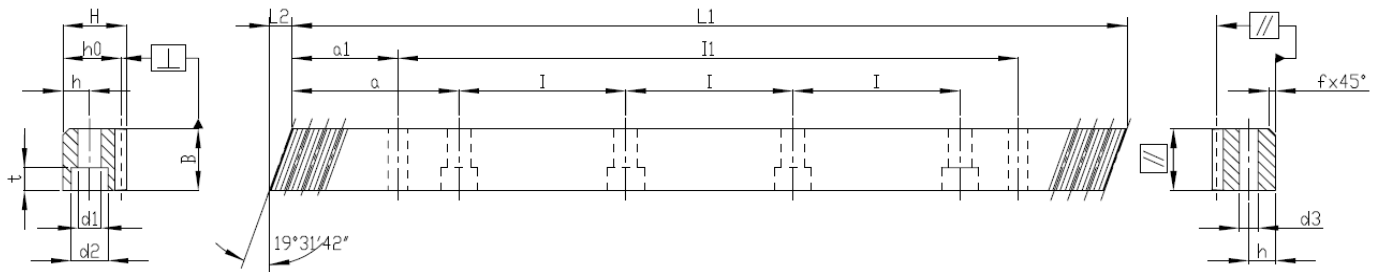


Rack with Helical Teeth

Quality 4 / Carbon Steel
Tooth Thickness Tolerance : $-13 \sim 0 \mu\text{m}$
Right-Hand Helical Teeth
Teeth Induction Hardened and Ground
All Sides Ground

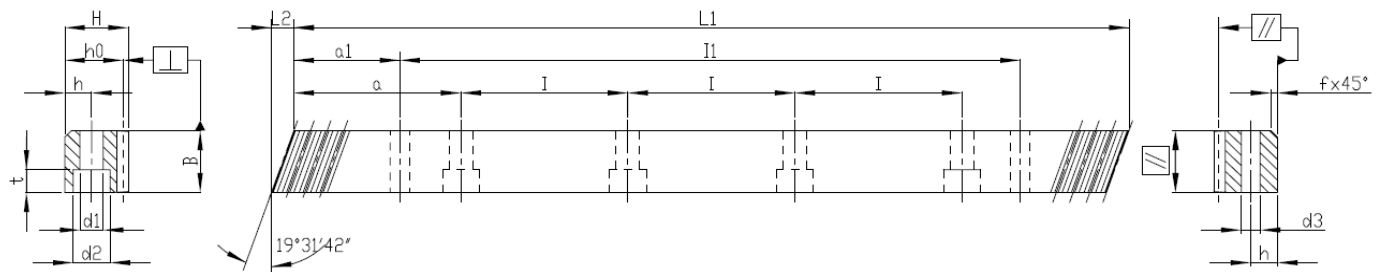


Mn	Pt ⁽¹⁾	L1	L2	Teeth No.	B	H	h0	f	a	I	Hole No.	h	d1	d2	t	a1	II	d3	f _p ⁽²⁾	F _p ⁽³⁾	Order Code *
5	16.66669	1000	17.4	60	49	39	34	3	62.5	125	8	12	14	20	13	37.5	925	11.7	0.005	0.020	0504R100C10
6	20.00003	1000	20.9	50	59	49	43	3	62.5	125	8	16	18	26	17	37.5	925	15.7	0.005	0.020	0604R100C10
8	26.66671	960	28.0	36	79	79	71	3	60.0	120	8	25	22	33	21	120.0	720	19.7	0.006	0.022	0804R100C10
10	33.33339	1000	35.1	30	99	99	89	3	62.5	125	8	32	33	48	32	125.0	750	19.7	0.006	0.022	1004R100C10
12	40.00006	1000	42.6	25	120	120	108	3	40.0	125	8	40	39	58	38	102.5	750	19.7	0.007	0.023	1204R100C10

(1) Teeth Pitch Pt = Module $\times \pi / \cos (19^{\circ}31'42'')$ (2) fp = Single Pitch Error (3) Fp=Total Pitch Error

* For all models APEX also provides Rack without screw-holes. By ordering please change the 2nd last order-code position from "I" to "0". Please also refer to page 14.

Quality 5H / Alloy Steel
 Tooth Thickness Tolerance : $-15 \sim 0 \mu\text{m}$
 Right-Hand Helical Teeth
 Material Case-Hardened
 Teeth Ground and all Sides Ground

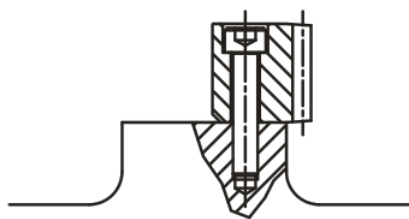


Mn	P _t ⁽¹⁾	L1	L2	Teeth No.	B	H	h ₀	f	a	I	Hole No.	h	d1	d2	t	a1	II	d3	f _p ⁽²⁾	F _p ⁽³⁾	Order Code *
2	6.66668	1000	8.5	150	24	24	22	2	62.5	125	8	9	10	15	9	31.7	936.6	7.7	0.006	0.024	025HR100M10
3	10.00002	1000	10.3	100	29	29	26	2	62.5	125	8	10	12	17.5	11	27.5	945.0	11.7	0.006	0.026	035HR100M10
4	13.33335	1000	13.8	75	39	39	35	3	62.5	125	8	13	16	23	15	30.0	940.0	15.7	0.007	0.028	045HR100M10
5	16.66669	1000	17.4	60	49	49	44	3	62.5	125	8	15	18	26	17	34.5	931.0	15.7	0.007	0.028	055HR100M10
6	20.00003	1000	20.9	50	59	59	53	3	62.5	125	8	20	22	33	21	97.5	805.0	19.7	0.007	0.028	065HR100M10
8	26.66671	960	28.0	36	79	79	71	3	60.0	120	8	25	26	39	25	120.0	720.0	19.7	0.008	0.031	085HR100M10
10	33.33339	1000	35.1	30	99	99	89	3	40.0	125	8	32	39	58	38	102.5	750.0	19.7	0.008	0.031	105HR100M10

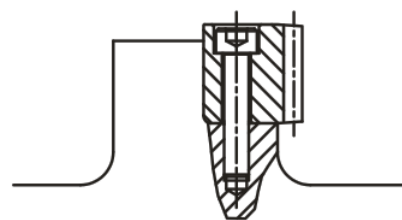
(1) Teeth Pitch $P_t = \text{Module} \times \pi / \cos(19^\circ 31' 42'')$ (2) f_p = Single Pitch Error (3) F_p = Total Pitch Error

* For all models APEX also provides Rack without screw-holes. By ordering please change the 2nd last order-code position from "I" to "O". Please also refer to page 14.

Especially for the application without back-support.



