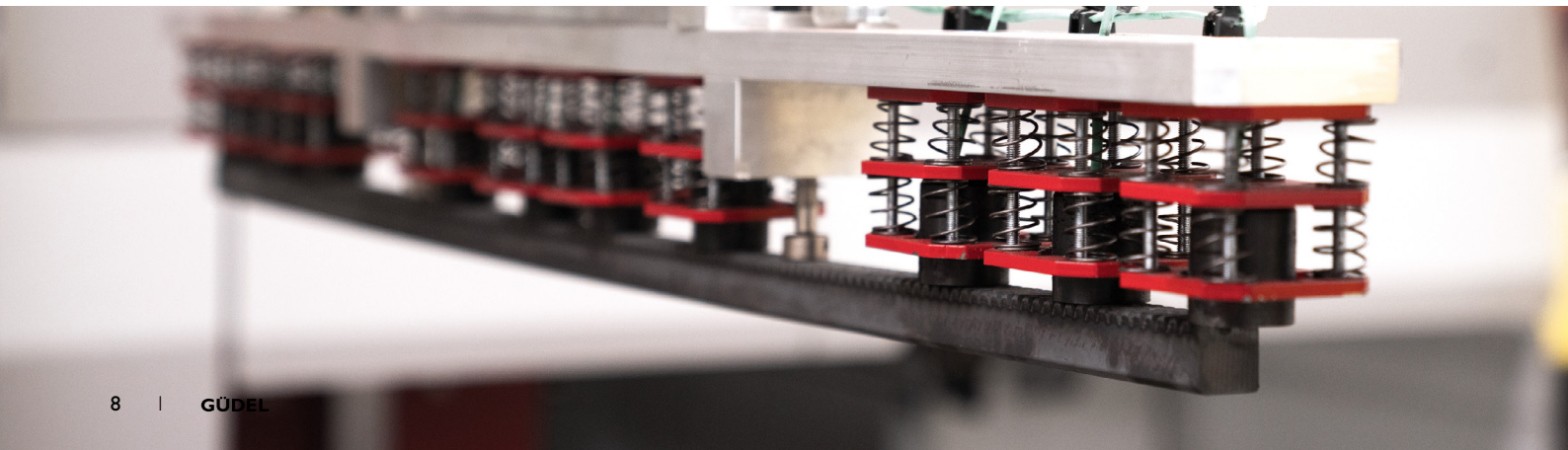
With our standard portfolio we offer five quality grades from Q5 to Q9. Our Q5, Q6 and Q8 quality racks are hardened and ground, while quality Q7 is milled out of alloyed tempered steel. Racks of quality grade Q9 are milled and hardened.

Depending on your application, you can also purchase racks made of stainless steel or plastic.

Quality



Example of the cumulative pitch deviation F_P for module 4.0 based on length 1000 mm.



Materials

Steel

Stainless

Polyamide

Processes

Hardened

Milled

Ground

Sunburst

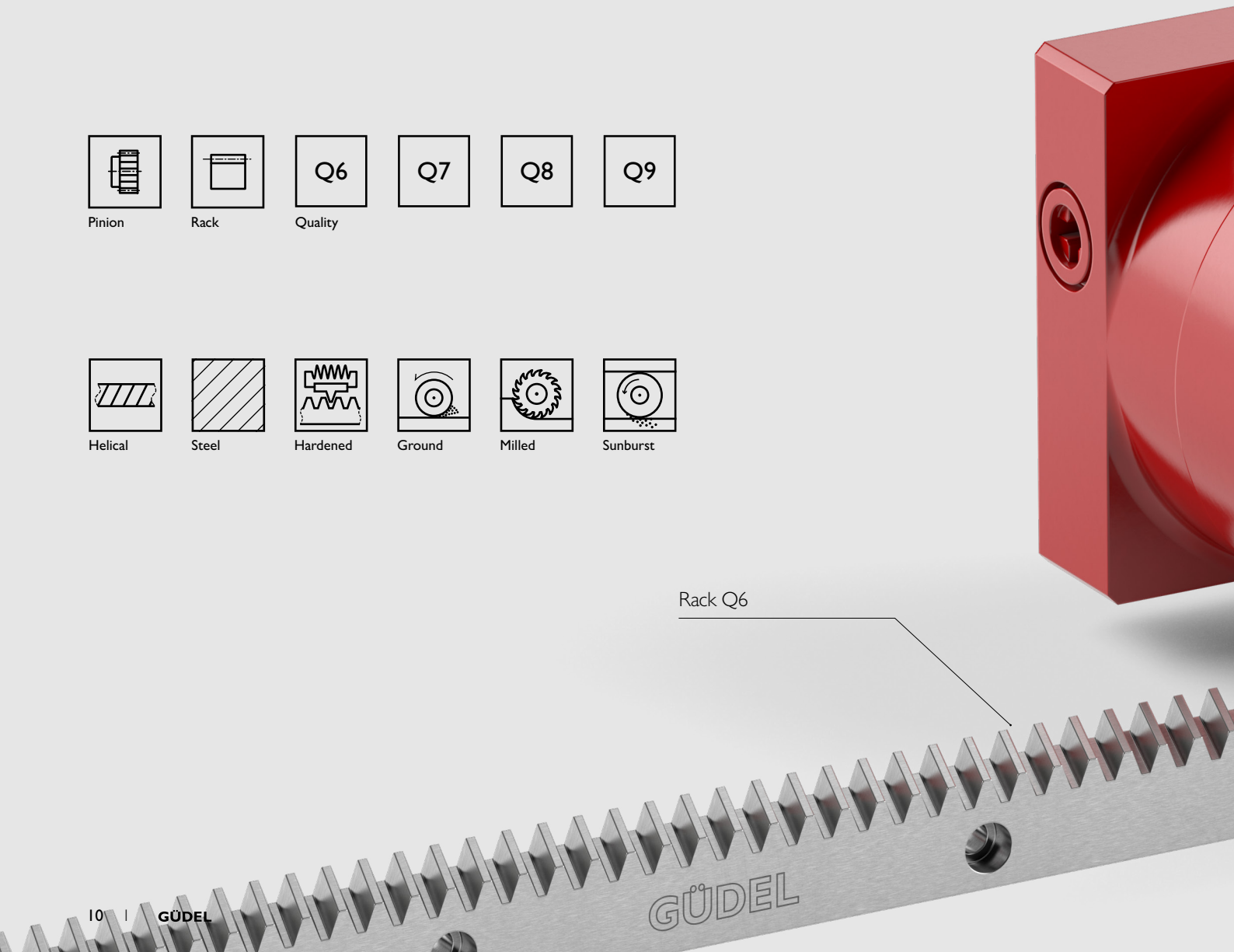
Ground Crowned

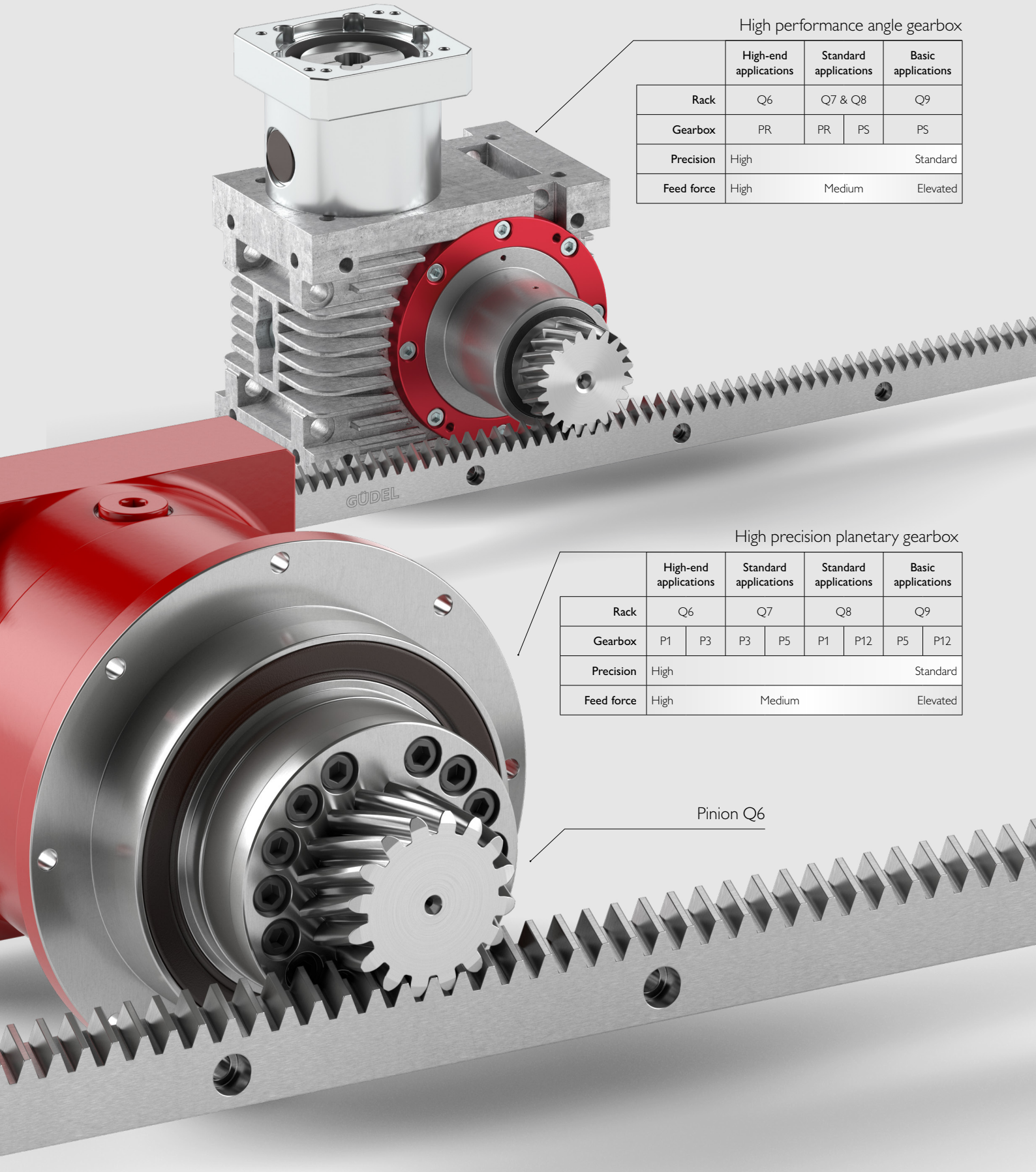
Your ideal drive train – Highly precise & economical

The ideal configuration of your drive train consists of: Güdel high performance angle gearboxes or high precision planetary gearboxes, racks and pinions.

The Güdel portfolio products complement each other perfectly and are ideally suited for a high-performance drive train. The highest requirements for precision and efficiency are met. Highly dynamic drive systems that can be used universally with regard to the installation position can be realised with our compact concepts.

The ideal drive train is predestined for applications that require precision and high strength and dynamics even with long travel distances. Cutting, tool and wood processing machines, as well as applications in robot and conveyor technology, are the areas of application for this.





High performance angle gearbox

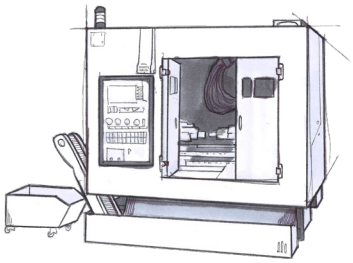
	High-end applications	Standard applications		Basic applications
Rack	Q6	Q7 & Q8		Q9
Gearbox	PR	PR	PS	PS
Precision	High			Standard
Feed force	High	Medium		Elevated

High precision planetary gearbox

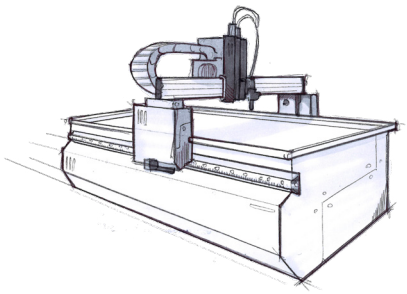
	High-end applications		Standard applications		Standard applications		Basic applications	
Rack	Q6		Q7		Q8		Q9	
Gearbox	P1	P3	P3	P5	P1	P12	P5	P12
Precision	High							Standard
Feed force	High		Medium					Elevated

Pinion Q6

Your ideal drive train – Quick selection

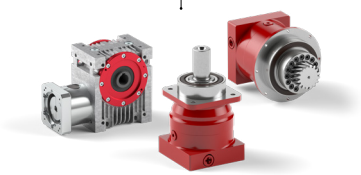


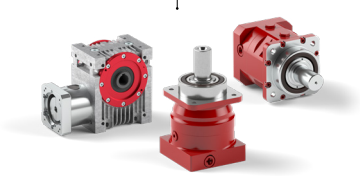
High-end applications



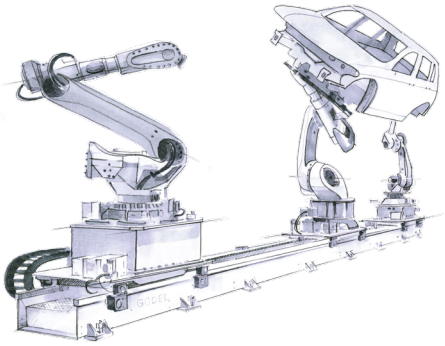
Standard applications

	Rack	
Quality	Q5, Q6	Q7, Q8
Processes		
Material		
Toothing		

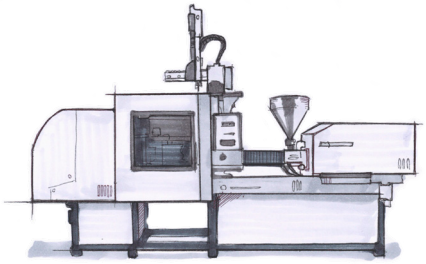




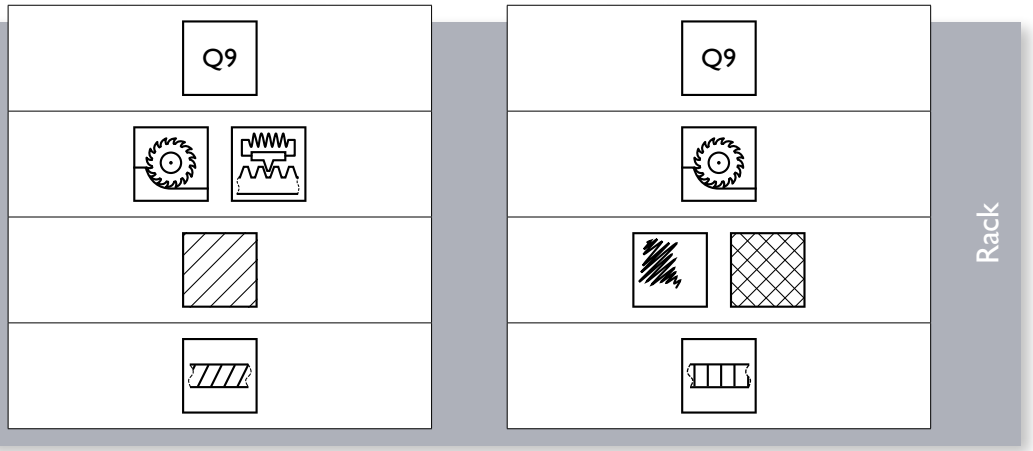
	Gearbox			
	High performance angle gearbox	High precision planetary gearbox	High performance angle gearbox	High precision planetary gearbox
Type	HPG	NRHP, NRH, SR, PR	HPG	NRH, NR
Precision grade	PR	P1, P3	PS	P3, P5
Examples of use	Optimized drive train for the highest demands on linear drive systems. Modern machine tools of all kinds, for a wide variety of materials, with highly dynamic movements. High quality process machines and automation sytems.		The combination of this linear drive train is particularly suitable for applications with medium dynamics and precision requirements. These include for example simple laser cutting machines, plasma cutting machines, Waterjet cutting machines or tube bending machines.	



