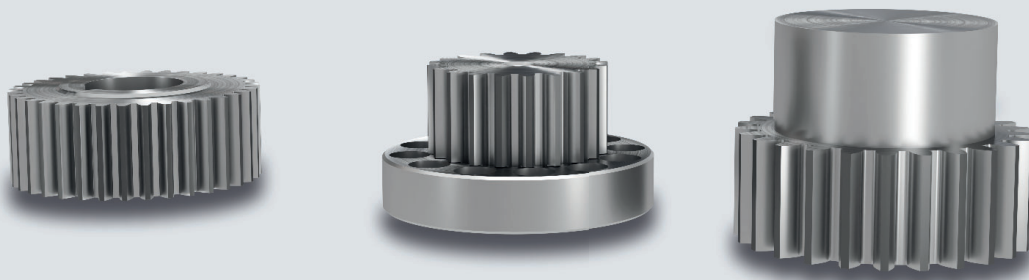
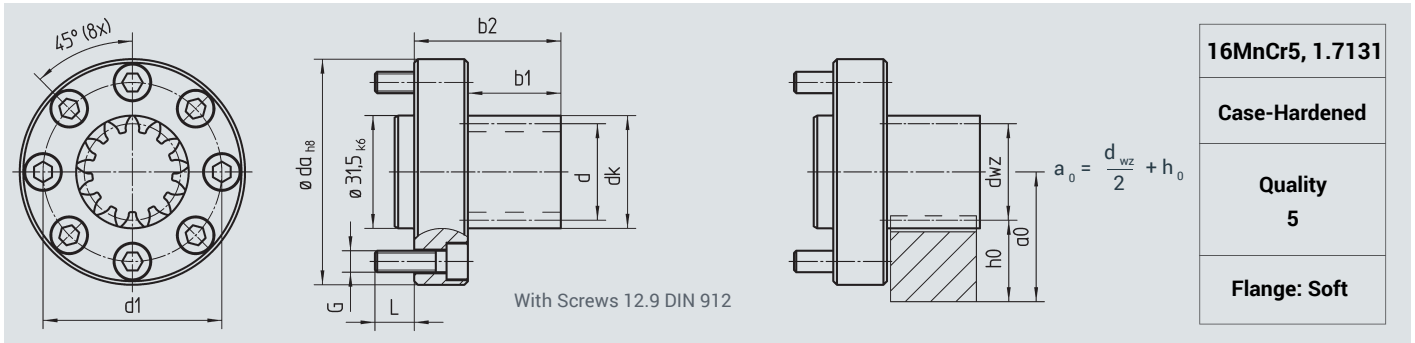


Series	Module	Tolerance of Teeth	Page
78 TR Flanged Pinions	2, 3, 4, 5, 6, 8	5 e 24	C-66 – C-68
24 Hardened & Ground Bored & Keyed Pinions	2, 3, 4, 5, 6, 8, 10	5 e 24	C-69 – C-74
24 Hardened & Ground Plain Bore Pinions For Rework	2, 3, 4, 5, 6, 8	6 e 25	C-75

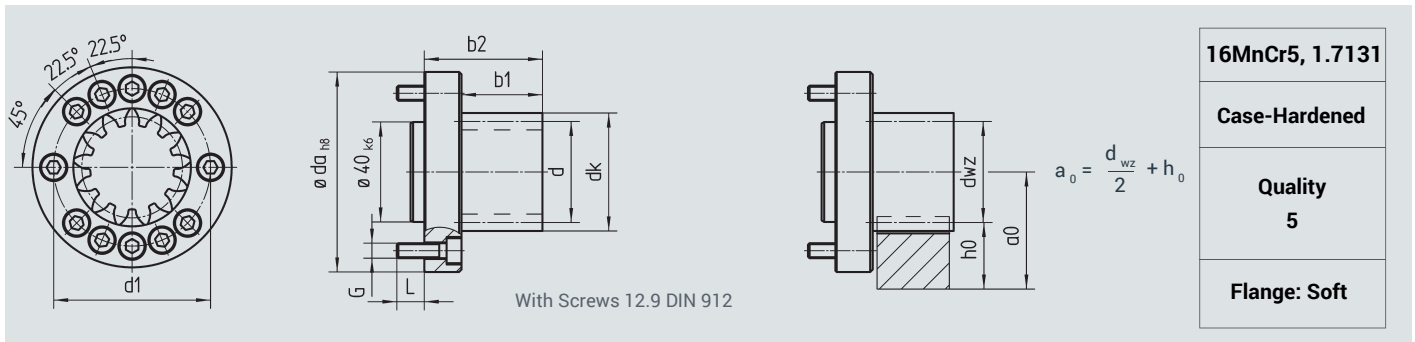


Straight Pinion, A-50 flange



Order Code	No. of Teeth z	Profile Modification Factor x	d	d _{wz}	dk	b1	b2	a0	ISO Interface	d1	G	da _{h8}	L	kg
Module 2														
78 21 813	13	0.366	27.59	27.47	31.5	26	41	35.73	9409-1-A-50	50	M6	63	11	0.5
78 21 817	17	-0.012	36.08	33.95	38.0	26	41	38.98	9409-1-A-50	50	M6	63	11	0.6

Straight Pinion, A-63 flange



Order Code	No. of Teeth z	Profile Modification Factor x	d	d _{wz}	dk	b1	b2	a0	ISO Interface	d1	G	da _{h8}	L	kg
Module 2														
78 22 817	17	-0.012	36.08	33.95	38.0	26	41	38.98	9409-1-A-63	63	M6	80	11	0.8
78 22 824	24	0.202	50.93	48.81	52.8	26	41	46.40	9409-1-A-63	63	M6	80	11	1.0
Module 3														
78 32 813	13	0.366	41.38	41.20	47.2	32.5	47.5	46.60	9409-1-A-63	63	M6	80	11	1.0

Note: The rack and pinion drive must be installed with backlash present, not pressed into engagement with no backlash! Please refer to the ATLANTA operating manual MPZ 001e.