Without alignment / back-support



With alignment / back-support

Rack with Helical Teeth

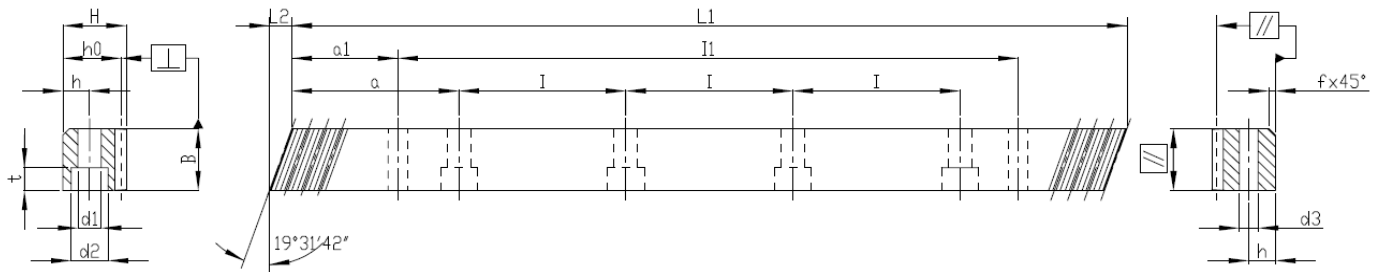
Quality 5 / Alloy Steel

Tooth Thickness Tolerance : -15 ~ 0 μm

Right-Hand Helical Teeth

Material Carburized, Induction Hardened

Teeth Ground and all Sides Ground

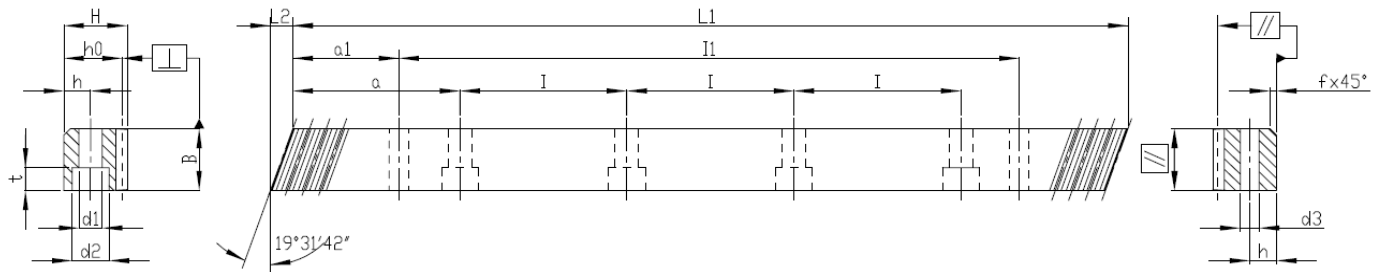


Mn	P _t ⁽¹⁾	L1	L2	Teeth No.	B	H	h ₀	f	a	I	Hole No.	h	d1	d2	t	a1	II	d3	f _p ⁽²⁾	F _p ⁽³⁾	Order Code *
2	6.66668	500	8.5	75	24	24	22.0	2	62.5	125	4	8	7	11	7	31.7	436.6	5.7	0.006	0.021	0205R050M10
2	6.66668	1000	8.5	150	24	24	22.0	2	62.5	125	8	8	7	11	7	31.7	936.6	5.7	0.006	0.024	0205R100M10
2	6.66668	1500	8.5	225	24	24	22.0	2	62.5	125	12	8	7	11	7	31.7	1436.6	5.7	0.006	0.024	0205R150M10
2	6.66668	2000	8.5	300	24	24	22.0	2	62.5	125	16	8	7	11	7	31.7	1936.6	5.7	0.007	0.027	0205R200M10
2.5	8.33335	500	10.3	60	29	29	26.5	2	62.5	125	4	9	10	15	9	35.0	430.0	7.7	0.006	0.023	2J05R050M10
2.5	8.33335	1000	10.3	120	29	29	26.5	2	62.5	125	8	9	10	15	9	35.0	930.0	7.7	0.006	0.026	2J05R100M10
2.5	8.33335	1500	10.3	180	29	29	26.5	2	62.5	125	12	9	10	15	9	35.0	1430.0	7.7	0.006	0.026	2J05R150M10
2.5	8.33335	2000	10.3	240	29	29	26.5	2	62.5	125	16	9	10	15	9	35.0	1930.0	7.7	0.007	0.029	2J05R200M10
3	10.00002	500	10.3	50	29	29	26.0	2	62.5	125	4	9	10	15	9	35.0	430.0	7.7	0.006	0.023	0305R050M10
3	10.00002	1000	10.3	100	29	29	26.0	2	62.5	125	8	9	10	15	9	35.0	930.0	7.7	0.006	0.026	0305R100M10
3	10.00002	1500	10.3	150	29	29	26.0	2	62.5	125	12	9	10	15	9	35.0	1430.0	7.7	0.006	0.026	0305R150M10
3	10.00002	2000	10.3	200	29	29	26.0	2	62.5	125	16	9	10	15	9	35.0	1930.0	7.7	0.007	0.030	0305R200M10

(1) Teeth Pitch Pt = Module $\times \pi / \cos (19^{\circ}31'42'')$ (2) f_p = Single Pitch Error (3) F_p = Total Pitch Error

* For all models APEX also provides Rack without screw-holes. By ordering please change the 2nd last order-code position from "I" to "0". Please also refer to page 14.

Quality 5 / Carbon Steel
Tooth Thickness Tolerance : $-15 \sim 0 \mu\text{m}$
Right-Hand Helical Teeth
Teeth Induction Hardened and Ground
All Sides Ground



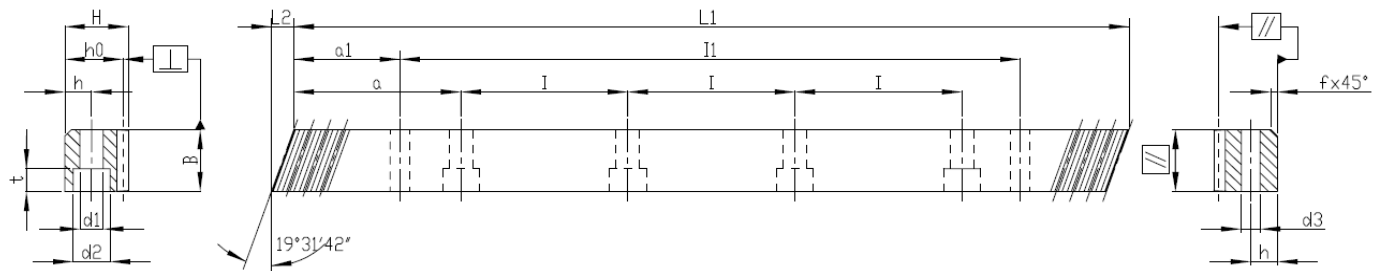
Mn	P _t ⁽¹⁾	L1	L2	Teeth No.	B	H	h ₀	f	a	I	Hole No.	h	d1	d2	t	a1	II	d3	f _p ⁽²⁾	F _p ⁽³⁾	Order Code *
4	13.33335	506.67	13.8	38	39	39	35	3	62.5	125	4	12	10	15	9	33.3	440.1	7.7	0.007	0.025	0405R050C10
4	13.33335	1000	13.8	75	39	39	35	3	62.5	125	8	12	10	15	9	33.3	933.4	7.7	0.007	0.028	0405R100C10
4	13.33335	1000	13.8	75	39	39	35	3	62.5	125	8	12	14	20	13	33.3	933.4	11.7	0.007	0.028	0405R100CS0
4	13.33335	1506.67	13.8	113	39	39	35	3	62.5	125	12	12	10	15	9	33.3	1440.1	7.7	0.007	0.028	0405R150C10
4	13.33335	1506.67	13.8	113	39	39	35	3	62.5	125	12	12	14	20	13	33.3	1440.1	11.7	0.007	0.028	0405R150CS0
4	13.33335	2000	13.8	150	39	39	35	3	62.5	125	16	12	10	15	9	33.3	1933.4	7.7	0.008	0.032	0405R200C10
4	13.33335	2000	13.8	150	39	39	35	3	62.5	125	16	12	14	20	13	33.3	1933.4	11.7	0.008	0.032	0405R200CS0
5	16.66669	1000	17.4	60	49	39	34	3	62.5	125	8	12	14	20	13	37.5	925	11.7	0.007	0.028	0505R100C10
6	20.00003	1000	20.9	50	59	49	43	3	62.5	125	8	16	18	26	17	37.5	925	15.7	0.007	0.028	0605R100C10
8	26.66671	960	28	36	79	79	71	3	60	120	8	25	22	33	21	120	720	19.7	0.008	0.031	0805R100C10
10	33.33339	1000	35.1	30	99	99	89	3	62.5	125	8	32	33	48	32	125	750	19.7	0.008	0.031	1005R100C10
12	40.00006	1000	42.6	25	120	120	108	3	40	125	8	40	39	58	38	102.5	750	19.7	0.01	0.033	1205R100C10