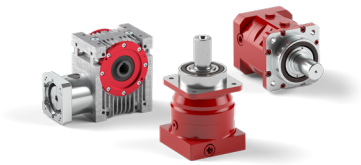
Basic applications



Solutions for medical and food applications

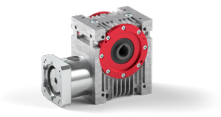


Quality
Processes
Material
Toothing

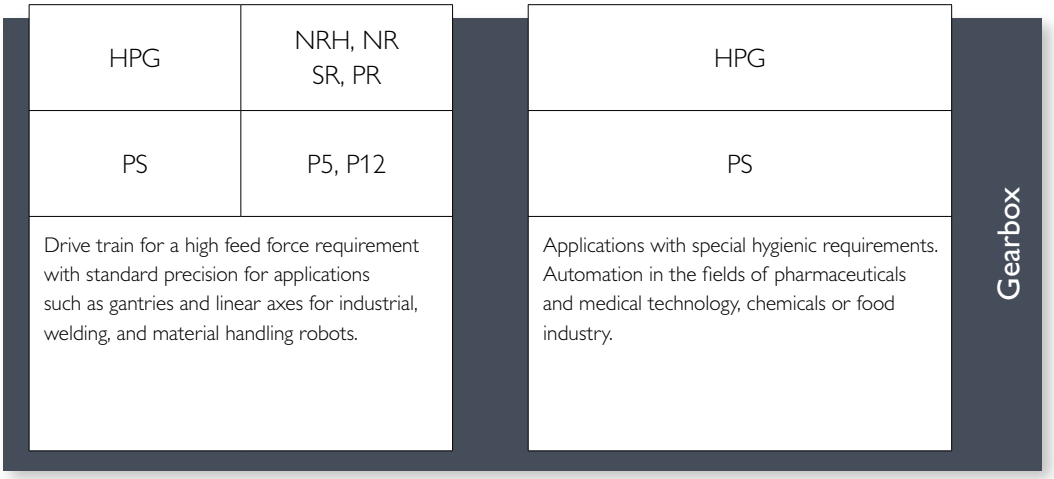


High performance angle gearbox

High precision planetary gearbox

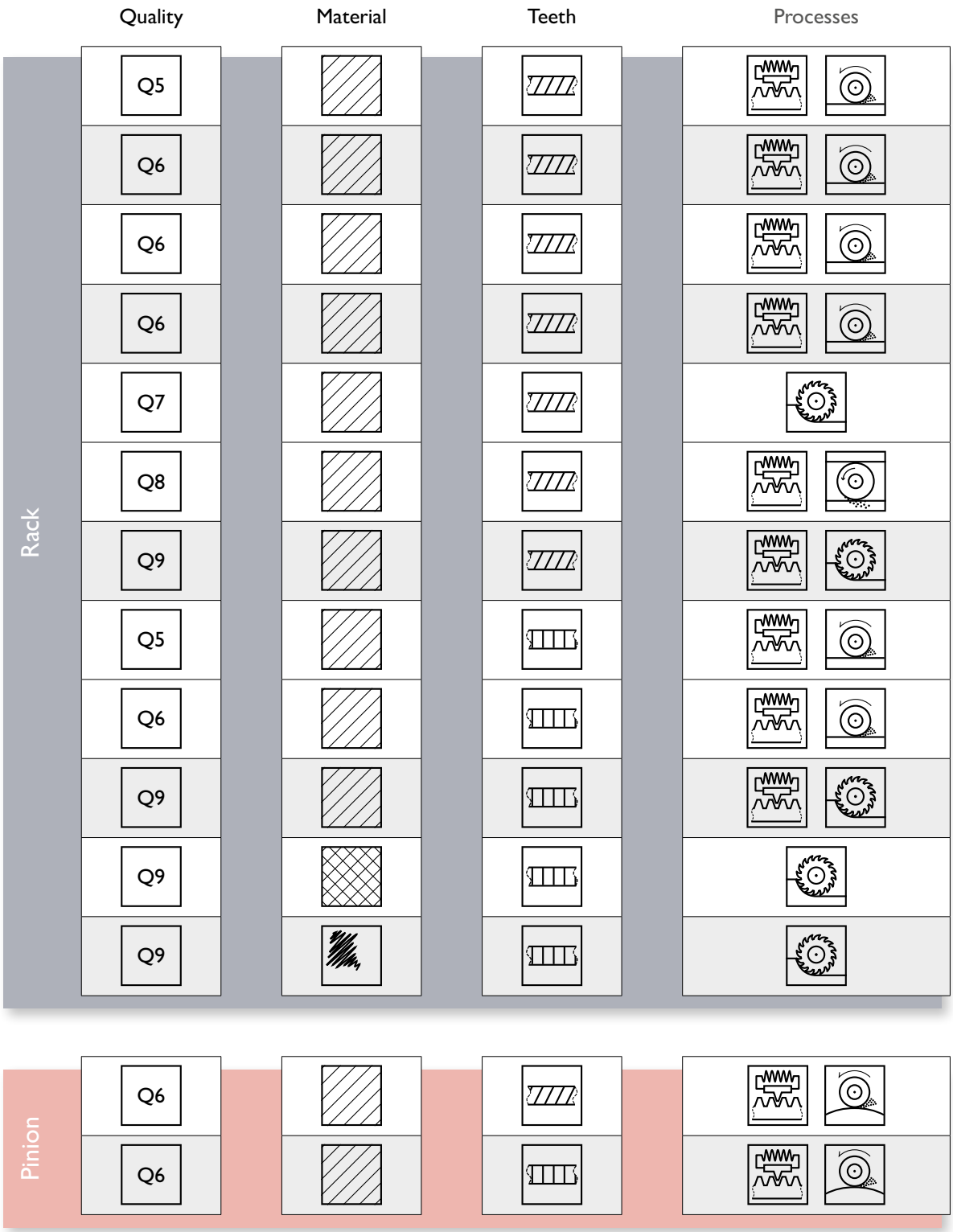


High performance angle gearbox



Type
Precision grade
Examples of use

Find the right size, power level & design



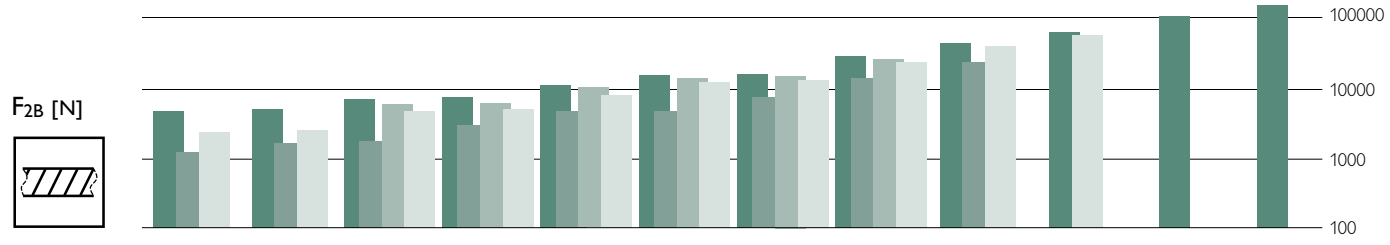
Holes	Module	Series	Page	
Yes	1.5 - 10.0	246…	22	Rack
Yes	1.5 - 10.0	246…	23	
Yes*	1.5 - 6.0	2461…	24	
No	1.5 - 10.0	244…	25	
Yes	1.5 - 5.0	155…	26	
Yes	2.0 - 4.0	157…	27	
Yes	1.5 - 6.0	158…	28	
Yes	1.5 - 10.0	240…	30	
No	1.5 - 10.0	244…	31	
No	1.5 - 10.0	124…	32	
No	2.0 - 4.0	127…	36	
No	2.0 - 4.0	130…	37	
-	1.5 - 10.0	211…	28	Pinion
-	1.5 - 10.0	201…	33	

* Double amount of fixing holes for maximum feed force

Powerful force –
Make your preselection

The following diagrams provide a quick overview of the feed force and torque in combination with the pinions available for the corresponding module.

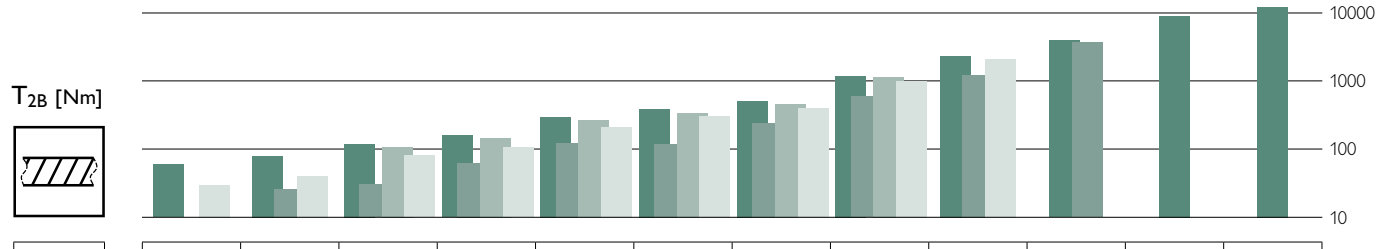
Helical teeth, modular pitch



m_n	1.5	1.5	2.0	2.0	2.5	3.0	3.0	4.0	5.0	6.0	8.0	10.0
p_t	5.00	5.00	6.66	6.66	8.33	10.00	10.00	13.33	16.66	20.00	26.66	33.33
z	16	20	16	20	20	16	20	20	20	20	20	15
L2	20	20	20	20	25	30	30	40	50	60	80	100

Module / Pinion

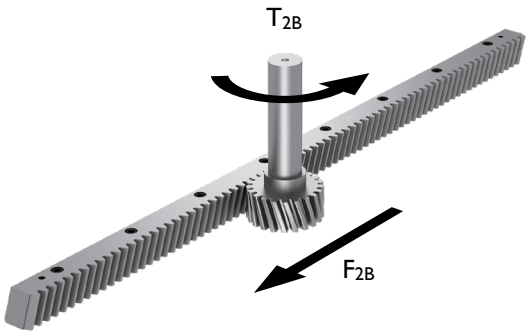
z: Number of teeth, L_2: Face width [mm], m_n: Normal module, P_t: Transverse pitch [mm]



m_n	1.5	1.5	2.0	2.0	2.5	3.0	3.0	4.0	5.0	6.0	8.0	10.0
p_t	5.00	5.00	6.66	6.66	8.33	10.00	10.00	13.33	16.66	20.00	26.66	33.33
z	16	20	16	20	20	16	20	20	20	20	20	15
L2	20	20	20	20	25	30	30	40	50	60	80	100

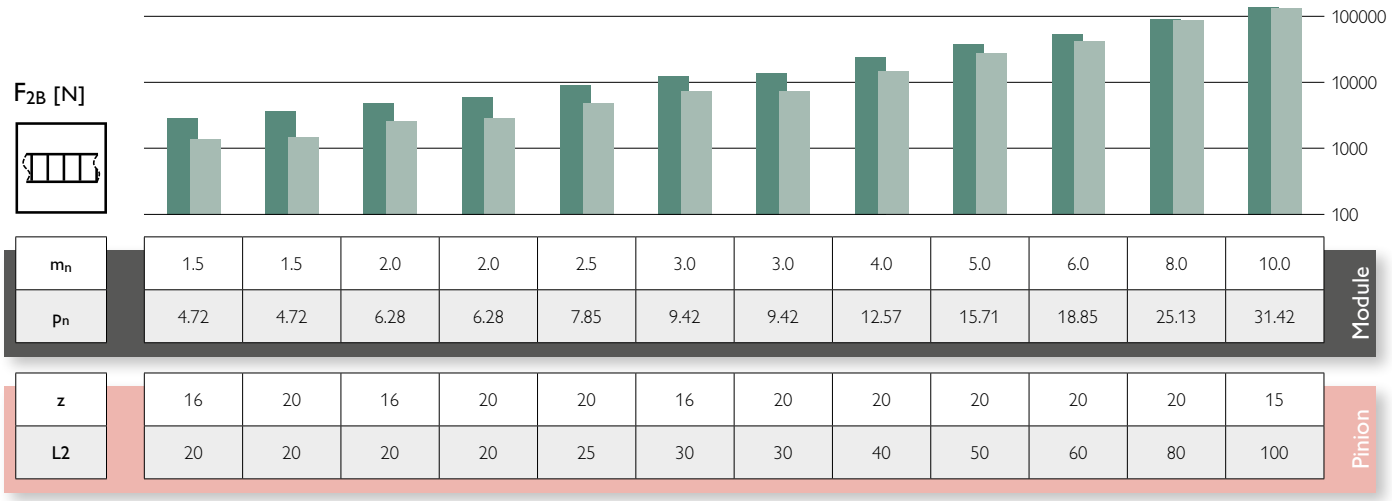
Module / Pinion

z: Number of teeth, L_2: Face width [mm], m_n: Normal module, P_t: Transverse pitch [mm]



Q5 Q6 Q7 Q8 Q9

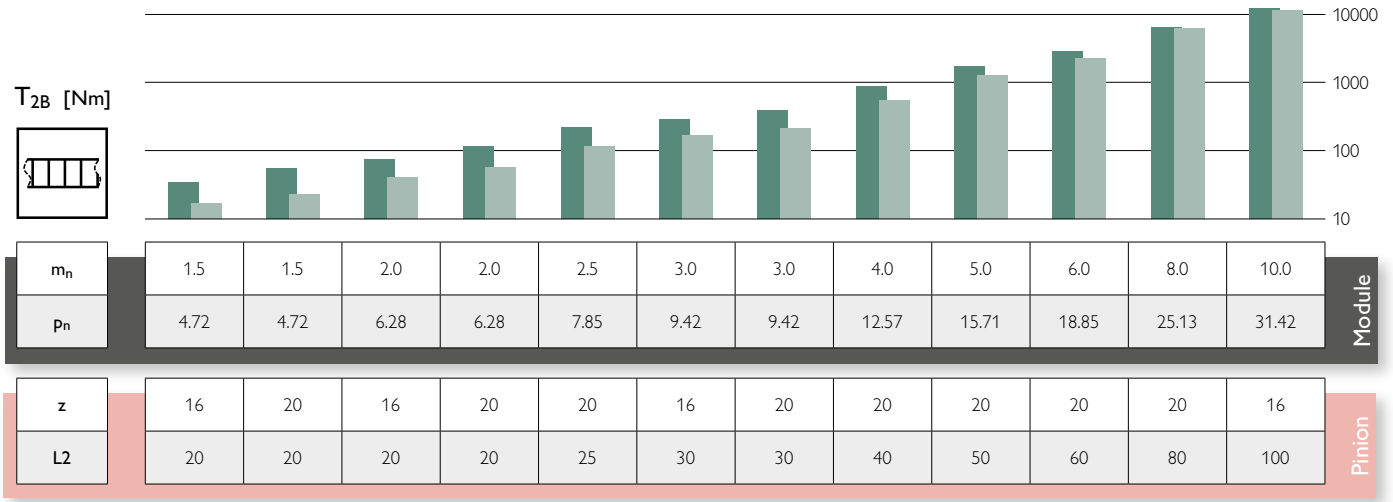
Straight teeth, modular pitch



m_n	1.5	1.5	2.0	2.0	2.5	3.0	3.0	4.0	5.0	6.0	8.0	10.0
p_n	4.72	4.72	6.28	6.28	7.85	9.42	9.42	12.57	15.71	18.85	25.13	31.42
z	16	20	16	20	20	16	20	20	20	20	20	15
L2	20	20	20	20	25	30	30	40	50	60	80	100

Module / Pinion

z: Number of teeth, L_2: Face width [mm], m_n: Normal module, P_n: Normal pitch [mm]
Racks made of stainless steel are not shown in this diagram.



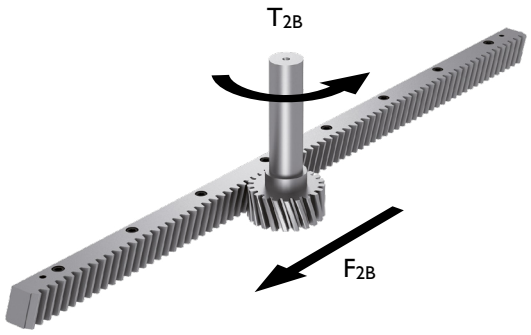
m_n	1.5	1.5	2.0	2.0	2.5	3.0	3.0	4.0	5.0	6.0	8.0	10.0
p_n	4.72	4.72	6.28	6.28	7.85	9.42	9.42	12.57	15.71	18.85	25.13	31.42
z	16	20	16	20	20	16	20	20	20	20	20	16
L2	20	20	20	20	25	30	30	40	50	60	80	100

Module / Pinion

z: Number of teeth, L_2: Face width [mm], m_n: Normal module, P_n: Normal pitch [mm]
Racks made of stainless steel are not shown in this diagram.

Powerful force – Selection and load tables

You can determine your optimum product on the basis of the feed force. Depending on the desired toothing – be it straight or helical – the following tables show you the correct size in modular pitch.



Helical teeth, modular pitch

		Pinion		Rack							
		Q6		Q5 Q6		Q7		Q8		Q9	
m_n	p_t	z	L_2	F_{2B} [N]	T_{2B} [Nm]	F_{2B} [N]	T_{2B} [Nm]	F_{2B} [N]	T_{2B} [Nm]	F_{2B} [N]	T_{2B} [Nm]
1.5	5.000	16	20	5253	66.9	1307	16.6	-	-	2523	32.1
1.5	5.000	20	20	5563	88.5	1771	28.2	-	-	2910	46.3
2.0	6.667	16	20	7972	135	1916	32.5	6810	116	5450	92.5
2.0	6.667	20	20	8183	174	3261	69.2	6926	147	5512	117
2.5	8.333	20	25	12547	333	4778	127	10591	281	9159	243
3.0	10.000	16	30	16991	433	4882	124	15424	393	13764	350
3.0	10.000	20	30	17988	573	7822	249	16301	519	14554	463
4.0	13.333	20	40	31766	1348	14870	631	28979	1230	26900	1142
5.0	16.667	20	50	49572	2630	24940	1323	-	-	45134	2394
6.0	20.000	20	60	70498	4488	-	-	-	-	66276	4219
8.0	26.667	20	80	122428	10392	-	-	-	-	-	-
10.0	33.333	15	100	151099	12024	-	-	-	-	-	-

m_n: Normal module, P_t: Transverse pitch [mm], z: Number of teeth, L_2: Face width [mm]

Straight teeth, modular pitch

		Pinion		Rack					
				Q5	Q6	Q9		Q9	
m_n	p_n	z	L_2	F_{2B} [N]	T_{2B} [Nm]	F_{2B} [N]	T_{2B} [Nm]	F_{2B} [N]	T_{2B} [Nm]
1.5	4.712	16	20	3543	42.5	1646	19.8	-	-
1.5	4.712	20	20	4254	63.8	1739	26.1	-	-
2.0	6.283	16	20	5375	86.0	3419	54.7	531	8.5
2.0	6.283	20	20	6447	129	3813	76.3	651	13
2.5	7.854	20	25	9322	233	6303	158	990	25
3.0	9.425	16	30	11799	283	8859	213	1156	28
3.0	9.425	20	30	13800	414	10838	325	1439	43
4.0	12.566	20	40	24662	986	21562	862	2577	103
5.0	15.708	20	50	38415	1921	34710	1736	-	-
6.0	18.850	20	60	55749	3345	52000	3120	-	-
8.0	25.133	20	80	98007	7841	92570	7406	-	-
10.0	31.416	16	100	132606	10608	123538	9883	-	-

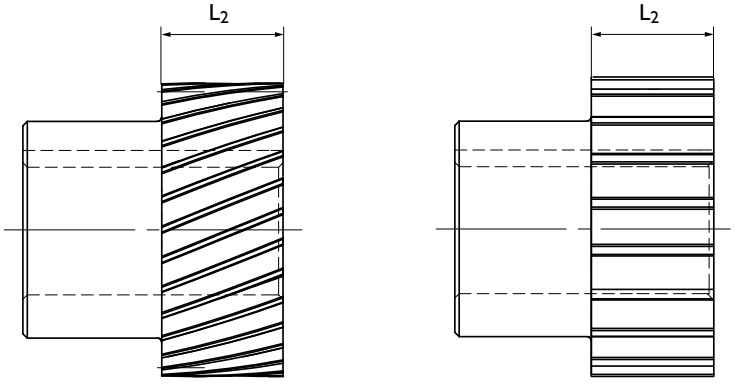
m_n: Normal module, P_n: Normal pitch [mm], z: Number of teeth, L_2: Face width [mm]

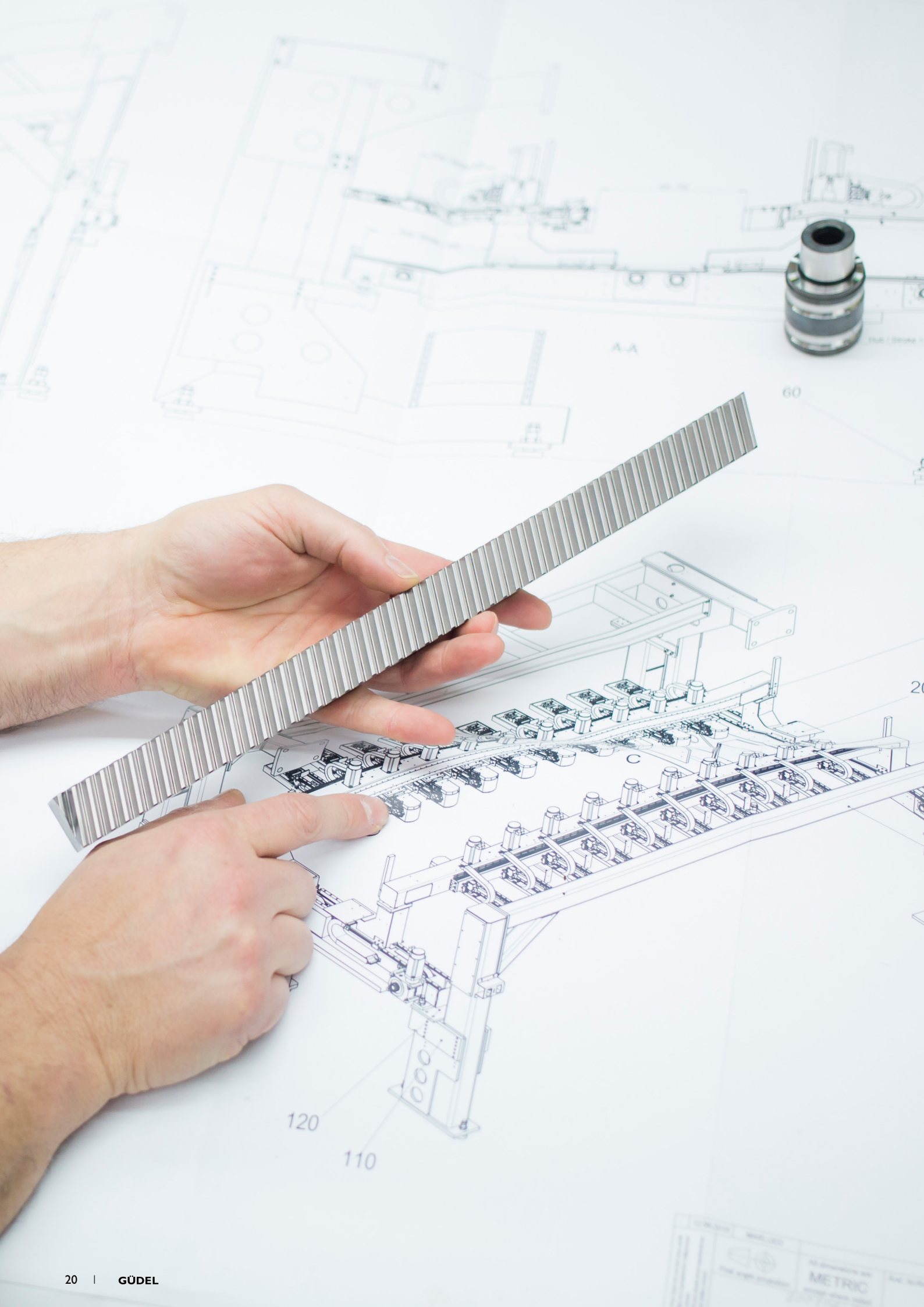
The racks can be supplied milled, milled and hardened or hardened and ground.