(1) Teeth Pitch $P_t = \text{Module} \times \pi / \cos(19^\circ 31' 42'')$ (2) f_p = Single Pitch Error (3) F_p = Total Pitch Error

* For all models APEX also provides Rack without screw-holes. By ordering please change the 2nd last order-code position from "I" to "O". Please also refer to page 14.

Rack with Helical Teeth

Quality 6 / Carbon Steel
Tooth Thickness Tolerance : -22 ~ 0 μm
Right-Hand Helical Teeth
Teeth Induction Hardened and Ground
All Sides Ground

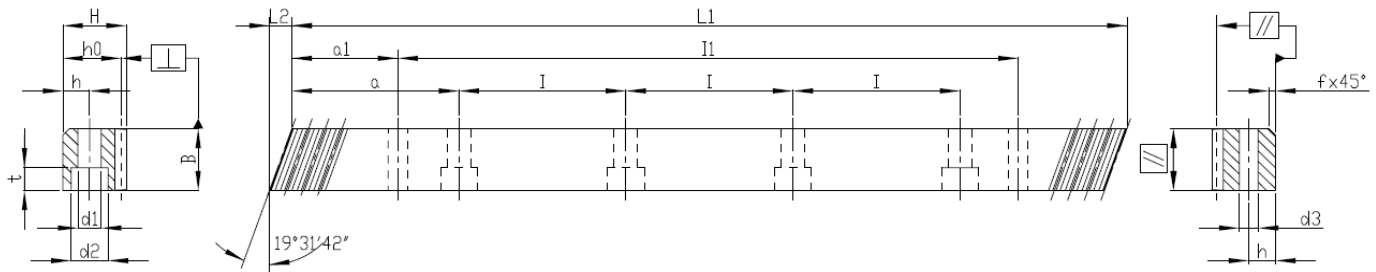


Mn	P _t ⁽¹⁾	L1	L2	Teeth No.	B	H	h ₀	f	a	I	Hole No.	h	d1	d2	t	a1	I1	d3	f _p ⁽²⁾	F _p ⁽³⁾	Order Code *
1	3.33334	500.00	5.3	150	15	15	14.0	2	62.5	125	4	6	5	8	5	30.3	439.4	5.7	0.008	0.029	0106R050C10
1	3.33334	1000.00	5.3	300	15	15	14.0	2	62.5	125	8	6	5	8	5	30.3	939.4	5.7	0.008	0.033	0106R100C10
1	3.33334	1500.00	5.3	450	15	15	14.0	2	62.5	125	12	6	5	8	5	30.3	1439.4	5.7	0.008	0.033	0106R150C10
1.5	5.00001	500.00	6.7	100	19	19	17.5	2	62.5	125	4	8	7	11	7	31.7	436.6	5.7	0.008	0.029	1J06R050C10
1.5	5.00001	1000.00	6.7	200	19	19	17.5	2	62.5	125	8	8	7	11	7	31.7	936.6	5.7	0.008	0.034	1J06R100C10
2	6.66668	500.00	8.5	75	24	24	22	2	62.5	125	4	8	7	11	7	31.7	436.6	5.7	0.008	0.029	0206R050C10
2	6.66668	1000.00	8.5	150	24	24	22.0	2	62.5	125	8	8	7	11	7	31.7	936.6	5.7	0.008	0.034	0206R100C10
2	6.66668	1500.00	8.5	225	24	24	22.0	2	62.5	125	12	8	7	11	7	31.7	1436.6	5.7	0.008	0.034	0206R150C10
2	6.66668	2000.00	8.5	300	24	24	22.0	2	62.5	125	16	8	7	11	7	31.7	1936.6	5.7	0.009	0.038	0206R200C10
2.5	8.33335	500.00	10.3	60	29	29	26.5	2	62.5	125	4	9	10	15	9	35.0	430.0	7.7	0.008	0.032	2J06R050C10
2.5	8.33335	1000.00	10.3	120	29	29	26.5	2	62.5	125	8	9	10	15	9	35.0	930.0	7.7	0.009	0.036	2J06R100C10
2.5	8.33335	1500.00	10.3	180	29	29	26.5	2	62.5	125	12	9	10	15	9	35.0	1430.0	7.7	0.009	0.036	2J06R150C10
2.5	8.33335	2000.00	10.3	240	29	29	26.5	2	62.5	125	16	9	10	15	9	35.0	1930.0	7.7	0.010	0.041	2J06R200C10
3	10.00002	500.00	10.3	50	29	29	26.0	2	62.5	125	4	9	10	15	9	35.0	430.0	7.7	0.008	0.032	0306R050C10
3	10.00002	1000.00	10.3	100	29	29	26.0	2	62.5	125	8	9	10	15	9	35.0	930.0	7.7	0.009	0.037	0306R100C10
3	10.00002	1500.00	10.3	150	29	29	26.0	2	62.5	125	12	9	10	15	9	35.0	1430.0	7.7	0.009	0.037	0306R150C10
3	10.00002	2000.00	10.3	200	29	29	26.0	2	62.5	125	16	9	10	15	9	35.0	1930.0	7.7	0.010	0.042	0306R200C10
4	13.33335	506.67	13.8	38	39	39	35.0	3	62.5	125	4	12	10	15	9	33.3	440.1	7.7	0.009	0.034	0406R050C10
4	13.33335	506.67	13.8	38	39	39	35.0	3	62.5	125	4	12	14	20	13	33.3	440.1	11.7	0.009	0.034	0406R050CS0
4	13.33335	1000.00	13.8	75	39	39	35.0	3	62.5	125	8	12	10	15	9	33.3	933.4	7.7	0.010	0.040	0406R100C10
4	13.33335	1000.00	13.8	75	39	39	35.0	3	62.5	125	8	12	14	20	13	33.3	933.4	11.7	0.010	0.040	0406R100CS0
4	13.33335	1506.67	13.8	113	39	39	35.0	3	62.5	125	12	12	14	20	13	33.3	1440.1	11.7	0.010	0.040	0406R150CS0
4	13.33335	2000.00	13.8	150	39	39	35.0	3	62.5	125	16	12	10	15	9	33.3	1933.4	7.7	0.011	0.045	0406R200C10
4	13.33335	2000.00	13.8	150	39	39	35.0	3	62.5	125	16	12	14	20	13	33.3	1933.4	11.7	0.011	0.045	0406R200CS0
5	16.66669	500.00	17.4	30	49	49	34.0	3	62.5	125	4	12	14	20	13	37.5	425.0	11.7	0.009	0.034	0506R050C10
5	16.66669	1000.00	17.4	60	49	49	34.0	3	62.5	125	8	12	14	20	13	37.5	925.0	11.7	0.010	0.040	0506R100C10
5	16.66669	1500.00	17.4	90	49	49	34.0	3	62.5	125	12	12	14	20	13	37.5	1425.0	11.7	0.010	0.040	0506R150C10
5	16.66669	2000.00	17.4	120	49	49	34.0	3	62.5	125	16	12	14	20	13	37.5	1925.0	11.7	0.011	0.045	0506R200C10
6	20.00003	500.00	20.9	25	59	49	43.0	3	62.5	125	4	16	18	26	17	37.5	425.0	15.7	0.009	0.034	0606R050C10
6	20.00003	1000.00	20.9	50	59	49	43.0	3	62.5	125	8	16	18	26	17	37.5	925.0	15.7	0.010	0.040	0606R100C10
6	20.00003	1500.00	20.9	75	59	49	43.0	3	62.5	125	12	16	18	26	17	37.5	1425.0	15.7	0.010	0.040	0606R150C10
6	20.00003	2000.00	20.9	100	59	49	43.0	3	62.5	125	16	16	18	26	17	37.5	1925.0	15.7	0.011	0.045	0606R200C10
8	26.66671	480.00	28.0	18	79	79	71.0	3	60.0	120	4	25	22	33	21	120.0	240.0	19.7	0.011	0.037	0806R050C10
8	26.66671	960.00	28.0	36	79	79	71.0	3	60.0	120	8	25	22	33	21	120.0	720.0	19.7	0.011	0.043	0806R100C10
8	26.66671	1440.00	28.0	54	79	79	71.0	3	60.0	120	12	25	22	33	21	120.0	1200.0	19.7	0.011	0.043	0806R150C10
8	26.66671	1920.00	28.0	72	79	79	71.0	3	60.0	120	16	25	22	33	21	120.0	1680.0	19.7	0.012	0.048	0806R200C10
10	33.33339	1000.00	35.1	30	99	99	89.0	3	62.5	125	8	32	33	48	32	125.0	750.0	19.7	0.011	0.043	1006R100C10
10	33.33339	1500.00	35.1	45	99	99	89.0	3	62.5	125	12	32	33	48	32	125.0	1250.0	19.7	0.011	0.043	1006R150C10
12	40.00006	1000.00	42.6	25	120	120	108.0	3	40.0	125	8	40	39	58	38	102.5	750.0	19.7	0.013	0.046	1206R100C10

(1) Teeth Pitch $P_t = \text{Module} \times \pi / \cos(19^\circ 31' 42'')$ (2) f_p = Single Pitch Error (3) F_p = Total Pitch Error

* For all models APEX also provides Rack without screw-holes. By ordering please change the 2nd last order-code position from "I" to "O". Please also refer to page 14.

Quality 6M / Carbon Steel
Tooth Thickness Tolerance : -22 ~ 0 μm
Right-Hand Helical Teeth
Teeth Induction Hardened and Ground
All Sides Milled



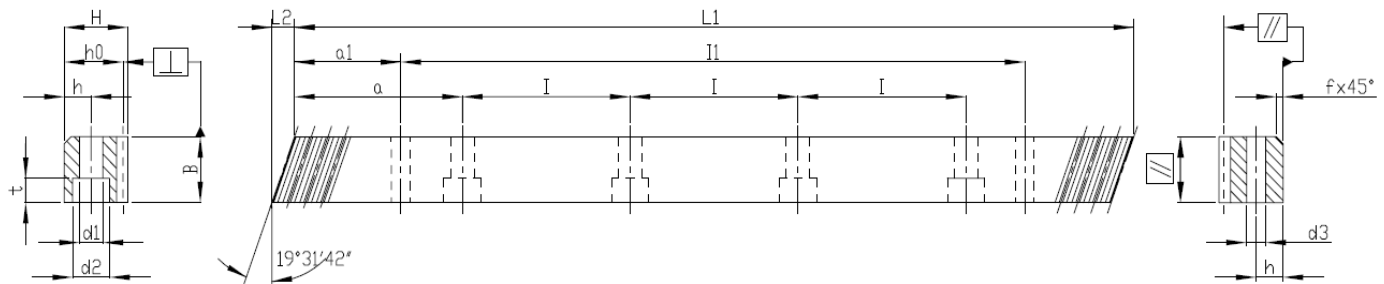
Mn	Pt ⁽¹⁾	L1	L2	Teeth No.	B	H	h0	f	a	I	Hole No.	h	d1	d2	t	a1	I1	d3	f _p ⁽²⁾	F _p ⁽³⁾	Order Code *
2	6.66668	500	8.5	75	24	24	22	2	62.5	125	4	8	7	11	7	31.7	436.6	5.7	0.008	0.029	026MR050C10
2	6.66668	1000	8.5	150	24	24	22	2	62.5	125	8	8	7	11	7	31.7	936.6	5.7	0.008	0.034	026MR100C10
3	10.00002	500	10.3	50	29	29	26	2	62.5	125	4	9	10	15	9	35	430	7.7	0.008	0.032	036MR050C10
3	10.00002	1000	10.3	100	29	29	26	2	62.5	125	8	9	10	15	9	35	930	7.7	0.009	0.037	036MR100C10
4	13.33335	506.67	13.8	38	39	39	35	3	62.5	125	4	12	10	15	9	33.3	440.1	7.7	0.009	0.034	046MR050C10
4	13.33335	506.67	13.8	38	39	39	35	3	62.5	125	4	12	14	20	13	33.3	440.1	11.7	0.009	0.034	046MR050CS0
4	13.33335	1000	13.8	75	39	39	35	3	62.5	125	8	12	10	15	9	33.3	933.4	7.7	0.01	0.04	046MR100C10
4	13.33335	1000	13.8	75	39	39	35	3	62.5	125	8	12	14	20	13	33.3	933.4	11.7	0.01	0.04	046MR100CS0
5	16.66669	500	17.4	30	49	39	34	3	62.5	125	4	12	14	20	13	37.5	425	11.7	0.009	0.034	056MR050C10
5	16.66669	1000	17.4	60	49	39	34	3	62.5	125	8	12	14	20	13	37.5	925	11.7	0.01	0.04	056MR100C10
6	20.00003	500	20.9	25	59	49	43	3	62.5	125	4	16	18	26	17	37.5	425	15.7	0.009	0.034	066MR050C10
6	20.00003	1000	20.9	50	59	49	43	3	62.5	125	8	16	18	26	17	37.5	925	15.7	0.01	0.04	066MR100C10
8	26.66671	960	28	36	79	79	71	3	60	120	8	25	22	33	21	120	720	19.7	0.011	0.043	086MR100C10
10	33.33339	1000	35.1	30	99	99	89	3	62.5	125	8	32	33	48	32	125	750	19.7	0.011	0.043	106MR100C10

(1) Teeth Pitch Pt = Module $\times \pi / \cos (19^{\circ}31'42'')$ (2) fp = Single Pitch Error (3) Fp = Total Pitch Error

* For all models APEX also provides Rack without screw-holes. By ordering please change the 2nd last order-code position from "I" to "0". Please also refer to page 14.