The values given are values for shock-free operation, good lubrication and stiff arrangement of the pinion.

An application-specific safety factor f_s 1.0 to 4.0 must be taken into account according to experience.
Recommendation f_s > 1.5

The traction force F_{2B} is related to the number of teeth z of the pinion.

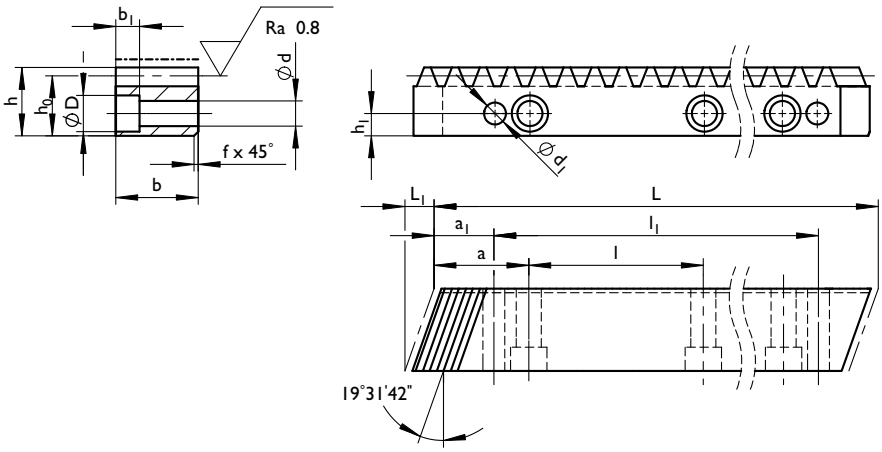



A-A
60
C
120
110

Technical data sheets

GÜDEL

Helical teeth, modular pitch



hardened

Hardened and ground

Material
C45E DIN 1.1191

Profile
all faces ground

Teeth
pressure angle α = 20°
helical teeth system right
helix angle ß = 19° 31'42''
hardened (54^{+4}_{0} HRC)
and ground

Quality
5h22 DIN ISO 1328 / DIN 3963/67

p_f [mm]
cut-to-length tolerance for
continuous mounting -0.05/-0.50

F_{pL} [mm]
cumulative pitch deviation
based on length L

F_{p250} [mm]
cumulative pitch deviation
based on length 250mm

Geometrical data

m_n	p_t	L	L_1	z	b	h	h_0	f +0.5	a	l	h_1	d	D	b_1	a_1	l_1	d_1	F_{pL}	F_{p250}	M	Part No.
1.5	5.00	500.00	6.7	100	19	19	17.5	2	62.5	125	8	7	11	7	31.7	436.6	5.7	0.021	0.016	1.3	246012-Q5
1.5	5.00	1000.00	6.7	200	19	19	17.5	2	62.5	125	8	7	11	7	31.7	936.6	5.7	0.030	0.016	2.6	246013-Q5
2.0	6.66	500.00	8.5	75	24	24	22.0	2	62.5	125	8	7	11	7	31.7	436.6	5.7	0.018	0.014	2.1	246022-Q5
2.0	6.66	1000.00	8.5	150	24	24	22.0	2	62.5	125	8	7	11	7	31.7	936.6	5.7	0.025	0.014	4.1	246023-Q5
2.5	8.33	500.00	8.5	60	24	24	21.5	2	62.5	125	9	7	11	7	31.7	436.6	5.7	0.019	0.016	2.0	246032-Q5
2.5	8.33	1000.00	8.5	120	24	24	21.5	2	62.5	125	9	7	11	7	31.7	936.6	5.7	0.024	0.016	4.1	246033-Q5
3.0	10.00	500.00	10.3	50	29	29	26.0	2	62.5	125	9	10	15	9	35.0	430.0	7.7	0.020	0.017	3.0	246042-Q5
3.0	10.00	1000.00	10.3	100	29	29	26.0	2	62.5	125	9	10	15	9	35.0	930.0	7.7	0.026	0.017	5.9	246043-Q5
4.0	13.33	506.67	13.8	38	39	39	35.0	2	62.5	125	12	10	15	9	33.3	433.0	7.7	0.021	0.019	5.4	246052-Q5
4.0	13.33	1000.00	13.8	75	39	39	35.0	2	62.5	125	12	10	15	9	33.3	933.4	7.7	0.026	0.019	10.7	246053-Q5
5.0	16.66	500.00	17.4	30	49	39	34.0	3	62.5	125	12	14	20	13	37.5	425.0	11.7	0.020	0.018	6.5	246062-Q5
5.0	16.66	1000.00	17.4	60	49	39	34.0	3	62.5	125	12	14	20	13	37.5	925.0	11.7	0.024	0.018	13.1	246063-Q5
6.0	20.00	500.00	20.9	25	59	49	43.0	3	62.5	125	16	18	26	17	37.5	425.0	15.7	0.022	0.020	10.0	246072-Q5
6.0	20.00	1000.00	20.9	50	59	49	43.0	3	62.5	125	16	18	26	17	37.5	925.0	15.7	0.026	0.020	19.9	246073-Q5
8.0	26.67	480.00	28.0	18	79	79	71.0	3	60.0	120	25	22	33	21	120.0	240.0	19.7	0.021	0.020	22.0	246082-Q5
8.0	26.67	960.00	28.0	36	79	79	71.0	3	60.0	120	25	22	33	21	120.0	720.0	19.7	0.024	0.020	44.0	246083-Q5
10.0	33.33	500.00	35.1	15	99	99	89.0	3	62.5	125	32	33	48	32	125.0	250.0	19.7	0.020	0.019	34.0	246092-Q5
10.0	33.33	1000.00	35.1	30	99	99	89.0	3	62.5	125	32	33	48	32	125.0	750.0	19.7	0.023	0.019	68.0	246093-Q5

m_n: Normal module, P_t: Transverse pitch [mm], z: Number of teeth, d_1: Predrilled, M: Weight [kg]

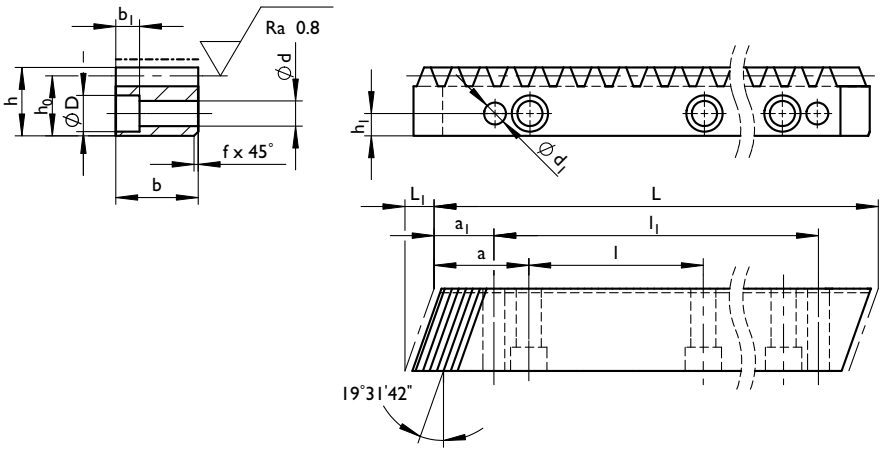
Module

Rack

Q6

Helical teeth, modular pitch

Hardened and ground



–·–·– hardened

Material
C45E DIN 1.1191

Profile
all faces ground

Teeth
pressure angle α = 20°
helical teeth system right
helix angle ß = 19° 31'42''
hardened (54^{+4}_{0} HRC)
and ground

Quality
6h23 DIN ISO 1328 / DIN 3963/67

p_f [mm]
cut-to-length tolerance for
continuous mounting -0.05/-0.50

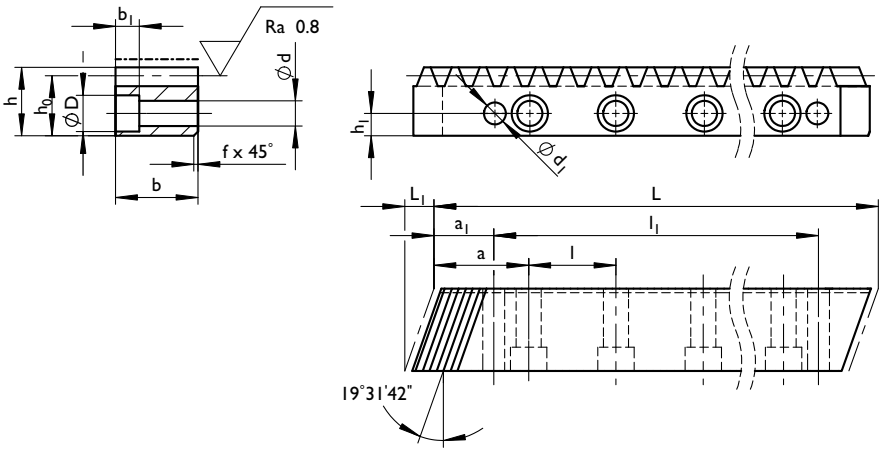
F_{pL} [mm]
cumulative pitch deviation
based on length L

Geometrical data

m_n	p_t	L	L_1	z	b	h	h_0	f+0.5	a	l	h_1	d	D	b_1	a_1	l_1	d_1	F_{pL}	M	Part No.
1.5	5.00	500.00	6.7	100	19	19	17.50	2	62.5	125.00	8	7	11	7	31.7	436.6	5.7	0.029	1.3	246012
1.5	5.00	1000.00	6.7	200	19	19	17.50	2	62.5	125.00	8	7	11	7	31.7	936.6	5.7	0.043	2.6	246013
2.0	6.66	500.00	8.5	75	24	24	22.00	2	62.5	125.00	8	7	11	7	31.7	436.6	5.7	0.025	2.1	246022
2.0	6.66	1000.00	8.5	150	24	24	22.00	2	62.5	125.00	8	7	11	7	31.7	936.6	5.7	0.036	4.1	246023
2.0	6.66	2000.00	8.5	300	24	24	22.00	2	62.5	125.00	8	7	11	7	31.7	1936.6	5.7	0.058	8.2	246024
2.5	8.33	500.00	8.5	60	24	24	21.50	2	62.5	125.00	9	7	11	7	31.7	436.6	5.7	0.027	2.0	246032
2.5	8.33	1000.00	8.5	120	24	24	21.50	2	62.5	125.00	9	7	11	7	31.7	936.6	5.7	0.036	4.1	246033
2.5	8.33	2000.00	8.5	240	24	24	21.50	2	62.5	125.00	9	7	11	7	31.7	1936.6	5.7	0.053	8.2	246034
3.0	10.00	500.00	10.3	50	29	29	26.00	2	62.5	125.00	9	10	15	9	35.0	430.0	7.7	0.028	3.0	246042
3.0	10.00	1000.00	10.3	100	29	29	26.00	2	62.5	125.00	9	10	15	9	35.0	930.0	7.7	0.037	5.9	246043
3.0	10.00	2000.00	10.3	200	29	29	26.00	2	62.5	125.00	9	10	15	9	35.0	1930.0	7.7	0.054	11.2	246044
4.0	13.33	506.67	13.8	38	39	39	35.00	2	62.5	125.00	12	10	15	9	33.3	433.0	7.7	0.030	5.4	246052
4.0	13.33	1000.00	13.8	75	39	39	35.00	2	62.5	125.00	12	10	15	9	33.3	933.4	7.7	0.036	10.7	246053
4.0	13.33	2000.00	13.8	150	39	39	35.00	2	62.5	125.00	12	10	15	9	33.3	1933.4	7.7	0.050	20.5	246054
4.0	13.33	506.67	13.8	38	39	39	35.00	2	62.5	125.00	12	12	18	11	33.3	433.0	9.7	0.030	5.4	246055
4.0	13.33	1000.00	13.8	75	39	39	35.00	2	62.5	125.00	12	12	18	11	33.3	933.4	9.7	0.036	10.7	246056
4.0	13.33	2000.00	13.8	150	39	39	35.00	2	62.5	125.00	12	12	18	11	33.3	1933.4	9.7	0.050	20.5	246057
5.0	16.66	500.00	17.4	30	49	39	34.00	3	62.5	125.00	12	14	20	13	37.5	425.0	11.7	0.028	6.5	246062
5.0	16.66	1000.00	17.4	60	49	39	34.00	3	62.5	125.00	12	14	20	13	37.5	925.0	11.7	0.034	13.1	246063
5.0	16.66	2000.00	17.4	120	49	39	34.00	3	62.5	125.00	12	14	20	13	37.5	1925.0	11.7	0.045	24.5	246064
6.0	20.00	500.00	20.9	25	59	49	43.00	3	62.5	125.00	16	18	26	17	37.5	425.0	15.7	0.031	10.0	246072
6.0	20.00	1000.00	20.9	50	59	49	43.00	3	62.5	125.00	16	18	26	17	37.5	925.0	15.7	0.036	19.9	246073
6.0	20.00	2000.00	20.9	100	59	49	43.00	3	62.5	125.00	16	18	26	17	37.5	1925.0	15.7	0.046	36.5	246074
8.0	26.66	480.00	28.0	18	79	79	71.00	3	60.0	120.00	25	22	33	21	120.0	240.0	19.7	0.029	22.0	246082
8.0	26.66	960.00	28.0	36	79	79	71.00	3	60.0	120.00	25	22	33	21	120.0	720.0	19.7	0.033	44.0	246083
8.0	26.66	1920.00	28.0	72	79	79	71.00	3	60.0	120.00	25	22	33	21	120.0	1680.0	19.7	0.040	78.0	246084
10.0	33.33	500.00	35.1	15	99	99	89.00	3	62.5	125.00	32	33	48	32	125.0	250.0	19.7	0.029	34.0	246092
10.0	33.33	1000.00	35.1	30	99	99	89.00	3	62.5	125.00	32	33	48	32	125.0	750.0	19.7	0.032	68.0	246093

m_n: Normal module, P_t: Transverse pitch [mm], z: Number of teeth, d_1: Predrilled, M: Weight [kg]

Helical teeth, modular pitch



–·–·– hardened

Hardened and ground

Material
C45E DIN 1.1191

Profile
all faces ground

Teeth
pressure angle α = 20°
helical teeth system right
helix angle ß = 19° 31'42''
hardened (54^{+4}_{0} HRC)
and ground

Quality
6h23 DIN ISO 1328 / DIN 3963/67

p_f [mm]
cut-to-length tolerance for
continuous mounting -0.05/-0.50

F_{pL} [mm]
cumulative pitch deviation
based on length L

Geometrical data

m_n	p_t	L	L_1	z	b	h	h_0	f+0.5	a	l	h_1	d	D	b_1	a_1	l_1	d_1	F_{pL}	M	Part No.
1.5	5.00	500.00	6.7	100	19	19	17.50	2	62.5	62.5	8	7	11	7	31.7	436.6	5.7	0.029	1.2	246112
1.5	5.00	1000.00	6.7	200	19	19	17.50	2	62.5	62.5	8	7	11	7	31.7	936.6	5.7	0.043	2.4	246113
2.0	6.66	500.00	8.5	75	24	24	22.00	2	62.5	62.5	8	7	11	7	31.7	436.6	5.7	0.025	2.0	246122
2.0	6.66	1000.00	8.5	150	24	24	22.00	2	62.5	62.5	8	7	11	7	31.7	936.6	5.7	0.036	3.9	246123
2.0	6.66	2000.00	8.5	300	24	24	22.00	2	62.5	62.5	8	7	11	7	31.7	1936.6	5.7	0.058	7.8	246124
2.5	8.33	500.00	8.5	60	24	24	21.50	2	62.5	62.5	9	7	11	7	31.7	436.6	5.7	0.027	1.9	246132
2.5	8.33	1000.00	8.5	120	24	24	21.50	2	62.5	62.5	9	7	11	7	31.7	936.6	5.7	0.036	3.8	246133
2.5	8.33	2000.00	8.5	240	24	24	21.50	2	62.5	62.5	9	7	11	7	31.7	1936.6	5.7	0.053	7.6	246134
3.0	10.00	500.00	10.3	50	29	29	26.00	2	62.5	62.5	9	10	15	9	35.0	430.0	7.7	0.028	2.7	246142
3.0	10.00	1000.00	10.3	100	29	29	26.00	2	62.5	62.5	9	10	15	9	35.0	930.0	7.7	0.037	5.4	246143
3.0	10.00	2000.00	10.3	200	29	29	26.00	2	62.5	62.5	9	10	15	9	35.0	1930.0	7.7	0.054	10.8	246144
4.0	13.33	506.67	13.8	38	39	39	35.00	2	62.5	62.5	12	12	18	11	33.3	433.0	9.7	0.030	4.9	246152
4.0	13.33	1000.00	13.8	75	39	39	35.00	2	62.5	62.5	12	12	18	11	33.3	933.4	9.7	0.036	9.7	246153
4.0	13.33	2000.00	13.8	150	39	39	35.00	2	62.5	62.5	12	12	18	11	33.3	1933.4	9.7	0.050	19.5	246154
5.0	16.66	500.00	17.4	30	49	39	34.00	3	62.5	62.5	12	14	20	13	37.5	425.0	11.7	0.028	5.8	246162
5.0	16.66	1000.00	17.4	60	49	39	34.00	3	62.5	62.5	12	14	20	13	37.5	925.0	11.7	0.034	11.5	246163
5.0	16.66	2000.00	17.4	120	49	39	34.00	3	62.5	62.5	12	14	20	13	37.5	1925.0	11.7	0.045	23.0	246164
6.0	20.00	500.00	20.9	25	59	49	43.00	3	62.5	62.5	16	18	26	17	37.5	425.0	15.7	0.031	8.5	246172
6.0	20.00	1000.00	20.9	50	59	49	43.00	3	62.5	62.5	16	18	26	17	37.5	925.0	15.7	0.036	16.9	246173
6.0	20.00	2000.00	20.9	100	59	49	43.00	3	62.5	62.5	16	18	26	17	37.5	1925.0	15.7	0.046	33.9	246174

m_n: Normal module, P_t: Transverse pitch [mm], z: Number of teeth, d_1: Predrilled, M: Weight [kg]