Rack with Helical Teeth

Quality 8H / Q&T Alloy Steel
Material Quenched and Tempered
Tooth Thickness Tolerance : -48 ~ 0 μm
Right-Hand Helical Teeth
Teeth Milled / All Sides Milled

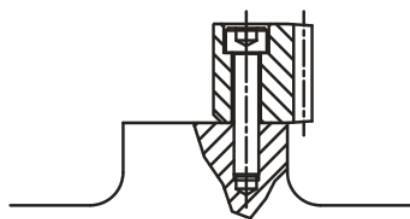


Mn	P _t ⁽¹⁾	L1	L2	Teeth No.	B	H	h ₀	f	a	I	Hole No.	h	d1	d2	t	a1	I1	d3	f _p ⁽²⁾	F _p ⁽³⁾	Order Code *
2	6.66668	1000	8.9	150	25	24	22	2	62.5	125	8	8	7	11	7	31.7	936.6	5.7	0.016	0.066	028HR100Q10
2	6.66668	2000	8.9	300	25	24	22	2	62.5	125	16	8	7	11	7	31.7	1936.6	5.7	0.018	0.074	028HR200Q10
3	10.00002	1000	10.6	100	30	29	26	2	62.5	125	8	9	10	15	9	35	930	7.7	0.018	0.072	038HR100Q10
3	10.00002	2000	10.6	200	30	29	26	2	62.5	125	16	9	10	15	9	35	1930	7.7	0.019	0.081	038HR200Q10
4	13.33335	1000	14.2	75	40	39	35	3	62.5	125	8	12	10	15	9	33.3	933.4	7.7	0.019	0.078	048HR100Q10
4	13.33335	2000	14.2	150	40	39	35	3	62.5	125	16	12	10	15	9	33.3	1933.4	7.7	0.021	0.088	048HR200Q10

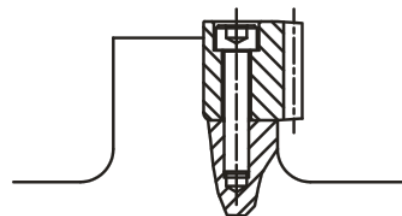
(1) Teeth Pitch $P_t = \text{Module} \times \pi / \cos(19^\circ 31' 42'')$ (2) f_p = Single Pitch Error (3) F_p = Total Pitch Error

* For all models APEX also provides Rack without screw-holes. By ordering please change the 2nd last order-code position from "I" to "0". Please also refer to page 14.

Especially for the application without back-support.

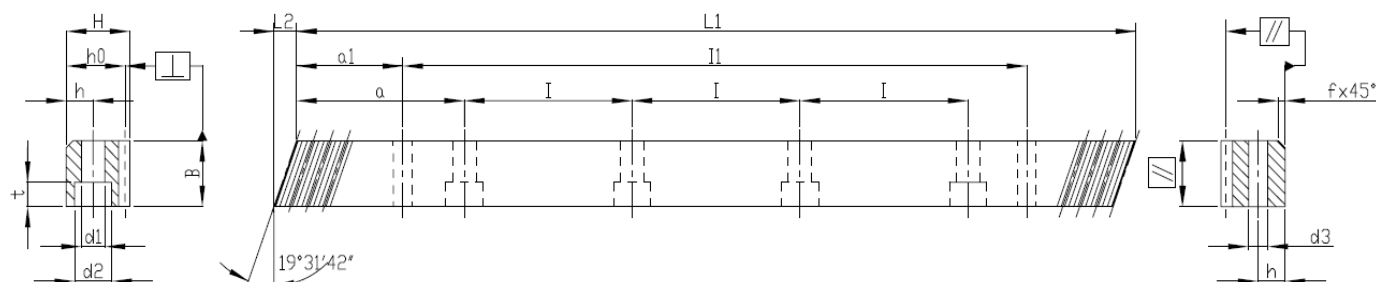


Without alignment / back-support



With alignment / back-support

Quality 8 / Carbon Steel
Tooth Thickness Tolerance : -48 ~ 0 μm
Right-Hand Helical Teeth
Material Normalized
Teeth Milled and all Sides Milled



Mn	Pt ⁽¹⁾	L1	L2	Teeth No.	B	H	ho	f	a	I	Hole No.	h	d1	d2	t	a1	II	d3	fp ⁽²⁾	Fp ⁽³⁾	Order Code*
1.5	5.00001	500.00	6.0	100	17	17	15.5	2	62.5	125	4	6	6	10	6	31.7	436.6	5.7	0.015	0.057	1J08R050C10
1.5	5.00001	1000.00	6.0	200	17	17	15.5	2	62.5	125	8	6	6	10	6	31.7	936.6	5.7	0.016	0.066	1J08R100C10
1.5	5.00001	1500.00	6.0	300	17	17	15.5	2	62.5	125	12	6	6	10	6	31.7	1436.6	5.7	0.016	0.066	1J08R150C10
1.5	5.00001	2000.00	6.0	400	17	17	15.5	2	62.5	125	16	6	6	10	6	31.7	1936.6	5.7	0.018	0.074	1J08R200C10
2	6.66668	500.00	9.2	75	26	24	22.0	2	62.5	125	4	8	7	11	7	31.7	436.6	5.7	0.015	0.057	0208R050C10
2	6.66668	1500.00	9.2	225	26	24	22.0	2	62.5	125	12	8	7	11	7	31.7	1436.6	5.7	0.016	0.066	0208R150C10
2	6.66668	1000.00	9.2	150	26	24	22.0	2	62.5	125	8	8	7	11	7	31.7	936.6	5.7	0.016	0.066	0208R100C10
2	6.66668	2000.00	9.2	300	26	24	22.0	2	62.5	125	16	8	7	11	7	31.7	1936.6	5.7	0.018	0.074	0208R200C10
2.5	8.33335	500.00	10.6	60	30	29	26.5	2	62.5	125	4	9	10	15	9	35.0	430.0	7.7	0.016	0.062	2J08R050C10
2.5	8.33335	1000.00	10.6	120	30	29	26.5	2	62.5	125	8	9	10	15	9	35.0	930.0	7.7	0.018	0.072	2J08R100C10
2.5	8.33335	1500.00	10.6	180	30	29	26.5	2	62.5	125	12	9	10	15	9	35.0	1430.0	7.7	0.018	0.072	2J08R150C10
2.5	8.33335	2000.00	10.6	240	30	29	26.5	2	62.5	125	16	9	10	15	9	35.0	1930.0	7.7	0.019	0.081	2J08R200C10
3	10.00002	500.00	11.0	50	31	29	26.0	2	62.5	125	4	9	10	15	9	35.0	430.0	7.7	0.016	0.063	0308R050C10
3	10.00002	1500.00	11.0	150	31	29	26.0	2	62.5	125	12	9	10	15	9	35.0	1430.0	7.7	0.018	0.072	0308R150C10
3	10.00002	1000.00	11.0	100	31	29	26.0	2	62.5	125	8	9	10	15	9	35.0	930.0	7.7	0.018	0.072	0308R100C10
3	10.00002	2000.00	11.0	200	31	29	26.0	2	62.5	125	16	9	10	15	9	35.0	1930.0	7.7	0.019	0.081	0308R200C10
4	13.33335	506.67	14.5	38	41	39	35.0	3	62.5	125	4	12	10	15	9	33.3	440.1	7.7	0.018	0.068	0408R050C10
4	13.33335	1000.00	14.5	75	41	39	35.0	3	62.5	125	8	12	10	15	9	33.3	933.4	7.7	0.019	0.078	0408R100C10
4	13.33335	1000.00	14.5	75	41	39	35.0	3	62.5	125	8	12	14	20	13	33.3	933.4	11.7	0.019	0.078	0408R100CS0
4	13.33335	1506.67	14.5	113	41	39	35.0	3	62.5	125	12	12	14	20	13	33.3	1440.1	11.7	0.019	0.078	0408R150CS0
4	13.33335	2000.00	14.5	150	41	39	35.0	3	62.5	125	16	12	10	15	9	33.3	1933.4	7.7	0.021	0.088	0408R200C10
4	13.33335	2000.00	14.5	150	41	39	35.0	3	62.5	125	16	12	14	20	13	33.3	1933.4	11.7	0.021	0.088	0408R200CS0
5	16.66669	500.00	17.7	30	50	39	34.0	3	62.5	125	4	12	14	20	13	37.5	425.0	11.7	0.018	0.068	0508R050C10
5	16.66669	1000.00	17.7	60	50	39	34.0	3	62.5	125	8	12	14	20	13	37.5	925.0	11.7	0.019	0.078	0508R100C10
5	16.66669	2000.00	17.7	120	50	39	34.0	3	62.5	125	16	12	14	20	13	37.5	1925.0	11.7	0.021	0.088	0508R200C10
6	20.00003	500.00	21.3	25	60	49	43.0	3	62.5	125	4	16	18	26	17	37.5	425.0	15.7	0.018	0.068	0608R050C10
6	20.00003	1000.00	21.3	50	60	49	43.0	3	62.5	125	8	16	18	26	17	37.5	925.0	15.7	0.019	0.078	0608R100C10
6	20.00003	2000.00	21.3	100	60	49	43.0	3	62.5	125	16	16	18	26	17	37.5	1925.0	15.7	0.021	0.088	0608R200C10
8	26.66671	480.00	28.7	18	81	79	71.0	3	60.0	120	4	25	22	33	21	120.0	240.0	19.7	0.021	0.073	0808R050C10
8	26.66671	960.00	28.7	36	81	79	71.0	3	60.0	120	8	25	22	33	21	120.0	720.0	19.7	0.022	0.084	0808R100C10
8	26.66671	1920.00	28.7	72	81	79	71.0	3	60.0	120	16	25	22	33	21	120.0	1680.0	19.7	0.024	0.095	0808R200C10
10	33.33339	1000.00	35.5	30	100	99	89.0	3	62.5	125	8	32	33	48	32	125.0	750.0	19.7	0.022	0.084	1008R100C10
12	40.00006	1000.00	42.6	25	120	120	108	3	40.0	125	8	40	39	58	38	102.5	750.0	19.7	0.026	0.090	1208R100C10

(1) Teeth Pitch Pt = Module $\times \pi / \cos (19^{\circ}31'42'')$ (2) fp = Single Pitch Error (3) Fp = Total Pitch Error

* For all models APEX also provides Rack without screw-holes. By ordering please change the 2nd last order-code position from "I" to "O". Please also refer to page 14.