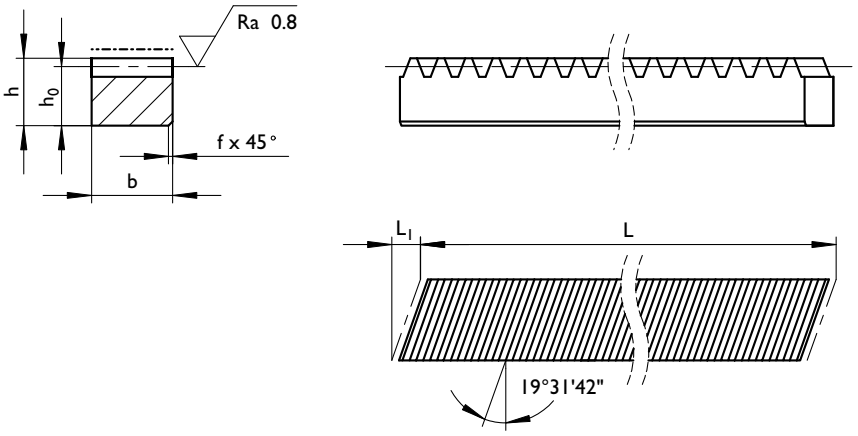
Module

Rack

Q6

Helical teeth, modular pitch

Hardened and ground



–·–·– hardened

Material
C45E DIN 1.1191

Profile
all faces ground

Teeth
pressure angle α = 20°
helical teeth system right
helix angle ß = 19° 31'42''
hardened (54^{+4}_{0} HRC)
and ground

Quality
6h23 DIN ISO 1328 / DIN 3963/67

p_f [mm]
cut-to-length tolerance for
continuous mounting -0.05/-0.50

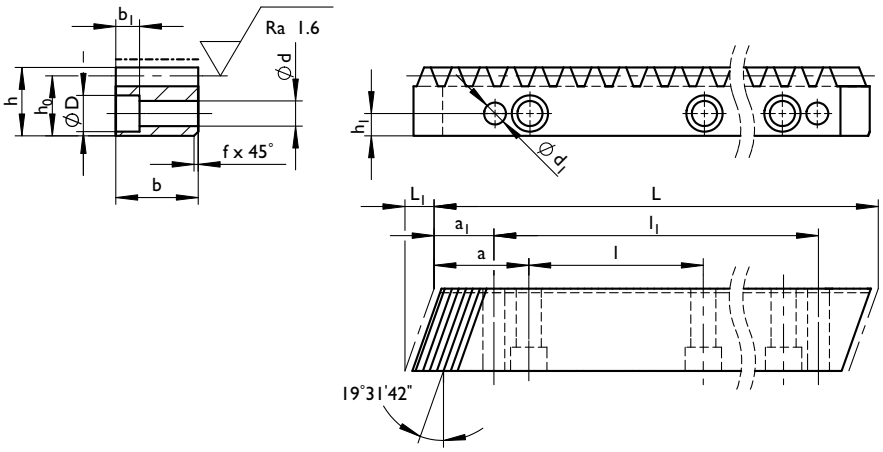
F_{pL} [mm]
cumulative pitch deviation
based on length L

Geometrical data

m_n	p_t	L	L_1	z	b	h	h_0	f+0.5	F_{pL}	M	Part No.
1.5	5.00	500.00	6.7	100	19	19	17.50	2	0.029	1.3	244612
1.5	5.00	1000.00	6.7	200	19	19	17.50	2	0.043	2.6	244613
2.0	6.66	500.00	8.5	75	24	24	22.00	2	0.025	2.1	244622
2.0	6.66	1000.00	8.5	150	24	24	22.00	2	0.036	4.1	244623
2.5	8.33	500.00	8.5	60	24	24	21.50	2	0.027	2.0	244632
2.5	8.33	1000.00	8.5	120	24	24	21.50	2	0.036	4.1	244633
3.0	10.00	500.00	10.3	50	29	29	26.00	2	0.028	3.0	244642
3.0	10.00	1000.00	10.3	100	29	29	26.00	2	0.037	5.9	244643
4.0	13.33	506.67	13.8	38	39	39	35.00	2	0.030	5.4	244652
4.0	13.33	1000.00	13.8	75	39	39	35.00	2	0.036	10.7	244653
5.0	16.66	500.00	17.4	30	49	39	34.00	3	0.028	6.5	244662
5.0	16.66	1000.00	17.4	60	49	39	34.00	3	0.034	13.1	244663
6.0	20.00	500.00	20.9	25	59	49	43.00	3	0.031	10.0	244672
6.0	20.00	1000.00	20.9	50	59	49	43.00	3	0.036	19.9	244673
8.0	26.66	480.00	28.0	18	79	79	71.00	3	0.029	22.0	244682
8.0	26.66	960.00	28.0	36	79	79	71.00	3	0.033	44.0	244683
10.0	33.33	500.00	35.1	15	99	99	89.00	3	0.029	34.5	244692
10.0	33.33	1000.00	35.1	30	99	99	89.00	3	0.032	69.0	244693

m_n: Normal module, P_t: Transverse pitch [mm], z: Number of teeth, M: Weight [kg]

Helical teeth, modular pitch



Millled

Material
42CrMo4 DIN 1.72251

Profile
all faces milled

Teeth
pressure angle α = 20°
helical teeth system right
helix angle ß = 19° 31'42''
milled

Quality
7h25 DIN ISO 1328 / DIN 3963/67

p_f [mm]
cut-to-length tolerance for
continuous mounting -0.05/-0.50

F_{pL} [mm]
cumulative pitch deviation
based on length L

Geometrical data

m_n	p_t	L	L_1	z	b	h	h_0	f+0.5	a	l	h_1	d	D	b_1	a_1	l_1	d_1	F_{pL}	M	Part No.
1.5	5.00	500.00	6.7	100	19	19	17.50	1	62.5	125	8	7	11	7	31.7	436.6	5.7	0.041	1.2	155012
1.5	5.00	1000.00	6.7	200	19	19	17.50	1	62.5	125	8	7	11	7	31.7	936.6	5.7	0.059	2.5	155013
2.0	6.66	500.00	8.5	75	24	24	22.00	1	62.5	125	8	7	11	7	31.7	436.6	5.7	0.036	2.0	155022
2.0	6.66	1000.00	8.5	150	24	24	22.00	1	62.5	125	8	7	11	7	31.7	936.6	5.7	0.050	4.0	155023
2.0	6.66	2000.00	8.5	300	24	24	22.00	1	62.5	125	8	7	11	7	31.7	1936.6	5.7	0.077	8.0	155024
2.5	8.33	500.00	8.5	60	24	24	21.50	1	62.5	125	9	7	11	7	31.7	436.6	5.7	0.038	1.9	155032
2.5	8.33	1000.00	8.5	120	24	24	21.50	1	62.5	125	9	7	11	7	31.7	936.6	5.7	0.050	3.9	155033
2.5	8.33	2000.00	8.5	240	24	24	21.50	1	62.5	125	9	7	11	7	31.7	1936.6	5.7	0.075	7.7	155034
3.0	10.00	500.00	10.3	50	29	29	26.00	1	62.5	125	9	10	15	9	35.0	430.0	7.7	0.040	2.8	155042
3.0	10.00	1000.00	10.3	100	29	29	26.00	1	62.5	125	9	10	15	9	35.0	930.0	7.7	0.051	5.6	155043
3.0	10.00	2000.00	10.3	200	29	29	26.00	1	62.5	125	9	10	15	9	35.0	1930.0	7.7	0.073	11.2	155044
4.0	13.33	506.67	13.8	38	39	39	35.00	1	62.5	125	12	12	18	11	33.3	433.0	9.7	0.042	5.1	155052
4.0	13.33	1000.00	13.8	75	39	39	35.00	1	62.5	125	12	12	18	11	33.3	933.4	9.7	0.051	10.1	155053
4.0	13.33	2000.00	13.8	150	39	39	35.00	1	62.5	125	12	12	18	11	33.3	1933.4	9.7	0.070	20.2	155054
5.0	16.66	500.00	17.4	30	49	39	34.00	1	62.5	125	12	14	20	13	37.5	425.0	11.7	0.040	6.0	155062
5.0	16.66	1000.00	17.4	60	49	39	34.00	1	62.5	125	12	14	20	13	37.5	925.0	11.7	0.048	12.0	155063
5.0	16.66	2000.00	17.4	120	49	39	34.00	1	62.5	125	12	14	20	13	37.5	1925.0	11.7	0.062	24.1	155064

m_n: Normal module, P_t: Transverse pitch [mm], z: Number of teeth, d_1: Predrilled, M: Weight [kg]

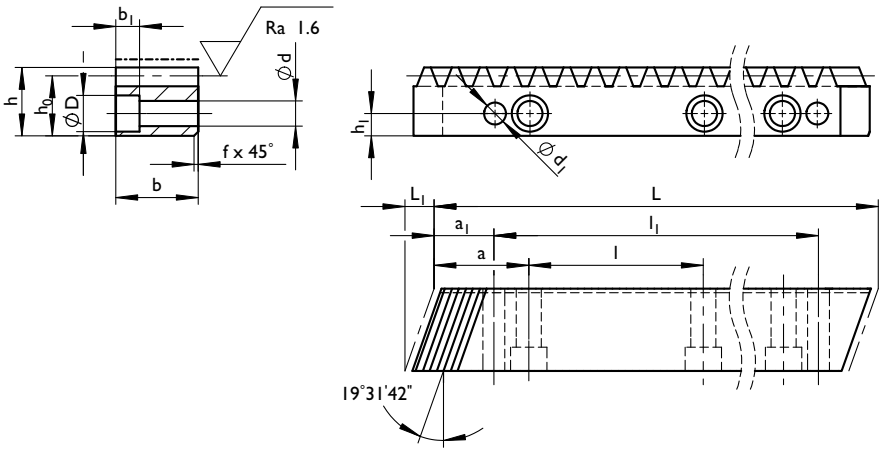
Module

Rack

Q8

Helical teeth, modular pitch

Hardened and ground



–·–· hardened

Material
C45E DIN 1.1191

Profile
all faces milled

Teeth
pressure angle α = 20°
helical teeth system right
helix angle ß = 19° 31'42''
hardened (54^{+4}_{0} HRC)
milled

Quality
8h25 DIN ISO 1328 / DIN 3963/67

p_f [mm]
cut-to-length tolerance for
continuous mounting -0.05/-0.50

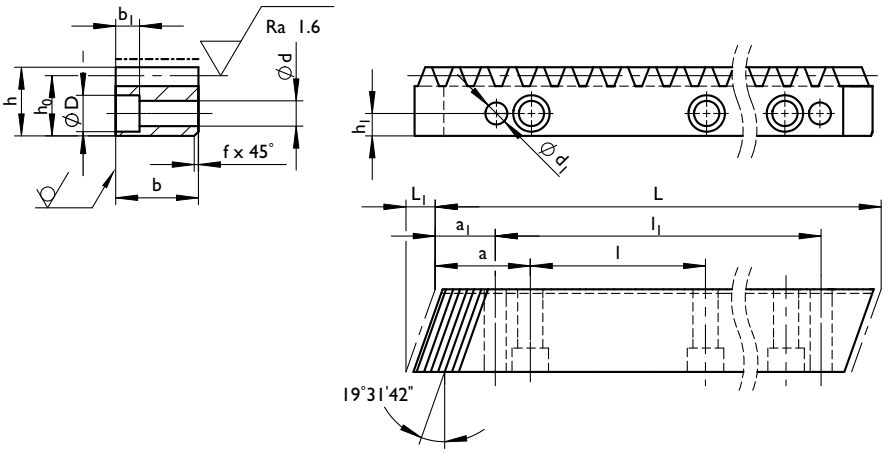
F_{pL} [mm]
cumulative pitch deviation
based on length L

Geometrical data

m_n	p_t	L	L_1	z	b	h	h_0	f+0.5	a	l	h_1	d	D	b_1	a_1	l_1	d_1	F_{pL}	M	Art. Nr.
2.0	6.66	500.00	8.60	75	24.25	24	22.0	1	62.5	125	8	7	11	7	31,7	436,6	5,7	0.051	2.0	157022
2.0	6.66	1000.00	8.60	150	24.25	24	22.0	1	62.5	125	8	7	11	7	31,7	936,6	5,7	0.070	4.0	157023
2.5	8.33	500.00	8.60	60	24.25	24	21.5	1	62.5	125	9	7	11	7	31,7	436,6	5,7	0.053	1.9	157032
2.5	8.33	1000.00	8.60	120	24.25	24	21.5	1	62.5	125	9	7	11	7	31,7	936,6	5,7	0.070	3.9	157033
3.0	10.00	500.00	10.37	50	29.25	29	26.0	1	62.5	125	9	10	15	9	35	430	7,7	0.057	2.8	157042
3.0	10.00	1000.00	10.37	100	29.25	29	26.0	1	62.5	125	9	10	15	9	35	930	7,7	0.073	5.6	157043
4.0	13.33	506.67	13.92	38	39.25	39	35.0	1	62.5	125	12	12	18	11	33,3	433	9,7	0.060	5.1	157055
4.0	13.33	1000.00	13.92	75	39.25	39	35.0	1	62.5	125	12	12	18	11	33,3	933,4	9,7	0.073	10.1	157056

m_n: Normal module, P_t: Transverse pitch [mm], z: Number of teeth, d_1: Predrilled, M: Weight [kg]

Helical teeth, modular pitch



–·–·– hardened

Milled and hardened

Material
C45E DIN 1.1191

Profile
all faces milled

Teeth
pressure angle α = 20°
helical teeth system right
helix angle ß = 19° 31'42''
hardened (54^{+4}_{0} HRC)
milled

Quality
9h27 DIN ISO 1328 / DIN 3963/67

p_f [mm]
cut-to-length tolerance for
continuous mounting -0.05/-0.50

F_{pL} [mm]
cumulative pitch deviation
based on length L

Geometrical data

m_n	p_t	L	L_1	z	b	h	h_0	f+0.5	a	l	h_1	d	D	b_1	a_1	l_1	d_1	F_{pL}	M	Part No.
1.5	5.00	500.00	6.7	100	19	19	17.50	2	62.5	125	8	7	11	7	31.7	436.6	5.7	0.082	1.2	158012
1.5	5.00	1000.00	6.7	200	19	19	17.50	2	62.5	125	8	7	11	7	31.7	936.6	5.7	0.118	2.5	158013
2.0	6.66	500.00	8.5	75	24	24	22.00	2	62.5	125	8	7	11	7	31.7	436.6	5.7	0.073	2.0	158022
2.0	6.66	1000.00	8.5	150	24	24	22.00	2	62.5	125	8	7	11	7	31.7	936.6	5.7	0.100	4.0	158023
2.0	6.66	2000.00	8.5	300	24	24	22.00	2	62.5	125	8	7	11	7	31.7	1936.6	5.7	0.155	8.0	158024
2.5	8.33	500.00	8.5	60	24	24	21.50	2	62.5	125	9	7	11	7	31.7	436.6	5.7	0.076	1.9	158032
2.5	8.33	1000.00	8.5	120	24	24	21.50	2	62.5	125	9	7	11	7	31.7	936.6	5.7	0.101	3.9	158033
2.5	8.33	2000.00	8.5	240	24	24	21.50	2	62.5	125	9	7	11	7	31.7	1936.6	5.7	0.150	7.7	158034
3.0	10.00	500.00	10.3	50	29	29	26.00	2	62.5	125	9	10	15	9	35.0	430.0	7.7	0.080	2.8	158042
3.0	10.00	1000.00	10.3	100	29	29	26.00	2	62.5	125	9	10	15	9	35.0	930.0	7.7	0.103	5.6	158043
3.0	10.00	2000.00	10.3	200	29	29	26.00	2	62.5	125	9	10	15	9	35.0	1930.0	7.7	0.147	11.2	158044
4.0	13.33	506.67	13.8	38	39	39	35.00	2	62.5	125	12	12	18	11	33.3	433.0	9.7	0.083	5.1	158052
4.0	13.33	1000.00	13.8	75	39	39	35.00	2	62.5	125	12	12	18	11	33.3	933.4	9.7	0.101	10.1	158053
4.0	13.33	2000.00	13.8	150	39	39	35.00	2	62.5	125	12	12	18	11	33.3	1933.4	9.7	0.136	20.2	158054
5.0	16.66	500.00	17.4	30	49	39	34.00	3	62.5	125	12	14	20	13	37.5	425.0	11.7	0.080	6.0	158062
5.0	16.66	1000.00	17.4	60	49	39	34.00	3	62.5	125	12	14	20	13	37.5	925.0	11.7	0.094	12.0	158063
5.0	16.66	2000.00	17.4	120	49	39	34.00	3	62.5	125	12	14	20	13	37.5	1925.0	11.7	0.122	24.1	158064
6.0	20.00	500.00	20.9	25	59	49	43.00	3	62.5	125	16	18	26	17	37.5	425.0	15.7	0.087	8.9	158072
6.0	20.00	1000.00	20.9	50	59	49	43.00	3	62.5	125	16	18	26	17	37.5	925.0	15.7	0.101	18.0	158073
6.0	20.00	2000.00	20.9	100	59	49	43.00	3	62.5	125	16	18	26	17	37.5	1925.0	15.7	0.128	36.2	158074

m_n: Normal module, P_t: Transverse pitch [mm], z: Number of teeth, d_1: Predrilled, M: Weight [kg]

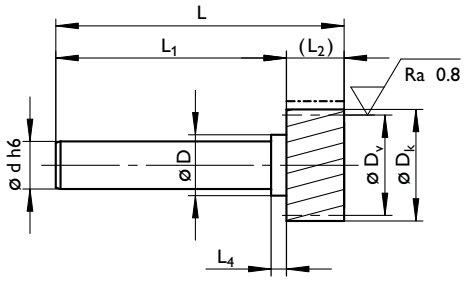
Module

Pinion

Q6

Helical teeth, modular pitch

Hardened and ground



–·–·– hardened

Material
16MnCr5 DIN 1.7131

Teeth
pressure angle α = 20°
helical teeth system left
helix angle ß =19° 31'42''
hardened (58^{+4}_{0} HRC)
ground, crowned

Quality
6f24 DIN ISO 1328 / DIN 3963/67

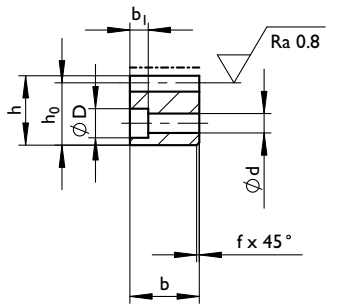
Geometrical data

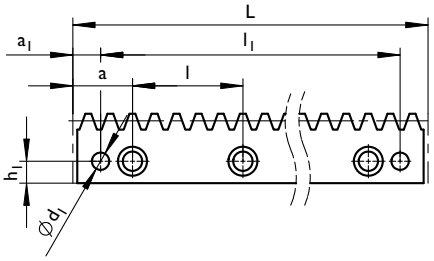
m_n	p_t	z	d	D_k	D_0	D_v	D	L	L_1	L_2	L_4	J	M	Part No.
1.5	5.00	16	12	29.36	25.465	26.365	16.0	90.0	70.0	20	4.5	8	0.14	211116
1.5	5.00	20	20	34.83	31.831	31.831	26.0	110.0	90.0	20	4.5	26	0.34	211120
2.0	6.66	16	20	39.15	33.953	35.153	26.0	110.0	90.0	20	8.0	36	0.39	211216
2.0	6.66	20	25	46.44	42.441	42.441	32.0	140.0	120.0	20	8.0	90	0.70	211220
2.5	8.33	20	25	58.05	53.052	53.052	32.0	145.0	120.0	25	8.0	192	0.91	211320
3.0	10.00	16	25	58.73	50.930	52.730	32.0	150.0	120.0	30	8.0	218	0.99	211416
3.0	10.00	20	40	69.66	63.662	63.662	50.0	190.0	160.0	30	12.5	726	2.38	211420
4.0	13.33	20	40	92.88	84.883	84.883	50.0	200.0	160.0	40	18.0	1954	3.43	211520
5.0	16.66	20	60	116.10	106.103	106.103	85.0	310.0	260.0	50	35.0	8484	9.96	211620
4.0	13.33	20	60	92.88	84.883	84.883	74.0	310	270.0	40	14.5	4459	7.89	211521
6.0	20.00	20	90	139.32	127.324	127.324	105.0	350.0	290.0	60	20.0	27500	20.7	211720
8.0	26.66	20	90	185.77	169.766	169.766	105.0	350.0	270.0	80	35.0	65990	28.2	211820
10.0	33.33	15	90	185.16	159.155	165.155	105.0	410.0	310.0	100	40.0	66477	31.63	211915

m_n: Normal module, P_t: Transverse pitch [mm], z: Number of teeth, D_0: Pitch circle diameter for calculation, D_v: Pitch circle diameter for design, J: Inertia [10^{-6} kg m^2], M: Weight [kg]