Rack with Helical Teeth

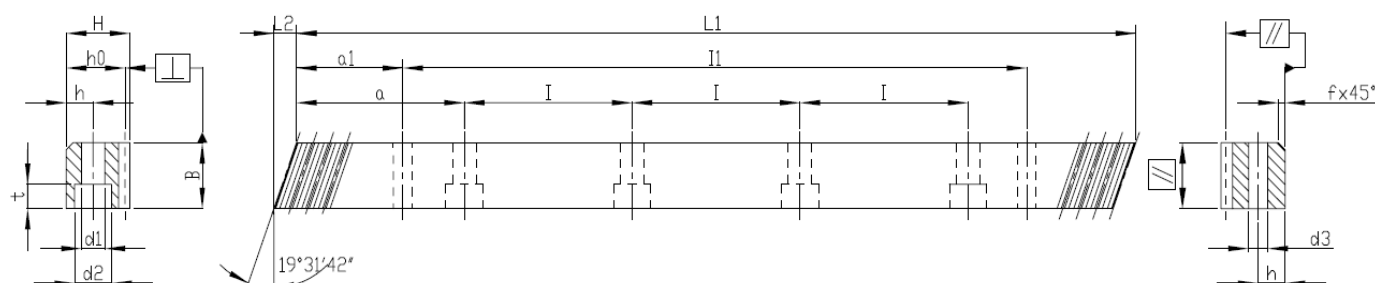
Quality 10 / Carbon Steel

Tooth Thickness Tolerance : -90 ~ 0 μm

Right-Hand Helical Teeth

Teeth Milled and Induction Hardened

All Sides Milled



Mn	P _t ⁽¹⁾	L1	L2	Teeth No.	B	H	h _o	f	a	l	Hole No.	h	d1	d2	t	a1	l1	d3	f _p ⁽²⁾	F _p ⁽³⁾	Order Code *
1.5	5.00001	500.00	6	100	17	17	15.5	2	62.5	125	4	6	6	10	6	31.7	436.6	5.7	0.034	0.128	1J10R050C10
1.5	5.00001	1000.00	6	200	17	17	15.5	2	62.5	125	8	6	6	10	6	31.7	936.6	5.7	0.037	0.148	1J10R100C10
1.5	5.00001	1500.00	6	300	17	17	15.5	2	62.5	125	12	6	6	10	6	31.7	1436.6	5.7	0.037	0.148	1J10R150C10
1.5	5.00001	2000.00	6	400	17	17	15.5	2	62.5	125	16	6	6	10	6	31.7	1936.6	5.7	0.041	0.167	1J10R200C10
2	6.66668	500.00	9.2	75	26	24	22.0	2	62.5	125	4	8	7	11	7	31.7	436.6	5.7	0.034	0.128	0210R050C10
2	6.66668	1500.00	9.2	225	26	24	22.0	2	62.5	125	12	8	7	11	7	31.7	1436.6	5.7	0.037	0.148	0210R150C10
2	6.66668	1000.00	9.2	150	26	24	22.0	2	62.5	125	8	8	7	11	7	31.7	936.6	5.7	0.037	0.148	0210R100C10
2	6.66668	2000.00	9.2	300	26	24	22.0	2	62.5	125	16	8	7	11	7	31.7	1936.6	5.7	0.041	0.167	0210R200C10
2.5	8.33335	500.00	10.6	60	30	29	26.5	2	62.5	125	4	9	10	15	9	35.0	430.0	7.7	0.036	0.139	2J10R050C10
2.5	8.33335	1000.00	10.6	120	30	29	26.5	2	62.5	125	8	9	10	15	9	35.0	930.0	7.7	0.039	0.160	2J10R100C10
2.5	8.33335	1500.00	10.6	180	30	29	26.5	2	62.5	125	12	9	10	15	9	35.0	1430.0	7.7	0.039	0.160	2J10R150C10
2.5	8.33335	2000.00	10.6	240	30	29	26.5	2	62.5	125	16	9	10	15	9	35.0	1930.0	7.7	0.043	0.181	2J10R200C10
3	10.00002	500.00	11.0	50	31	29	26.0	2	62.5	125	4	9	10	15	9	35.0	430.0	7.7	0.036	0.140	0310R050C10
3	10.00002	1500.00	11.0	150	31	29	26.0	2	62.5	125	12	9	10	15	9	35.0	1430.0	7.7	0.039	0.162	0310R150C10
3	10.00002	1000.00	11.0	100	31	29	26.0	2	62.5	125	8	9	10	15	9	35.0	930.0	7.7	0.039	0.162	0310R100C10
3	10.00002	2000.00	11.0	200	31	29	26.0	2	62.5	125	16	9	10	15	9	35.0	1930.0	7.7	0.043	0.182	0310R200C10
4	13.33335	506.67	14.5	38	41	39	35.0	3	62.5	125	4	12	10	15	9	33.3	440.1	7.7	0.040	0.151	0410R050C10
4	13.33335	1000.00	14.5	75	41	39	35.0	3	62.5	125	8	12	10	15	9	33.3	933.4	7.7	0.043	0.175	0410R100C10
4	13.33335	1000.00	14.5	75	41	39	35.0	3	62.5	125	8	12	14	20	13	33.3	933.4	11.7	0.043	0.175	0410R100CS0
4	13.33335	1506.67	14.5	113	41	39	35.0	3	62.5	125	12	12	14	20	13	33.3	1440.1	11.7	0.043	0.175	0410R150CS0
4	13.33335	2000.00	14.5	150	41	39	35.0	3	62.5	125	16	12	10	15	9	33.3	1933.4	7.7	0.047	0.197	0410R200C10
4	13.33335	2000.00	14.5	150	41	39	35.0	3	62.5	125	16	12	14	20	13	33.3	1933.4	11.7	0.047	0.197	0410R200CS0
5	16.66669	500.00	17.7	30	50	39	34.0	3	62.5	125	4	12	14	20	13	37.5	425.0	11.7	0.040	0.151	0510R050C10
5	16.66669	1000.00	17.7	60	50	39	34.0	3	62.5	125	8	12	14	20	13	37.5	925.0	11.7	0.043	0.175	0510R100C10
5	16.66669	2000.00	17.7	120	50	39	34.0	3	62.5	125	16	12	14	20	13	37.5	1925.0	11.7	0.047	0.197	0510R200C10
6	20.00003	500.00	21.3	25	60	49	43.0	3	62.5	125	4	16	18	26	17	37.5	425.0	15.7	0.040	0.151	0610R050C10
6	20.00003	1000.00	21.3	50	60	49	43.0	3	62.5	125	8	16	18	26	17	37.5	925.0	15.7	0.043	0.175	0610R100C10
6	20.00003	2000.00	21.3	100	60	49	43.0	3	62.5	125	16	16	18	26	17	37.5	1925.0	15.7	0.047	0.197	0610R200C10
8	26.66671	480.00	28.7	18	81	79	71.0	3	60.0	120	4	25	22	33	21	120.0	240.0	19.7	0.046	0.163	0810R050C10
8	26.66671	960.00	28.7	36	81	79	71.0	3	60.0	120	8	25	22	33	21	120.0	720.0	19.7	0.049	0.188	0810R100C10
8	26.66671	1920.00	28.7	72	81	79	71.0	3	60.0	120	16	25	22	33	21	120.0	1680.0	19.7	0.053	0.212	0810R200C10
10	33.33339	1000.00	35.5	30	100	99	89.0	3	62.5	125	8	32	33	48	32	125.0	750.0	19.7	0.049	0.188	1010R100C10
12	40.00006	1000.00	42.6	25	120	120	108	3	40.0	125	8	40	39	58	38	102.5	750.0	19.7	0.059	0.202	1210R100C10

(1) Teeth Pitch Pt = Module $\times \pi / \cos (19^{\circ}31'42'')$ (2) fp = Single Pitch Error (3) Fp=Total Pitch Error * Refer to Page 21

Rack with Helical Teeth

(with Linear-Guide Interface, 90° Type)