Straight teeth, modular pitch

Hardened and ground





–·–·– hardened

Material
C45E DIN 1.1191
On request: 1.7131 (16MnCr5)

Profile
all faces ground

Teeth
pressure angle $\alpha = 20°$
hardened (54^{+4}_{0} HRC)
and ground

Quality
6h23 DIN ISO 1328 / DIN 3963/67

pf [mm]
cut-to-length tolerance for
continuous mounting -0.05/-0.50

F_{pL} [mm]
cumulative pitch deviation
based on length L

Geometrical data

m_n	p_n	L	z	b	h	h0	f+0.5	a	l	h_1	d	D	b_1	a_1	l_1	d_1	F_{pL}	M	Part No.
1.5	4.72	499.51	106	19	19	17.50	2	62.44	124.88	8	7	11	7	29.0	441.5	5.7	0.029	1.3	240012
1.5	4.72	999.03	212	19	19	17.50	2	62.44	124.88	8	7	11	7	29.0	941.0	5.7	0.043	2.6	240013
2.0	6.28	502.65	80	24	24	22.00	2	62.83	125.66	8	7	11	7	31.3	440.1	5.7	0.025	2.1	240022
2.0	6.28	1005.31	160	24	24	22.00	2	62.83	125.66	8	7	11	7	31.3	942.7	5.7	0.036	4.2	240023
2	6.28	2010.62	320	24	24	22.00	2	62.83	125.66	8	7	11	7	31.3	1948.0	5.7	0.058	8.0	240024
2.5	7.85	502.65	64	24	24	21.50	2	62.83	125.66	9	7	11	7	31.3	440.1	5.7	0.027	2.0	240032
2.5	7.85	1005.31	128	24	24	21.50	2	62.83	125.66	9	7	11	7	31.3	942.7	5.7	0.036	4.1	240033
2.5	7.85	2010.62	256	24	24	21.50	2	62.83	125.66	9	7	11	7	31.3	1948.0	5.7	0.053	8.0	240034
3.0	9.42	508.94	54	29	29	26.00	2	63.62	127.23	9	10	15	9	34.4	440.1	7.7	0.029	3.0	240042
3.0	9.42	1017.88	108	29	29	26.00	2	63.62	127.23	9	10	15	9	34.4	949.1	7.7	0.037	6.0	240043
3.0	9.42	2035.75	216	29	29	26.00	2	63.62	127.23	9	10	15	9	34.4	1967.0	7.7	0.055	11.5	240044
4.0	12.57	502.65	40	39	39	35.00	2	62.83	125.66	12	10	15	9	37.5	427.7	7.7	0.030	5.4	240052
4.0	12.57	1005.31	80	39	39	35.00	2	62.83	125.66	12	10	15	9	37.5	930.3	7.7	0.037	10.8	240053
4.0	12.57	2010.62	160	39	39	35.00	2	62.83	125.66	12	10	15	9	37.5	1935.6	7.7	0.050	21.0	240054
5.0	15.71	502.65	32	49	39	34.00	3	62.83	125.66	12	14	20	13	30.2	442.3	11.7	0.028	6.6	240062
5.0	15.71	1005.31	64	49	39	34.00	3	62.83	125.66	12	14	20	13	30.2	944.9	11.7	0.034	13.1	240063
5.0	15.71	2010.62	128	49	39	34.00	3	62.83	125.66	12	14	20	13	30.2	1950.2	11.7	0.045	24.7	240064
6.0	18.85	508.94	27	59	49	43.00	3	63.62	127.23	16	18	26	17	31.4	446.1	15.7	0.031	10.1	240072
6.0	18.85	1017.88	54	59	49	43.00	3	63.62	127.23	16	18	26	17	31.4	955.0	15.7	0.036	20.3	240073
6.0	18.85	2035.75	108	59	49	43.00	3	63.62	127.23	16	18	26	17	31.4	1973.0	15.7	0.047	37.5	240074
8.0	25.13	502.65	20	79	79	71.00	3	62.83	125.66	25	22	33	21	26.7	449.3	19.7	0.029	22.1	240082
8.0	25.13	1005.31	40	79	79	71.00	3	62.83	125.66	25	22	33	21	26.7	952.0	19.7	0.033	44.3	240083
8.0	25.13	2010.62	80	79	79	71.00	3	62.83	125.66	25	22	33	21	26.7	1957.3	19.7	0.041	82.5	240084
10.0	31.42	502.65	16	99	99	89.00	3	62.83	125.66	32	33	48	32	125.2	252.3	19.7	0.029	34.8	240092
10.0	31.42	1005.31	32	99	99	89.00	3	62.83	125.66	32	33	48	32	125.2	755.0	19.7	0.032	69.5	240093

m_n: Normal module, P_n: Normal pitch [mm], z: Number of teeth, d_1: Predrilled, M: Weight [kg]

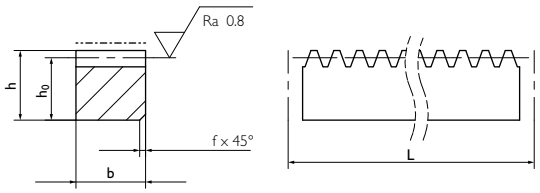
Module

Rack

Q6

Straight teeth, modular pitch

Hardened and ground



–·–·– hardened

Material
C45E DIN 1.1191

Profile
all faces ground

Teeth
pressure angle α = 20°
hardened (54^{+4}_{0} HRC)
and ground

Quality
6h23 DIN ISO 1328 / DIN 3963/67

p_f [mm]
cut-to-length tolerance for
continuous mounting -0.05/-0.50

F_{pL} [mm]
cumulative pitch deviation
based on length L

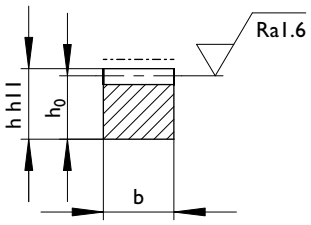
Geometrical data

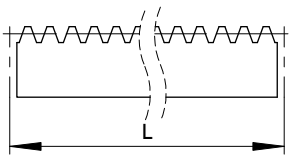
m_n	p_n	L	z	b	h	h_0	f+0.5	F_p	M	Part No.
1.5	4.72	499.51	106	19	19	17.50	2	0.029	1.3	244512
1.5	4.72	999.03	212	19	19	17.50	2	0.043	2.6	244513
2.0	6.28	502.65	80	24	24	22.00	2	0.025	2.1	244522
2.0	6.28	1005.31	160	24	24	22.00	2	0.036	4.2	244523
2.5	7.85	502.65	64	24	24	21.50	2	0.027	2.0	244532
2.5	7.85	1005.31	128	24	24	21.50	2	0.036	4.1	244533
3.0	9.42	508.94	54	29	29	26.00	2	0.029	3.0	244542
3.0	9.42	1017.88	108	29	29	26.00	2	0.037	6.0	244543
4.0	12.57	502.65	40	39	39	35.00	2	0.030	5.4	244552
4.0	12.57	1005.31	80	39	39	35.00	2	0.037	10.8	244553
5.0	15.71	502.65	32	49	39	34.00	3	0.028	6.6	244562
5.0	15.71	1005.31	64	49	39	34.00	3	0.034	13.1	244563
6.0	18.85	508.94	27	59	49	43.00	3	0.031	10.1	244572
6.0	18.85	1017.88	54	59	49	43.00	3	0.036	20.3	244573
8.0	25.13	502.65	20	79	79	71.00	3	0.029	22.1	244582
8.0	25.13	1005.31	40	79	79	71.00	3	0.033	44.3	244583
10.0	31.42	502.65	16	99	99	89.00	3	0.029	34.8	244592
10.0	31.42	1005.31	32	99	99	89.00	3	0.032	69.5	244593

m_n: Normal module, P_n: Normal pitch [mm], z: Number of teeth, M: Weight [kg]

Straight teeth, modular pitch

Milled and hardened





–·–·– hardened

Material
C45E DIN 1.1191

Profile
cold formed h11

Teeth
pressure angle $\alpha = 20°$
hardened (54^{+4}_{0} HRC)

Quality
9h27 DIN ISO 1328 / DIN 3963/67

F_p [mm]
cumulative pitch deviation
based on length L

Geometrical data

m_n	p_n	L	z	b	h	h_0	F_p	p_f	M	Part No.
1.5	4.72	999.03	212	17	17	15.50	0.118	-0.05/-0.49	2.07	124513
1.5	4.72	1998.05	424	17	17	15.50	0.191	-0.05/-0.49	4.14	124514
2.0	6.28	999.03	159	20	20	18.00	0.100	-0.05/-0.66	2.80	124523
2.0	6.28	1998.05	318	20	20	18.00	0.155	-0.05/-0.66	5.70	124524
2.5	7.85	997.46	127	25	25	22.50	0.100	-0.05/-0.82	4.40	124533
2.5	7.85	2002.77	255	25	25	22.50	0.150	-0.05/-0.82	8.80	124534
3.0	9.42	999.03	106	30	30	27.00	0.103	-0.05/-0.99	6.40	124543
3.0	9.42	1998.05	212	30	30	27.00	0.147	-0.05/-0.99	12.70	124544
4.0	12.57	1005.31	80	40	40	36.00	0.101	-0.05/-1.32	11.30	124553
4.0	12.57	1998.05	159	40	40	36.00	0.136	-0.05/-1.32	22.60	124554
5.0	15.71	1005.31	64	50	50	45.00	0.094	-0.05/-1.65	17.60	124563
5.0	15.71	2010.62	128	50	50	45.00	0.122	-0.05/-1.65	35.30	124564
6.0	18.85	999.03	53	60	60	54.00	0.101	-0.05/-1.98	25.20	124573
6.0	18.85	1998.05	106	60	60	54.00	0.128	-0.05/-1.98	50.50	124574
8.0	25.13	1005.31	40	80	80	72.00	0.094	-0.05/-2.64	45.20	124583
8.0	25.13	2010.62	80	80	80	72.00	0.115	-0.05/-2.64	90.30	124584
10.0	31.42	1005.31	32	100	100	90.00	0.090	-0.05/-3.30	70.60	124593
10.0	31.42	2010.62	64	100	100	90.00	0.106	-0.05/-3.30	141.10	124594

m_n: Normal module, P_n: Normal pitch [mm], z: Number of teeth, F_p: Teilungs-Gesamtabweichung [mm], p_f: Tolerance of pitch-accurate cutting [mm], M: Weight [kg]

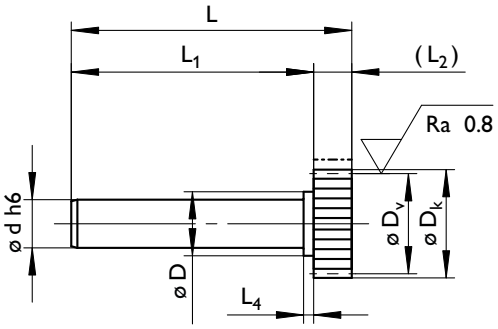
Module

Pinion

Q6

Straight teeth, modular pitch

Hardened and ground



–·–·– hardened

Material
16MnCr5 DIN 1.7131

Teeth
pressure angle α = 20°
straight teeth
hardened (58^{+4}_{0} HRC)
ground, crowned

Quality
6f24 DIN ISO 1328 / DIN 3963/67

Geometrical data

m_n	p_n	z	d	D_k	D_0	D_v	D	L	L1	L2	L4	J	M	Part No.
1.5	4.72	16	12	27.90	24.000	24.900	16	90	70	20	4.5	7	0.14	201116
1.5	4.72	20	20	33.00	30.000	30.000	26	110	90	20	4.5	24	0.34	201120
2.0	6.28	16	20	37.20	32.000	33.200	26	110	90	20	8.0	31	0.37	201216
2.0	6.28	20	25	44.00	40.000	40.000	32	140	120	20	8.0	79	0.68	201220
2.5	7.85	20	25	55.00	50.000	50.000	32	145	120	25	8.0	160	0.86	201320
3.0	9.42	16	25	55.80	48.000	49.800	32	150	120	30	8.0	181	0.93	201416
3.0	9.42	20	40	66.00	60.000	60.000	50	190	160	30	12.5	647	2.30	201420
4.0	12.57	20	40	88.00	80.000	80.000	50	200	160	40	18.0	1619	3.24	201520
5.0	15.71	20	60	110.00	100.000	100.000	85	310	260	50	35.0	7461	9.57	201620
6.0	18.85	20	60	132.00	120.000	120.000	85	320	260	60	35.0	13159	11.80	201720
8.0	25.13	20	60	176.00	160.000	160.000	85	340	260	80	35.0	43780	19.06	201820
10.0	25.13	20	90	176.00	160.000	160.000	105	385	305	80	35.0	56971	28.31	201821
10.0	31.42	16	90	186.00	160.000	166.000	105	410	310	100	40.0	67473	31.78	201916

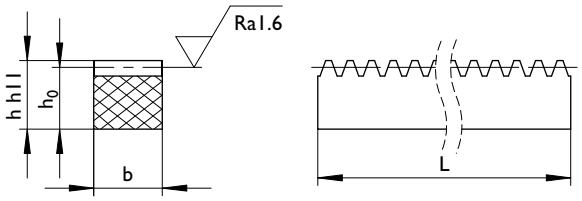
m_n: Normal module, P_t: Transverse pitch [mm], z: Number of teeth, D_0: Pitch circle diameter for calculation, D_v: Pitch circle diameter for design, J: Inertia [10^{-6} kg m^2], M: Weight [kg]

Solutions for medical and food applications

GÜDEL

Straight teeth, modular pitch

Polyamide, milled



Material
Polyamid PA 6

Profile
milled

Teeth
pressure angle α = 20°
milled

Quality
9h27 DIN ISO 1328 / DIN 3963/67

F_p [mm]
cumulative pitch deviation
0.15 / 1000mm

Geometrical data

m_n	p_n	L^{+1}_{0}	b	h	h_0	M	Part No.
2.0	6.28	1000	20	20	18.00	0.29	127123
2.0	6.28	2000	20	20	18.00	0.58	127124
2.5	7.85	1000	25	25	22.50	0.62	127133
2.5	7.85	2000	25	25	22.50	1.24	127134
3.0	9.42	1000	30	30	27.00	0.92	127143
3.0	9.42	2000	30	30	27.00	1.84	127144
4.0	12.57	1000	40	40	36.00	1.60	127153
4.0	12.57	2000	40	40	36.00	3.20	127154

m_n: Normal module, P_n: Normal pitch [mm]; M: Weight [kg]

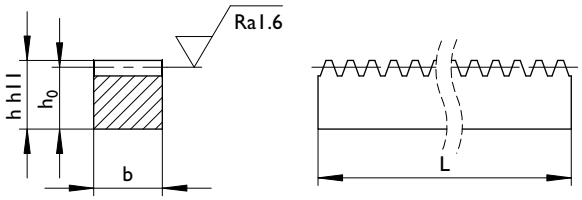
Module

Rack

Q9

Straight teeth, modular pitch

Stainless steel, milled



Material
X10CrNiS189 DIN 1.4305

Profile
cold formed h11

Teeth
pressure angle α = 20°
milled

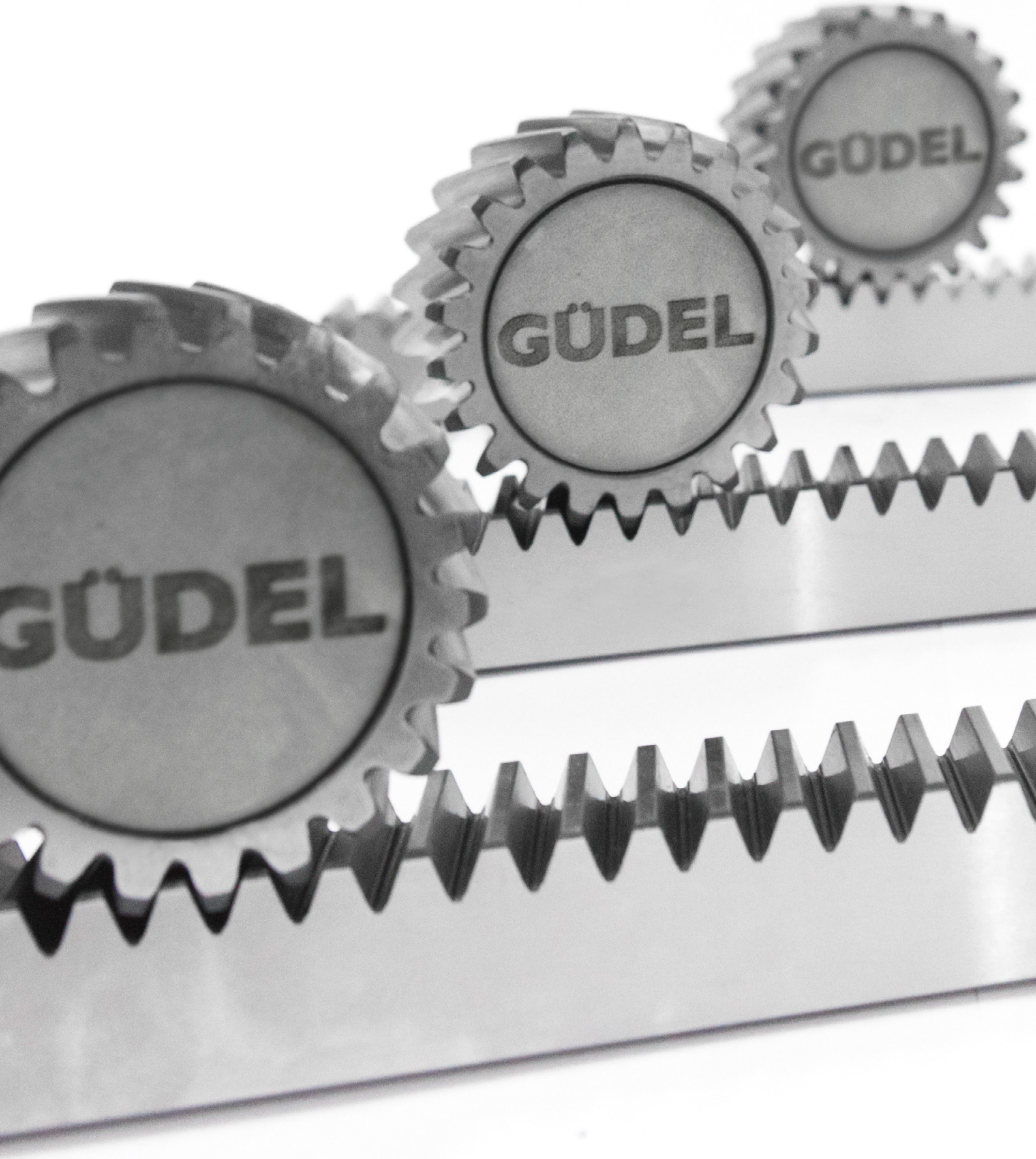
Quality
9h27 DIN ISO 1328 / DIN 3963/67

F_p [mm]
cumulative pitch deviation
0.15 / 1000mm

Geometrical data

m_n	p_n	L^{+1}_{0}	b	h	h_0	M	Part No.
2.0	6.28	500	16	16	14.00	0.90	130526
2.0	6.28	1000	16	16	14.00	1.80	130527
2.5	7.85	500	20	20	17.50	1.40	130536
2.5	7.85	1000	20	20	17.50	2.80	130537
3.0	9.42	500	24	24	21.00	2.00	130546
3.0	9.42	1000	24	24	21.00	4.00	130547
4.0	12.57	500	30	30	26.00	3.00	130556
4.0	12.57	1000	30	30	26.00	6.00	130557

m_n: Normal module, P_n: Normal pitch [mm]; M: Weight [kg]

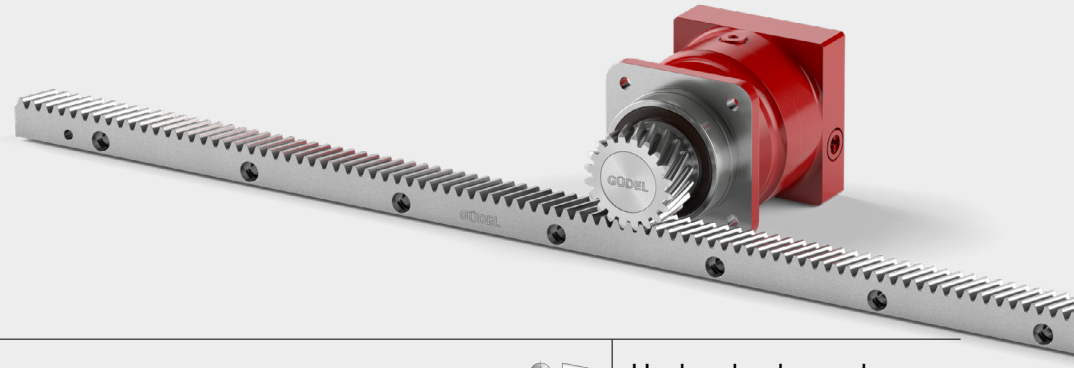

GÜDEL
GÜDEL
GÜDEL

Your ideal drive train

GÜDEL

Rack & pinion programm

Find your solution in our high precision planetary gearboxes catalog.



Pinion

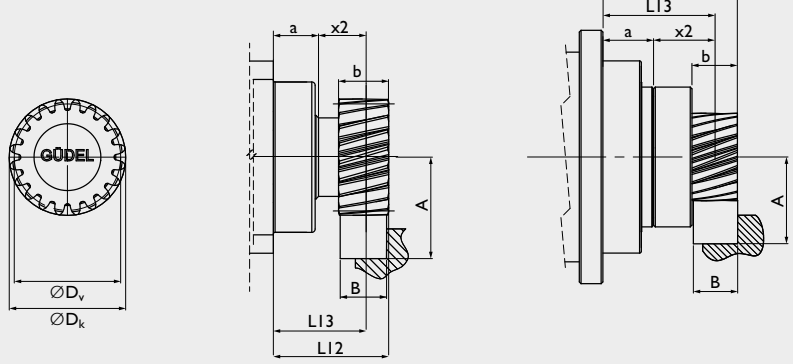
Helical teeth, modular pitch

Hardened and ground

Material
16MnCr5 DIN 1.7131

Teeth
pressure angle α = 20°
helical teeth system left
helix angle ß = 19° 31'42''
hardened (58^{+4}_{0} HRC)
ground, crowned

Quality
6f24 DIN ISO 1328 / DIN 3963/67



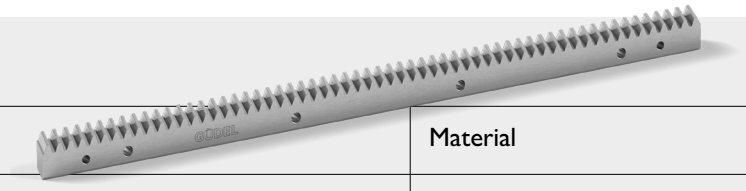
NRH, NR, SR NRHP

Geometrical data

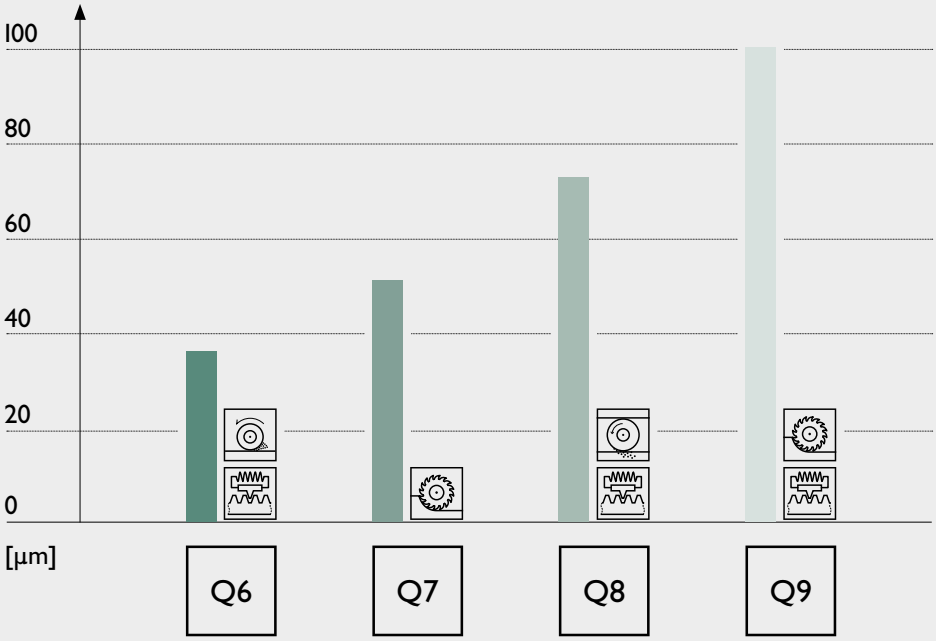
	Size	m_n	P_t	z	A	b	D_k	D_0	D_v	L12	L13	x2	a	M
NRH/SR	080	2.0	6.66	20	43.221	25	46.44	42.441	42.441	52.5	40.0	20.0	20	0.3
	100	2.0	6.66	25	48.526	25	57.05	53.052	53.052	63.3	51.0	24.0	27	0.4
		3.0	10.00	20	57.831	30	69.66	63.662	63.662	69.0	54.0	27.0	27	0.7
	140	3.0	10.00	22	61.014	30	76.03	70.028	70.028	69.5	54.5	27.5	27	0.8
		4.0	13.33	20	77.441	40	92.88	84.883	84.883	79.0	59.0	32.0	27	1.6
NRHP	080	2.0	6.66	16	39.577	26	39.15	33.953	35.153	75.0	62.0	32.0	30	0.6
	100	2.0	6.66	16	39.577	26	39.15	33.953	35.153	77.0	64.0	35.0	29	1.0
		2.0	6.66	21	44.282	26	48.56	44.563	44.563	77.0	64.0	35.0	29	1.0
		2.5	8.33	16	43.471	26	48.94	42.441	43.941	77.0	64.0	35.0	29	1.0
		3.0	10.00	14	49.182	32	52.36	44.563	46.363	83.0	67.0	38.0	29	1.2
	140	2.5	8.33	21	49.352	26	60.70	55.704	55.704	89.0	76.0	38.0	38	1.9
		3.0	10.00	18	54.648	32	63.30	57.296	57.296	95.0	79.0	41.0	38	2.0
NR	180	4.0	13.33	20	77.441	40	92.88	84.883	84.883	83.5	63.5	31.5	32	1.5
		5.0	16.66	20	87.052	50	116.10	106.103	106.103	89.5	64.5	32.5	32	3.0
	240	5.0	16.66	24	97.662	50	137.32	127.324	127.324	112.5	87.5	47.5	40	5.4
		6.0	20.00	20	106.662	60	139.32	127.324	127.324	111.0	81.0	41.0	40	5.6
SR	180	4.0	13.33	20	77.441	40	92.88	84.883	84.883	89.5	69.5	31.5	38	1.5
		5.0	16.66	20	87.052	50	116.10	106.103	106.103	95.5	70.5	32.5	38	3.0
	240	5.0	16.66	24	97.662	50	137.32	127.324	127.324	120.5	95.5	47.5	48	5.4
		6.0	20.00	20	106.662	60	139.32	127.324	127.324	119.0	89.0	41.0	48	5.6

m_n: Normal module, P_t: Transverse pitch [mm], z: Number of teeth, D_0: Pitch circle diameter for calculation, D_v: Pitch circle diameter for design, M: Weight [kg]

Rack



F_p



Example of the cumulative pitch deviation F_p for module 4.0 based on length 1000 mm. Quality DIN ISO 1328.

Material

Steel

Processes

Hardened

Milled

Sunburst

Ground

Helical

Geometrical data

Size	m_n	P_t	L	z	b	h
080 100	2	6.66	500.00	75	24	24
			1000.00	150		
			2000.00	300		
100 140	2.5	8.33	500.00	60	24	24
			1000.00	120		
			2000.00	240		
100 140	3	10.00	500.00	50	29	29
			1000.00	100		
			2000.00	200		
140 180	4	13.33	506.67	38	39	39
			1000.00	75		
			2000.00	150		
180 240	5	16.66	500.00	30	49	39
			1000.00	60		
			2000.00	120		
240	6	20.00	500.00	25	59	49
			1000.00	50		
			2000.00	100		

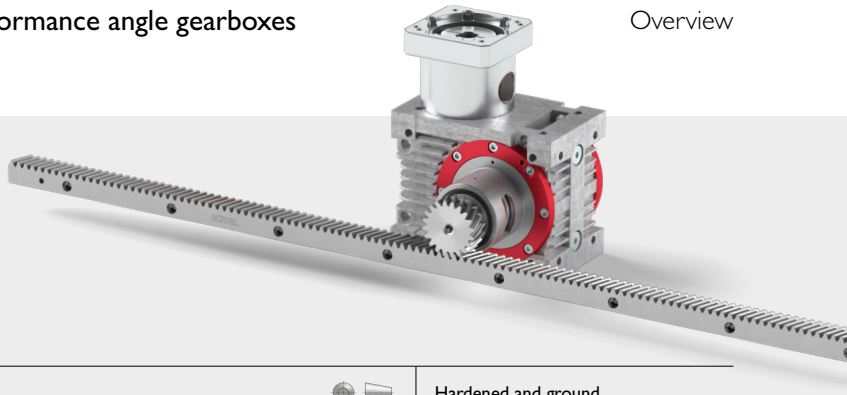
m_n: Normal module, P_t: Transverse pitch [mm],
z: Number of teeth
* Double amount of fixing holes for maximum feed force

Q6	Q6+*	Q7	Q8	Q9
Part No.	Part No.	Part No.	Part No.	Part No.
246022	246122	155022	157022	158022
246023	246123	155023	157023	158023
246024	246124	155024	-	158024
246032	246132	155032	157032	158032
246033	246133	155033	157033	158033
246034	246134	155034	-	158034
246042	246142	155042	157042	158042
246043	246143	155043	157043	158043
246044	246144	155044	-	158044
246055	246152	155052	157055	158052
246056	246153	155053	157056	158053
246057	246154	155054	-	158054
246062	246162	155062	-	158062
246063	246163	155063	-	158063
246064	246164	155064	-	158064
246072	246172	-	-	158072
246073	246173	-	-	158073
246074	246174	-	-	158074

Page 23 Page 24 Page 26 Page 27 Page 28

Rack & pinion programm

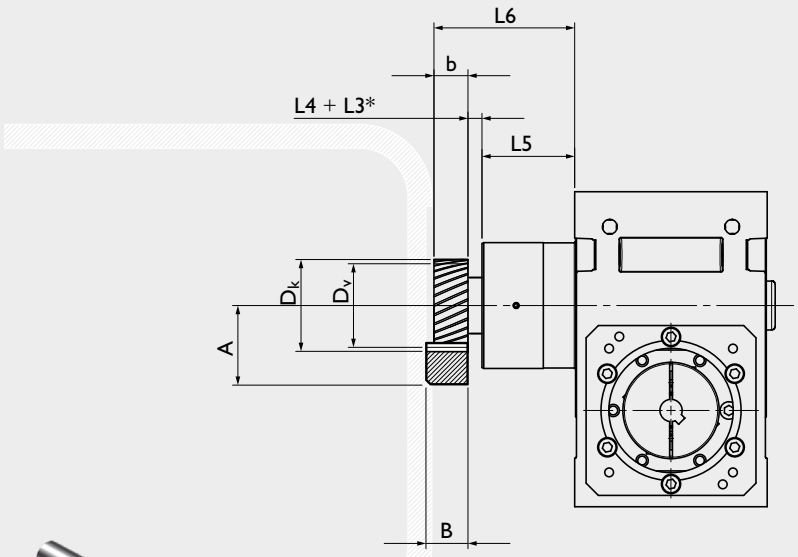
Find your solution in our high performance angle gearboxes catalog.



Pinion

Helical teeth, modular pitch

Hardened and ground



Material
16MnCr5 DIN 1.7131
shaft/bore soft

Teeth
pressure angle α = 20°
helical teeth system left
helix angle ß = 19° 31'42''
hardened (58^{+4}_{0} HRC)
ground, crowned

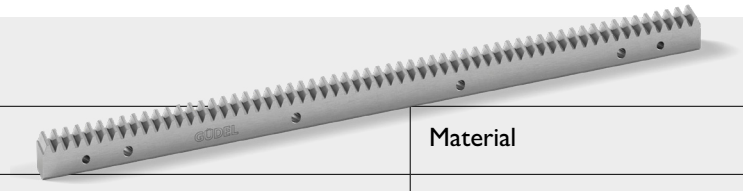
Quality
6f24 DIN ISO 1328 / DIN 3963/67

Geometrical data

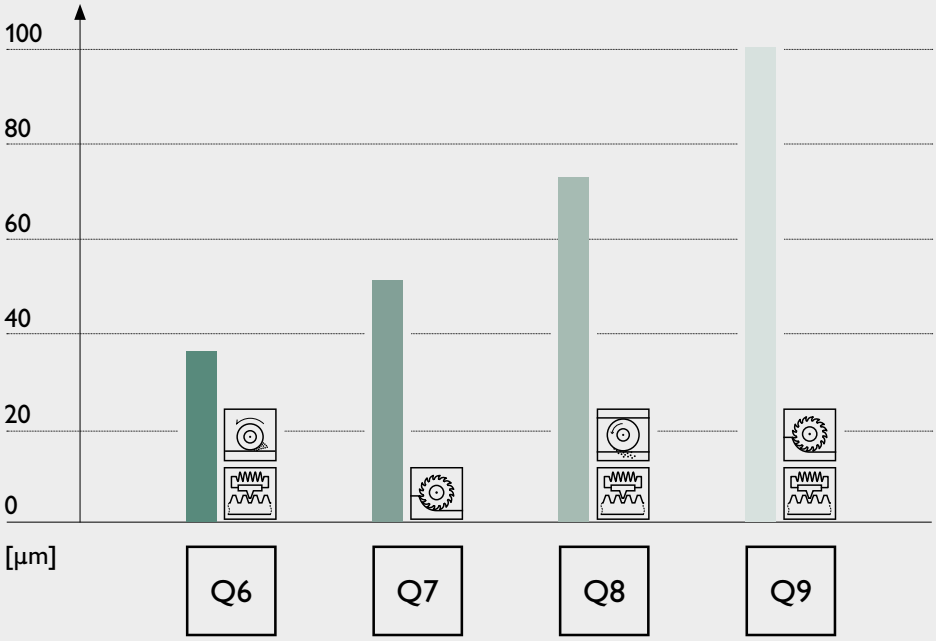
Size	m_n	p_t	z	A	b	D_k	D_0	D_v	L4	L5	L6	M	Part No.
030	1.5	5.00	16	30.680	20	29.36	25.465	26.365	4.5	38	62.5	0.14	211116
										43	67.5		
045	1.5	5.00	20	33.415	20	34.83	31.831	31.831	4.5	43	67.5	0.34	211120
										53	77.5		
	2.0	6.66	16	39.575		39.15	33.953	35.153	8.0	43	71.0	0.39	211216
										53	81.0		
060	2.0	6.66	20	43.220	20	46.44	42.441	42.441	8.0	53	81.0	0.70	211220
										58	86.0		
										83	111.0		
	2.5	8.33		48.025	25	58.05	53.052	53.052		53	86.0	0.91	211320
										58	91.0		
										83	116.0		
	3.0	10.00	16	52.365	30	58.73	50.930	52.730		53	91.0	0.99	211416
										58	96.0		
										83	121.0		
090	3.0	10.00	20	57.830	30	69.66	63.662	63.662	12.5	63	105.5	2.38	211420
										104.5	147.0		
	4.0	13.33		77.440	40	92.88	84.883	84.883	18.0	63	121.0	3.43	211520
										104.5	162.5		
120	4.0	13.33	20	77.440	40	92.88	84.883	84.883	14.5	123	177.5	7.89	211521
	5.0	16.66		87.050	50	116.10	106.103	106.103	35.0	123	208.0	9.96	211620

m_n: Normal module, P_t: Transverse pitch [mm], z: Number of teeth, D_0: Pitch circle diameter for calculation, D_v: Pitch circle diameter for design, M: Weight [kg]
*L3 for additional distance ring

Rack



F_p



Example of the cumulative pitch deviation F_p for module 4.0 based on length 1000 mm. Quality DIN ISO 1328.

Material

Steel

Processes

Hardened

Milled

Sunburst

Ground

Helical

Geometrical data

Size	m_n	P_t	L	z	b	h
030 045	1.5	5.00	500.00	100	19	19
			1000.00	200		
045 060	2.0	6.66	500.00	75	24	24
			1000.00	150		
			2000.00	300		
060	2.5	8.33	500.00	60	24	24
			1000.00	120		
			2000.00	240		
060 090	3.0	10.00	500.00	50	29	29
			1000.00	100		
			2000.00	200		
090 120	4.0	13.33	506.67	38	39	39
			1000.00	75		
			2000.00	150		
120	5.0	16.66	500.00	30	49	39
			1000.00	60		
			2000.00	120		

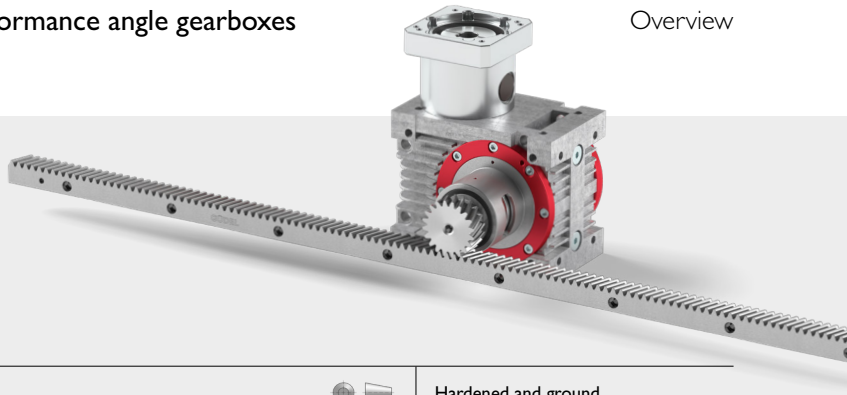
m_n: Normal module, P_t: Transverse pitch [mm], z: Number of teeth

Q6	Q7	Q8	Q9
Part No.	Part No.	Part No.	Part No.
246012	155012	157023	158012
246013	155013	-	158013
246022	155022	157032	158022
246023	155023	157033	158023
246024	155024	-	158024
246032	155032	157042	158032
246033	155033	157043	158033
246034	155034	-	158034
246042	155042	157055	158042
246043	155043	157056	158043
246044	155044	-	158044
246055	155055	-	158052
246056	155056	-	158053
246057	155057	-	158054
246062	155062	-	158062
246063	155063	-	158063
246064	155064	-	158064

Page 23 Page 26 Page 27 Page 28

Rack & pinion programm

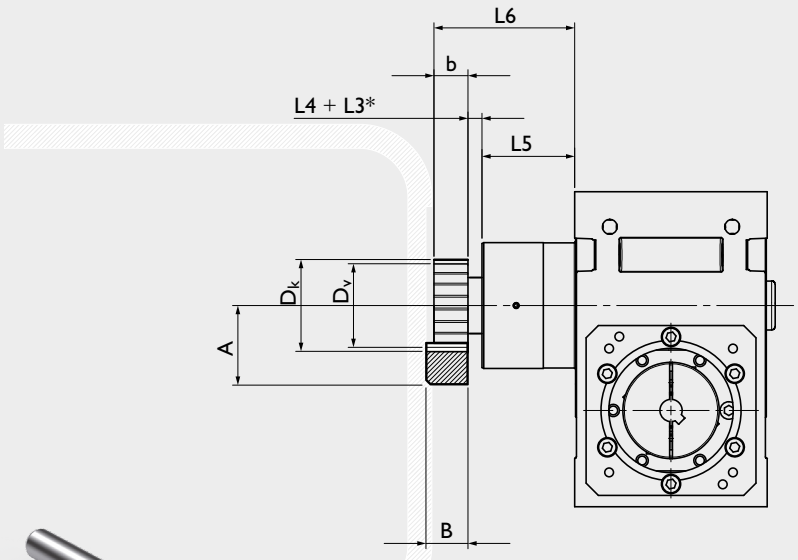
Find your solution in our high performance angle gearboxes catalog.