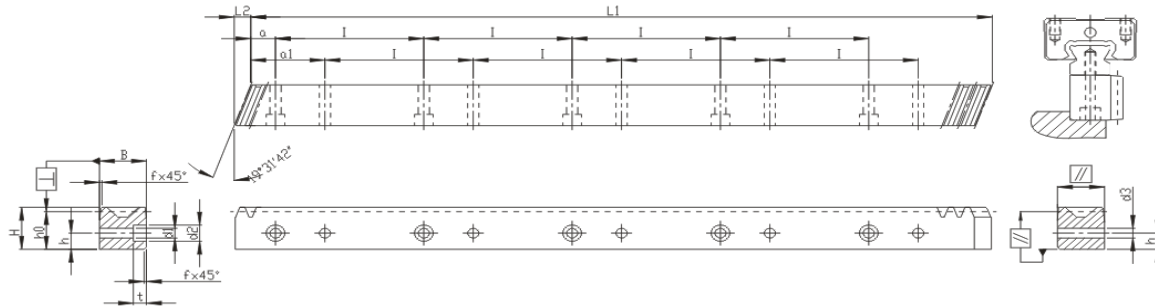
Quality 6 / Carbon Steel

Tooth Thickness Tolerance : -22 ~ 0 μm

Right-Hand Helical Teeth

Teeth Induction Hardened and Ground

All Sides Ground



Mn	P _t ⁽¹⁾	L1	L2	Teeth No.	B	H	ho	f	a	l	Hole No.	h	d1	d2	t	a1	d3	f _p ⁽²⁾	F _p ⁽³⁾	Order Code
2	6.66668	480	6.7	72	19	19.50	17.50	1	10	60	8	7.5	4.5	7.5	5.3	30	4.5	0.008	0.029	0206R050C10A1
2	6.66668	960	6.7	144	19	19.50	17.50	1	10	60	16	7.5	4.5	7.5	5.3	30	4.5	0.008	0.034	0206R100C10A1
2	6.66668	480	8.5	72	24	24.50	22.50	1	10	60	8	10.0	6.0	9.5	8.5	30	6.0	0.008	0.029	0206R050CS0A1
2	6.66668	960	8.5	144	24	24.50	22.50	1	10	60	16	10.0	6.0	9.5	8.5	30	6.0	0.008	0.034	0206R100CS0A1
3	10.00002	480	10.3	48	29	29.75	26.75	2	10	60	8	11.5	7.0	11.0	9.0	30	7.0	0.008	0.032	0306R050C10A1
3	10.00002	960	10.3	96	29	29.75	26.75	2	10	60	16	11.5	7.0	11.0	9.0	30	7.0	0.009	0.037	0306R100C10A1
4	13.33335	480	13.8	36	39	39.75	35.75	2	20	80	6	14.0	10.0	15.0	9.0	40	10.0	0.009	0.034	0406R050C10A1
4	13.33335	960	13.8	72	39	39.75	35.75	2	20	80	12	14.0	10.0	15.0	9.0	40	10.0	0.010	0.040	0406R100C10A1
4	13.33335	480	13.8	36	39	48.75	44.75	2	20	80	6	17.0	10.0	15.0	9.0	40	10.0	0.009	0.034	0406R050CS0A1
4	13.33335	960	13.8	72	39	48.75	44.75	2	20	80	12	17.0	10.0	15.0	9.0	40	10.0	0.010	0.040	0406R100CS0A1
4	13.33335	840	17.4	63	49	58.00	54.00	2	30	105	8	22.5	14.0	20.0	13.0	60	14.0	0.009	0.034	0406R084CS0A1

Quality 8 / Carbon Steel

Tooth Thickness Tolerance : -48 ~ 0μm

Right-Hand Helical Teeth

Material Normalized

Teeth Milled and all Sides Milled

Mn	P _t ⁽¹⁾	L1	L2	Teeth No.	B	H	ho	f	a	l	Hole No.	h	d1	d2	t	a1	d3	f _p ⁽²⁾	F _p ⁽³⁾	Order Code
2	6.66668	1920	7.1	288	20	19.50	17.50	1	10	60	32	7.5	4.5	7.5	5.3	30	4.5	0.018	0.074	0208R200C10A1
2	6.66668	1920	8.9	288	25	24.50	22.50	1	10	60	32	10.0	6	9.5	8.5	30	6.0	0.018	0.074	0208R200CS0A1
3	10.00002	1920	10.6	192	30	29.75	26.75	2	10	60	32	11.5	7	11.0	9.0	30	7.0	0.019	0.081	0308R200C10A1
4	13.33335	1920	14.2	144	40	39.75	35.75	2	20	80	24	14.0	10	15.0	9.0	40	10.0	0.021	0.088	0408R200C10A1
4	13.33335	1920	14.5	144	41	48.75	44.75	2	20	80	24	17.0	10	15.0	9.0	40	10.0	0.021	0.088	0408R200CS0A1

(1) Teeth Pitch Pt = Module x π / cos (19°31'42") (2) fp = Single Pitch Error (3) Fp = Total Pitch Error

Rack with Helical Teeth

(with Linear-Guide Interface, 180° Type)

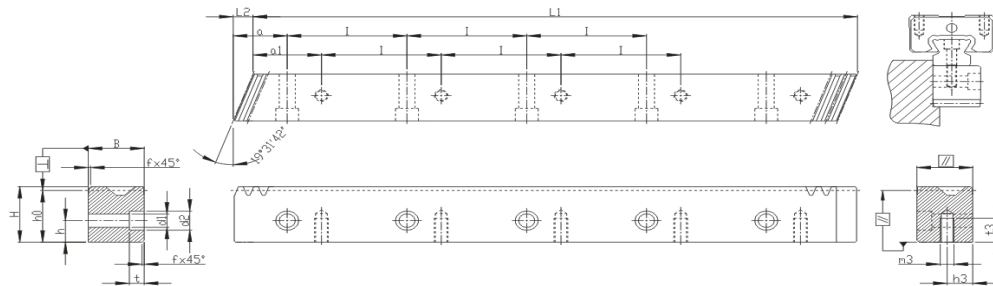
Quality 6 / Carbon Steel

Tooth Thickness Tolerance : -22 ~ 0 μm

Right-Hand Helical Teeth

Teeth Induction Hardened and Ground

All Sides Ground



Mn	P _t ⁽¹⁾	L1	L2	Teeth No.	B	H	ho	f	a	l	Hole No.	h	d1	d2	t	a1	m3	h3	t3	f _p ⁽²⁾	F _p ⁽³⁾	Order Code
2	6.66668	960	6.7	144	19	19.50	17.50	1	10	60	16	7.5	6	9.5	6	30	M4	7.5	8.0	0.008	0.034	0206R100C10A2
2	6.66668	960	8.5	144	24	24.50	22.50	1	10	60	16	10.0	7	11.0	7	30	M5	10.0	11.0	0.008	0.034	0206R100CS0A2
3	10.00002	960	10.3	96	29	29.75	26.75	2	10	60	16	11.5	10	15.0	9	30	M6	11.5	13.5	0.009	0.037	0306R100C10A2
4	13.33335	960	13.8	72	39	39.75	35.75	2	20	80	12	14.0	12	18.0	12	40	M8	14.0	16.0	0.010	0.040	0406R100C10A2
4	13.33335	960	13.8	72	39	48.75	44.75	2	20	80	12	17.0	12	18.0	12	40	M8	17.0	16.0	0.010	0.040	0406R100CS0A2
4	13.33335	840	17.4	63	49	58.00	54.00	2	30	105	8	22.5	14	20.0	13	60	M12	22.5	25.0	0.009	0.034	0406R084CS0A2

Quality 8 / Carbon Steel

Tooth Thickness Tolerance : -48 ~ 0 μm

Right-Hand Helical Teeth

Material Normalized

Teeth Milled and all Sides Milled

Mn	P _t ⁽¹⁾	L1	L2	Teeth No.	B	H	ho	f	a	l	Hole No.	h	d1	d2	t	a1	m3	h3	T3	f _p ⁽²⁾	F _p ⁽³⁾	Order Code
2	6.66668	1920	7.1	288	20	19.50	17.50	1	10	60	32	7.5	6	9.5	6	30	M4	7.5	8.0	0.018	0.074	0208R200C10A2
2	6.66668	1920	8.9	288	25	24.50	22.50	1	10	60	32	10.0	7	11.0	7	30	M5	10.0	11.0	0.018	0.074	0208R200CS0A2
3	10.00002	1920	10.6	192	30	29.75	26.75	2	10	60	32	11.5	10	15.0	9	30	M6	11.5	13.5	0.019	0.081	0308R200C10A2
4	13.33335	1920	14.2	144	40	39.75	35.75	2	20	80	24	14.0	12	18.0	12	40	M8	14.0	16.0	0.021	0.088	0408R200C10A2

(1) Teeth Pitch Pt = Module × π / cos (19°31'42") (2) fp = Single Pitch Error (3) Fp = Total Pitch Error