Pinion

Straight teeth, modular pitch

Hardened and ground



Material
16MnCr5 DIN 1.7131
shaft / bore soft

Teeth
pressure angle α = 20°
straight teeth
hardened (58^{+4}_{0} HRC)
ground, crowned

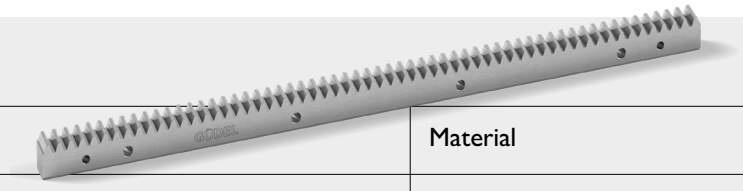
Quality
6f24 DIN ISO 1328 / DIN 3963/67

Geometrical data

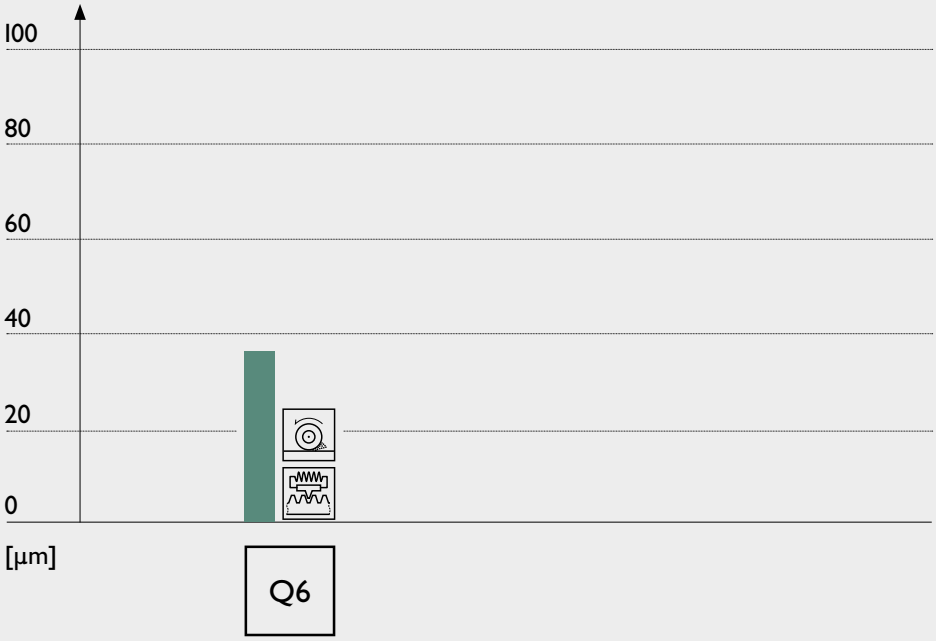
Size	m_n	p_n	z	A	b	D_k	D_0	D_v	L4	L5	L6	M	Part No.
030	1.5	4.72	16	29.95	20	27.9	24.000	24.900	4.5	38.0	82.5	0.14	201116
										43.0	67.5		
045	1.5	4.72	20	32.50	20	33.0	30.000	30.000	4.5	43.0	67.5	0.34	201120
										53.0	77.5		
	2.0	6.28	16	38.60		37.2	32.000	33.200	8.0	43.0	71.0	0.37	201216
										53.0	81.0		
060	2.0	6.28	20	42.00	20	44.0	40.000	40.000	8.0	53.0	81.0	0.68	201220
										58.0	86.0		
										83.0	111.0		
	2.5	7.85		46.00	25	55.0	50.000	50.000		53.0	86.0	0.86	201320
										58.0	91.0		
										83.0	116.0		
	3.0	9.42	16	50.90	30	55.8	48.000	49.800		53.0	91.0	0.93	201416
										58.0	96.0		
										83.0	121.0		
090	3.0	9.42	20	56.00	30	66.0	60.000	60.000	12.5	63.0	105.5	2.30	201420
										104.5	147.0		
	4.0	12.57		75.00	40	88.0	80.000	80.000	18.0	63.0	121.0	3.24	201520
										104.5	162.5		
120	5.0	15.71	20	84.00	50	110.0	100.000	100.000	35.0	123.0	208.0	9.57	201620
	6.0	18.85		103.00	60	132.0	120.000	120.000	35.0		218.0	11.80	201720
	8.0	25.13		151.00	80	176.0	160.000	160.000	35.0		238.0	19.06	201820

m_n: Normal module, P_n: Normal pitch, z: Number of teeth, D_0: Pitch circle diameter for calculation, D_v: Pitch circle diameter for design, M: Weight [kg]
*L3 for additional distance ring

Rack



F_p



Example of the cumulative pitch deviation F_p for module 4 based on length 1000 mm. Quality DIN ISO 1328.

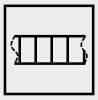
Material

Steel

Processes

Hardened

Milled



Straight

Geometrical data

Size	m_n	P_n	L	z	b	h	Q6 Part No.
030 045	1.5	4.72	499.51	106	19	19	240012
			999.03	212			240013
045 060	2.0	6.28	502.65	80	24	24	240022
			1005.31	160			240023
			2010.62	320			240024
060	2.5	7.85	502.65	64	24	24	240032
			1005.31	128			240033
			2010.62	256			240034
060 090	3.0	9.42	508.94	54	29	29	240042
			1017.88	108			240043
			2035.75	216			240044
90	4.0	12.57	502.65	40	39	39	240052
			1005.31	80			240053
			2010.62	160			240054
120	5.0	15.71	502.65	32	49	39	240062
			1005.31	64			240063
			2010.62	128			240064

m_n: Normal module, P_n: Normal pitch [mm], z: Number of teeth

Page 31

Accessories

GÜDEL

The optimal lubrication for smooth processes

High precision and quality are the hallmarks of Güdel racks and pinions. We can meet the most diverse needs with our modular system. We know how our components work trouble-free because of Güdel's vertically integrated product portfolio. To match your system, we offer the appropriate lubrication pinion, mounting axles and lubricator. An optimal lubricating film is achieved on the rack and pinion by interacting with the preset grease quantity, the lubrication system and the lubricator.

Lubrication system

Replaceable lubricant container 400 ccm

Lubricating pinion

Lubricator DLS 24V

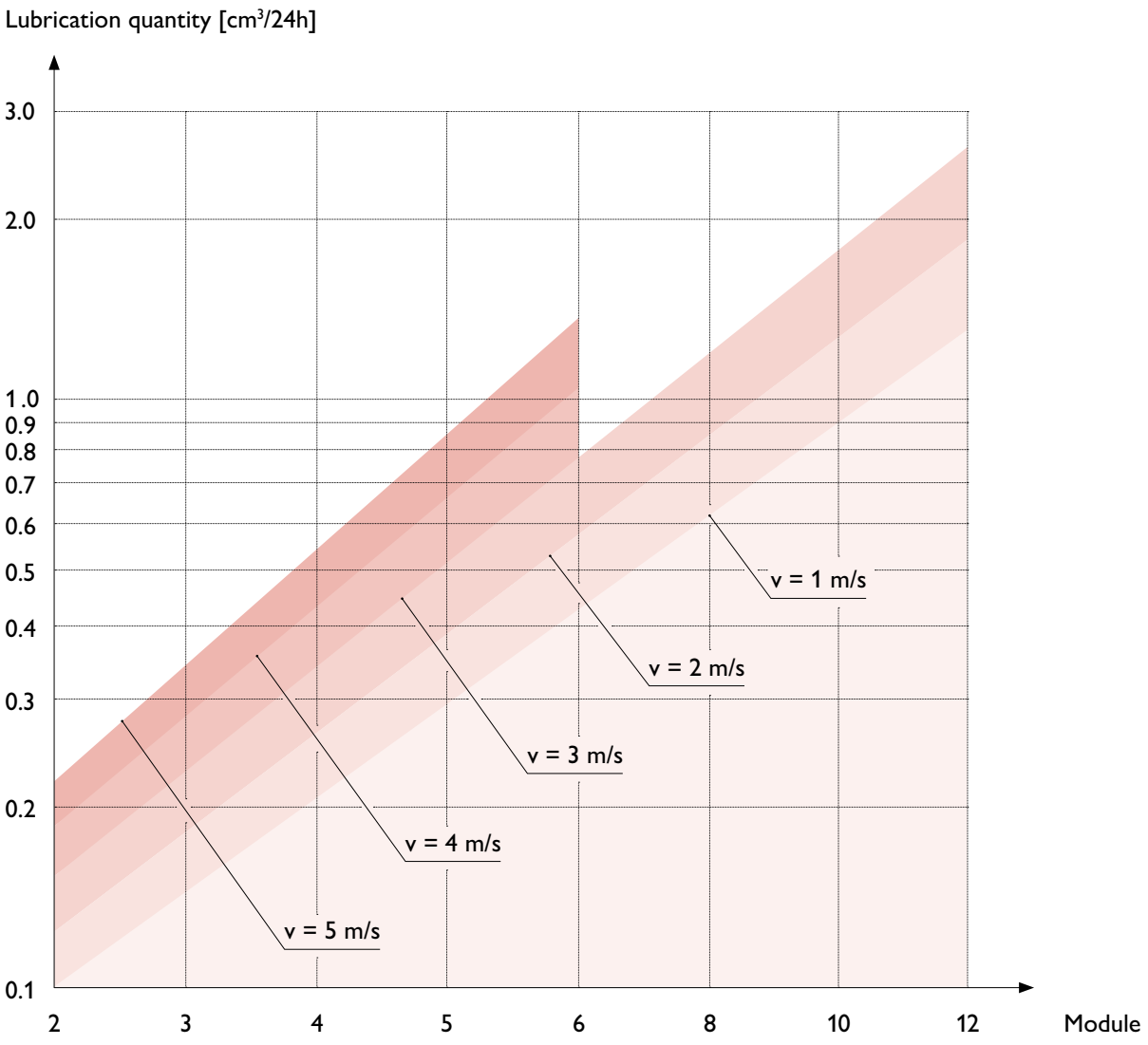
Consult our service manual for detailed instructions.

Lubricating pinion

The long service life of the rack-and-pinion drives is achieved through regular lubrication.

The lubrication pinion made of polyurethane foam takes over the task and is available in the versions SL and SR – lubrication of the rack or lubrication of the drive pinion. The polyurethane foam properties allow the lubricant to be stored and gradually released, creating an optimal lubricating film on the tooth flanks.

Lubrication quantity



Lubricator

Dimensions (B × H × T)	[mm]	Max. 107 × 198 × 109
Weight	[g]	1120
Lubricant volume	[cm³]	400
Lubricant type		Grease up to NLGI 3
Method of operation		Piston pump
Operating pressure	[bar]	Max. 70
Metering volume / stroke	[cm³]	0,16 (output / pulse signal)
Outlet		Rotating, right-angled hose connections 6 mm to 100 bar
Operating voltage	[VDC]	24
Current input	[mA]	I_{max} during operation 350 (regular < 200)
Fuse	[mA]	350 (characteristic: medium slow-blow or slow-blow)
Protection class		IP 65
Operating temperature	[°C]	−20 bis +70
Control		Integrated, microelectronic
Pressure monitoring		Integrated, electronic (system pressure measurement)
Fill level monitoring		Integrated; reed contact
Control connection		Connector; M12×1, 4-pole
Activation of progressive distributor		Suitable

Lubricator versions

Designation	404-DLS	402-Battery	402-24VDC
Outlets	4	2	2
Pump body	2	1	1
Lubricant	Güdel H1	Güdel H1	Güdel H1
Part No.	10451366	10461089	10451366

Replacement cartridge

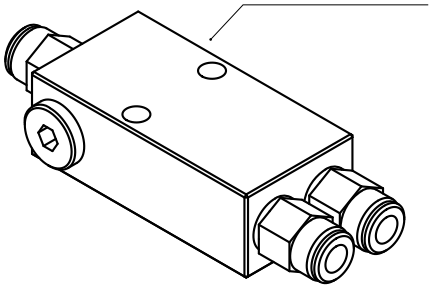
Designation	Cartrige Güdel H1
Lubricant volume	400 cm³
Lubricant type	Güdel H1
Temperature range	10° C bis 40° C
Part No.	0206399

Hoses, hose connectors and splitters

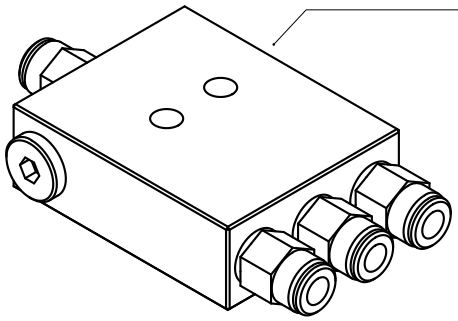
Designation	Splitter 2-fold	Splitter 3-fold	Connector	Hose Ø6/3mm	Screw connection straight	Screw connection angled
Thread / connection	Pluggable	Pluggable	Pluggable	–	M6×1/pluggable	M6×1/pluggable
Model / no. of outlets	2	3	2 zu 1	PA 12	–	90°
Hose diameter	Ø6/3	Ø6/3	Ø6/3	Ø6/3	Ø6/3	Ø6/3
Part No.	0193908	0204580	0193909	0193912	0193910	0193911

The splitters divide the lubrication to equall quntities.

2-fold splitter

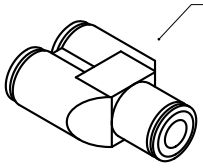


3-fold splitter

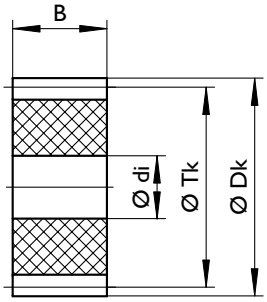


The connector combines two hoses into one lubrication point.

Connector



Lubricating pinion - Helical teeth, modular pitch

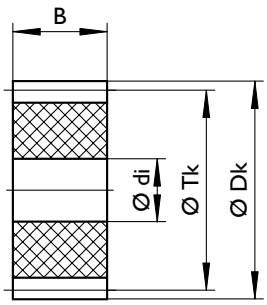


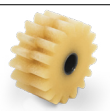
Geometrical data

Module	Number of teeth	Type	Use	B	D_k	d_i	T_k	Part No.
1.5	24	SL	Rack	20	41.2	12	38.20	10348529
		SR	Pinion					10348521
2.0	17	SL	Rack	20	40.1	12	36.08	10142168
		SR	Pinion					–
2.5	17	SL	Rack	24	50.1	12	45.09	10392654
		SR	Pinion					–
3.0	17	SL	Rack	30	60.1	12	54.11	0193925
		SR	Pinion					–
4.0	17	SL	Rack	40	80.1	12	72.15	0193926
		SR	Pinion					0212416
5.0	17	SL	Rack	50	100.2	20	90.19	10348590
		SR	Pinion					10348528
6.0	17	SL	Rack	60	120.2	20	108.23	0215808
		SR	Pinion					–
8.0	13	SL	Rack	80	126.3	20	110.35	10392655
		SR	Pinion					–
10.0	13	SL	Rack	100	157.9	20	137.94	10392656
		SR	Pinion					–

SL: Lubricating pinion left, SR: Lubricating pinion right

Lubricating pinion - Straight teeth, modular pitch



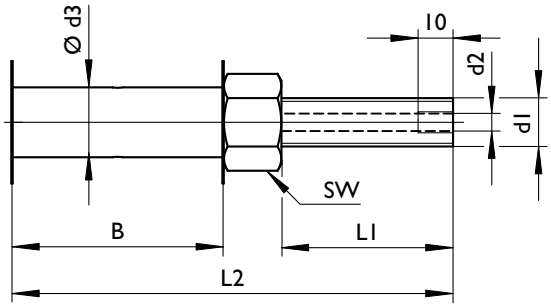


Geometrical data

Module	Number of teeth	Type	Use	B	D_k	d_i	T_k	Part No.
1.5	24	SG	Rack & Pinion	15	39.0	12	36.0	10392626
2.0	17	SG	Rack & Pinion	20	38.0	12	34.0	10392629
2.5	17	SG	Rack & Pinion	24	47.5	12	42.5	10392640
3.0	17	SG	Rack & Pinion	30	57.0	12	51.0	10336637
4.0	17	SG	Rack & Pinion	40	76.0	12	68.0	10392641
5.0	17	SG	Rack & Pinion	50	95.0	20	85.0	10392642
6.0	17	SG	Rack & Pinion	60	114.0	20	102.0	0193169
8.0	13	SG	Rack & Pinion	80	120.0	20	104.0	10392643
10.0	13	SG	Rack & Pinion	100	150.0	20	130.0	10392644

SG: Lubricating pinion straight

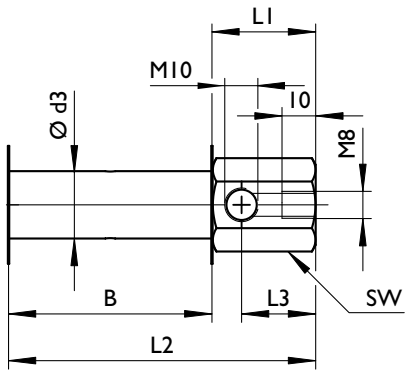
Fastening axle straight



Geometrical data

Type	d3	B	L1	L2	d1	d2	SW	Part No.
A	12	15	34.2	60.4	M10	M6	17	10392664
A	12	20	32.0	63.2	M10	M6	17	10348522
A	12	24	30.0	65.2	M10	M6	17	103992665
A	12	30	30.0	71.2	M10	M6	17	10392666
A	12	40	30.0	81.2	M10	M6	17	10392667
A	20	50	49.1	116.4	M16	G 1/8	24	10348523
A	20	60	49.1	126.4	M16	G 1/8	24	0193168
A	20	80	49.1	146.4	M16	G 1/8	24	10392668
A	20	100	49.1	166.4	M16	G 1/8	24	10392669

Fastening axle right-angle



Geometrical data

Type	d3	B	L1	L2	L3	SW	Part No.
B	12	15	30	46.4	22	17	10392671
B	12	20	30	51.4	22	17	10142167
B	12	24	30	55.4	22	17	10392672
B	12	30	30	61.4	22	17	0193923
B	12	40	30	71.4	22	17	0193924
B	20	50	30	81.4	22	24	10348526
B	20	60	30	91.4	22	24	0215813
B	20	80	30	111.4	22	24	10392673
B	20	100	30	131.4	22	24	10392674

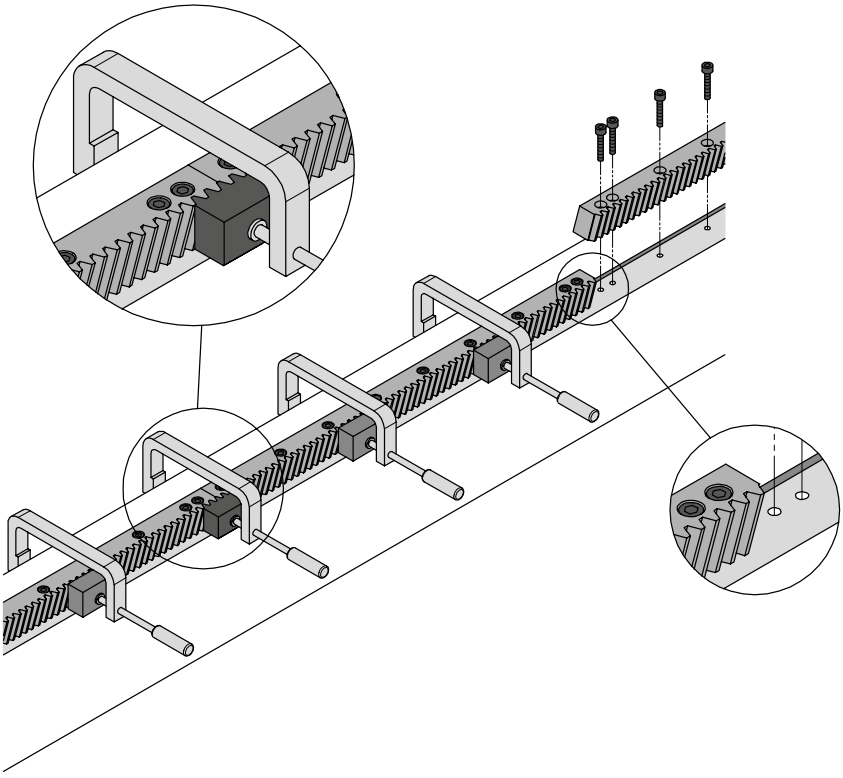
Smooth transition – Accurate assembling of your racks

To make it possible to link our standard racks to form any desired length, the teeth are cut so that there is a half-tooth gap at each end of the rack.

In order to achieve the smoothest and quietest possible transition, we recommend using a mounting aid with teeth in the opposite direction.

Suitable mounting aids are shown on the following page.

Assembling



Consult our service manual for detailed instructions.

Mounting aids for helical toothed racks

Part No.	m_n	P_t
902280	1.5	5.00
902281	2.0	6.66
902282	2.5	8.33
902283	3.0	10.00
902284	4.0	13.33
902285	5.0	16.66
902286	6.0	20.00
902287	8.0	26.66
902288	10.0	33.33

m_n: Normal module, P_t: Transverse pitch [mm]

Mounting aids for straight toothed racks

Part No.	m_n	P_n
902411	1.5	4.72
902412	2.0	6.28
902413	2.5	7.85
902414	3.0	9.42
902415	4.0	12.57
902416	5.0	15.71
902417	6.0	18.85
902418	8.0	25.13
902419	10.0	31.42

m_n: Normal module, P_n: Normal pitch [mm]

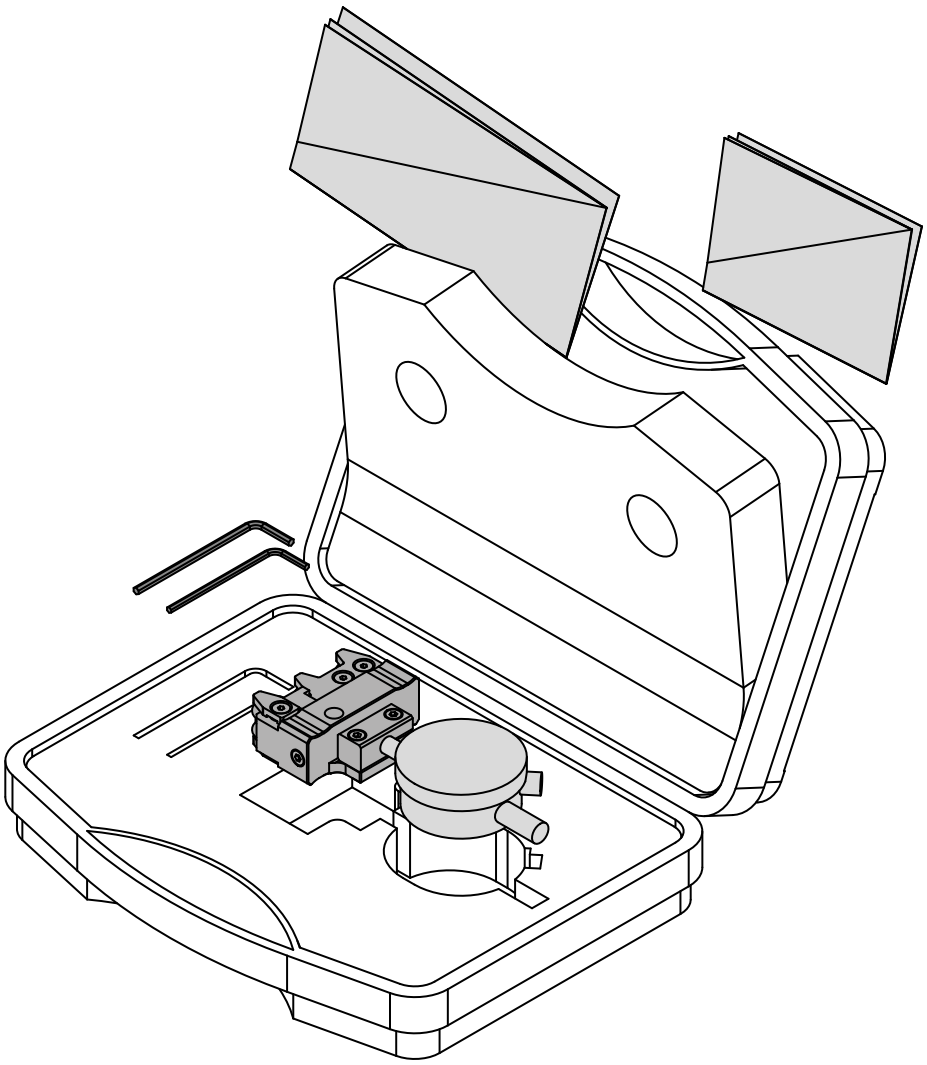
Rack joint case set

It is important that rack transitions are installed precisely.

This measuring device allows you to easily check whether the rack joints have been installed within the tolerances. The case set comprises a dial gauge, push-button unit, adjusting tool and instructions detailing the recommended tolerances.

This measuring method is suitable for straight and helical racks.

Case set



Detailed instructions can be found in our operating manual.

Equipment for adjusting the rack joint during installation

Part No.	m_n	P_t
10454798	2.0	6.66
10460512	2.5	8.33
10460602	3.0	10.00
10454683	4.0	13.33

m_n: Normal module, P_t: Transverse pitch [mm]

Technical information

GÜDEL

Calculation of rack and pinion

Determine max. application force F_{2b}

Rack and pinion

Determine operation mode factor f_l

- Pulsating load (one direction): $f_l = 1.0$
- Alternating load (bi-directional): $f_l = 1.55$

Determine lifetime factor f_c

- Load cycles ≤ 1*10^6: $f_c = 1.0$
- Virtually unlimited lifetime:

	Z≥20	Z<20
Rack Q6 f_c	1.35	1.75
Rack Q7 f_c	2.50	2.50
Rack Q8 f_c	1.40	2.00
Rack Q9 f_c	1.50	2.50

Application-specific safety factor* f_s

* Based on experience 1 to 4
Recommendation: $f_s > 1.5$
For further information, please contact Güdel.

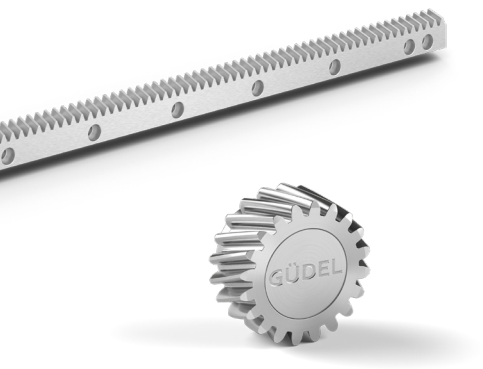
Determine max. acceleration force** $F_{2b}f$

** $F_{2b}f = F_{2b} \times f_1 \times f_c \times f_s$

Select rack

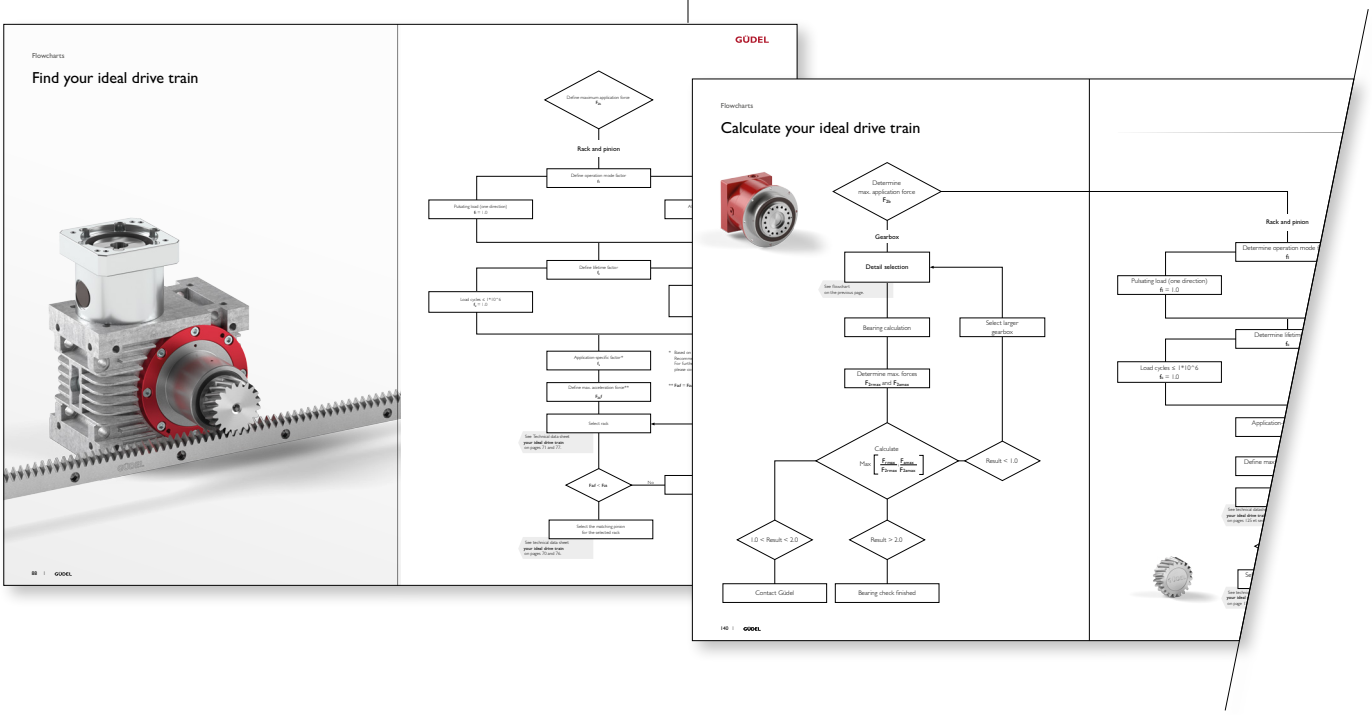
$F_{2b}f < F_{2B}$?

- No → Select a larger rack
- Yes → Select the matching pinion for the selected rack



Your ideal drive train combined with our high precision planetary and high performance angle gearboxes

Depending on the requirements of your application, Güdel offers you – in line with the calculated rack & pinion combination - the matching high-precision planetary gear in various designs as well as a high-performance angular gear. The calculation methodology for your ideal drive train can be found in the respective gearbox catalogue.




GÜDEL
GÜDEL
GÜDEL

Güdel worldwide

GÜDEL

Contacts

Europe

Switzerland
Güdel Group AG (Headquarters)
Gaswerkstrasse 26
4900 Langenthal
Phone +41 62 916 9191
info@ch.gudel.com

Güdel AG
Gaswerkstrasse 26
4900 Langenthal
Phone +41 62 916 91 91
info@ch.gudel.com

Austria
Güdel GmbH
Schöneringer Strasse 48
4073 Wilhering
Phone +43 7226 20690 0
info@at.gudel.com

Netherlands
Güdel AG
Eertmansweg 30
7595 PA Weerselo
Phone +31 541 66 22 50
info@nl.gudel.com

Czech Republic
Güdel a.s.
Holandská 10
63900 Brno
Phone +420 519 323 431
info@gudel.cz

France
Güdel SAS
Tour de l'Europe 213
3 Bd de l'Europe
68100 Mulhouse
Phone +33 1 69 89 80 16
info@fr.gudel.com

Güdel Sumer SAS
Le Roqual
Zone industrielle
Carsac-Aillac
24200 Sarlat-la-Canéda
Phone +33 5 53 30 30 80
gudel-sumer@fr.gudel.com

Germany
Güdel Germany GmbH
(German Headquarters)
Industriepark 107
74706 Osterburken
Phone +49 6291 6446 0
info@de.gudel.com

Güdel Components GmbH
Carl-Benz-Strasse 5
63674 Altenstadt
Phone +49 6047 9639 0
info@de.gudel.com

Italy
Güdel S.r.l.
Strada per Cernusco, 7
20060 Bussero (MI)
Phone +39 02 9217021
info@it.gudel.com

Poland
Güdel Sp. z o.o.
ul. Legionów 26/28
43-300 Bielsko - Biała
Phone +48 33 819 01 25
info@pl.gudel.com

Russia
Güdel AG
Yubileynaya 40
Office 1902
445057 Togliatti
Phone +7 8482 775444
info@ru.gudel.com

Spain
Güdel AG
Carrer de Sant Francesc, 4
1º 12ª
08290 Cerdanyola del Vallés,
Barcelona
Phone +34 644 347 058
info@es.gudel.com

United Kingdom
Güdel Lineartec (U.K.) Ltd.
Unit 5 Wickmans Drive
Banner Lane
CV4 9XA Coventry, West Midlands
Phone +44 24 7669 5444
info@uk.gudel.com

Americas

Mexico
Güdel TSC S.A. de C.V.
Gustavo M. Garcia 308
Col. Buenos Aires
Monterrey, N.L. 64800
Phone +52 81 8374-2500
info@mx.gudel.com

USA
Güdel Inc.
4881 Runway Blvd.
Ann Arbor, MI 48108
Phone +1 734 214 0000
info@us.gudel.com

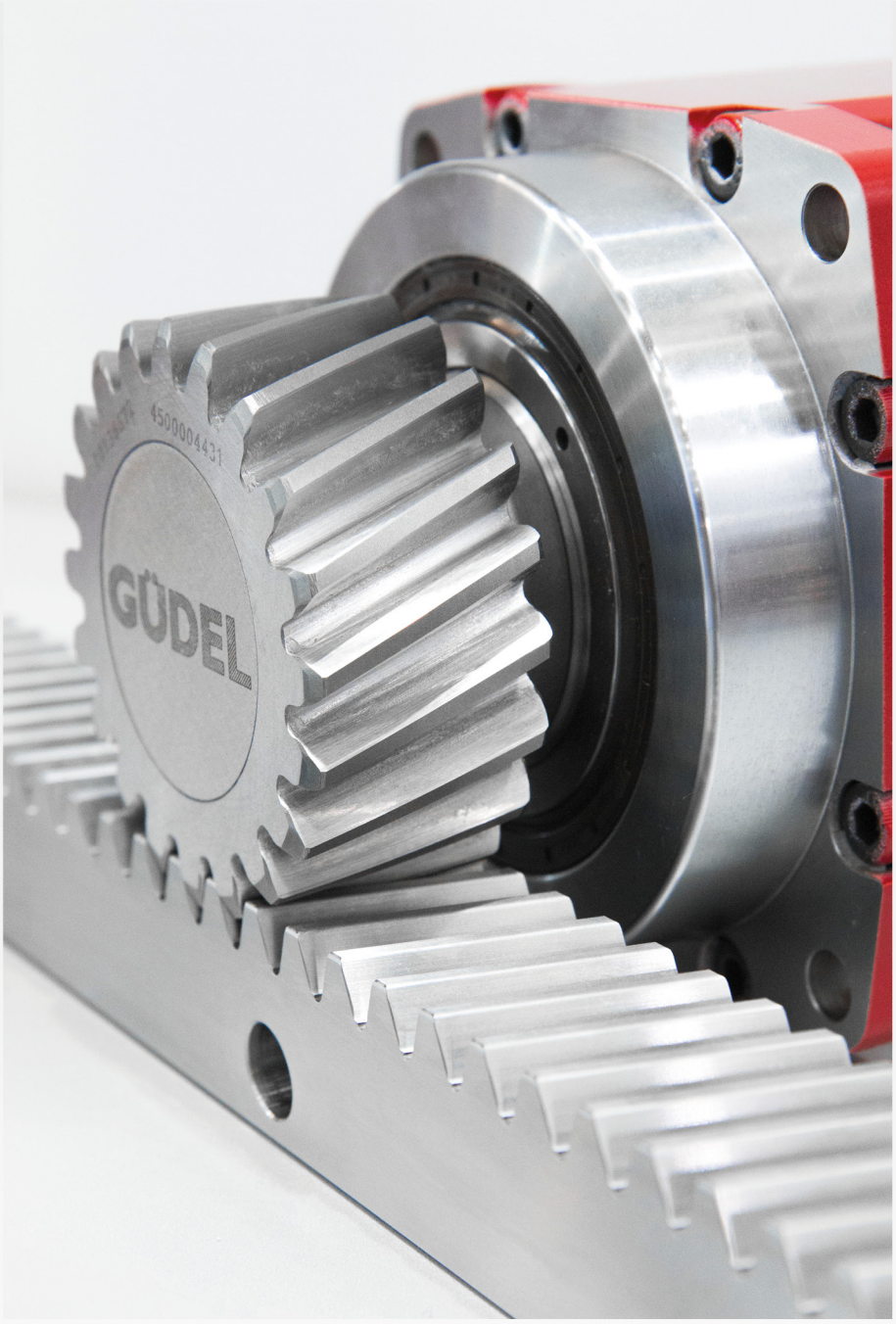
Asia Pacific

China
Güdel International Trading Co. Ltd.
Block A, 301-302 Floor, C2 BLDG
No. 1599 New Jin Qiao Road
Pudong
Shanghai 201206
Phone +86 21 5055 0012
info@cn.gudel.com

India
Güdel India Pvt. Ltd.
Gat no. 458-459
Mauje Kasar Amboli
Pirangut, Tal.Mulshi
Pune 412 111
Phone +91 20 679 10200
info@in.gudel.com

South Korea
Güdel Lineartec Inc.
7-15 Incheon tower
daero 25beon gil.
Post no. 22013
Yeonsu gu Incheon
Phone +82 32 858 0541
info@kr.gudel.com

GÜDEL



Güdel AG
Gaswerkstrasse 26
4900 Langenthal
Switzerland
Phone +41 62 916 91 91
info@ch.gudel.com
gudel.com

EN | 03.22 | 10420175