Straight Pinion, A-80 flange

16MnCr5, 1.7131
Case-Hardened
Quality 5
Flange: Soft

Order Code	No. of Teeth z	Profile Modification Factor x	d	d _{wz}	dk	b1	b2	a0	ISO Interface	d1	G	da _{h8}	L	kg
Module 2														
78 23 824	24	0.202	50.93	48.81	52.8	26	46	46.40	9409-1-A-80	80	M8	100	8	1.6
Module 3														
78 33 820	20	0.080	63.66	60.48	66.5	32.5	52.5	56.24	9409-1-A-80	80	M8	100	8	2.0
Module 4														
78 43 813	13	0.366	55.17	54.93	62.9	45	65	62.47	9409-1-A-80	80	M8	100	13	2.1

Straight Pinion, A-125 flange

16MnCr5, 1.7131
Case-Hardened
Quality 5
Flange: Soft

Order Code	No. of Teeth z	Profile Modification Factor x	d	d _{wz}	dk	b1	b2	a0	ISO Interface	d1	G	da _{h8}	L	kg
Module 3														
78 34 820	20	0.080	63.66	60.48	66.5	32.5	57.5	56.24	9409-1-A-125	125	M10	148	15	4.2
Module 4														
78 44 821	21	0.110	89.13	84.88	92.9	45	70	77.44	9409-1-A-125	125	M10	148	15	5.5
Module 5														
78 54 819	19	0.049	100.80	95.49	105.5	55	80	81.75	9409-1-A-125	125	M10	148	15	6.6
Module 6														
78 64 816	16	-0.042	101.86	95.49	107.5	65	90	90.75	9409-1-A-125	125	M10	148	15	6.8

Note: The rack and pinion drive must be installed with backlash present, not pressed into engagement with no backlash! Please refer to the ATLANTA operating manual MPZ 001e.

Straight Pinion, A-140 flange

16MnCr5, 1.7131
Case-Hardened
Quality 5
Flange: Soft

Order Code	No. of Teeth z	Profile Modification Factor x	d	d _{wz}	dk	b1	b2	a0	ISO Interface	d1	G	da _{h8}	L	kg
Module 5														
78 56 820	20	0.080	106.10	100.80	110.8	55	89	84.40	–	140	M16	187	22	10.6
Module 6														
78 66 817	17	-0.012	108.23	101.86	113.9	65	99	93.93	–	140	M16	187	22	10.9

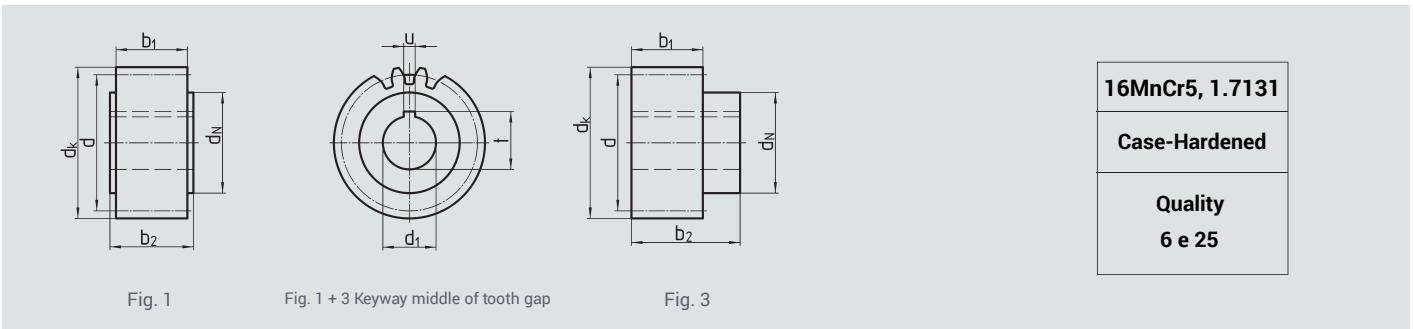
Straight Pinion, A-160 flange


16MnCr5, 1.7131
Case-Hardened
Quality 5
Flange: Soft

Order Code	No. of Teeth z	Profile Modification Factor x	d	d _{wz}	dk	b1	b2	a0	ISO Interface	d1	G	da _{h8}	L	kg
Module 8														
78 87 813	13	0.366	110.35	109.86	125.9	85	130	125.93	–	160	M20	210	30	17.8

Note: The rack and pinion drive must be installed with backlash present, not pressed into engagement with no backlash! Please refer to the ATLANTA operating manual MPZ 001 e.

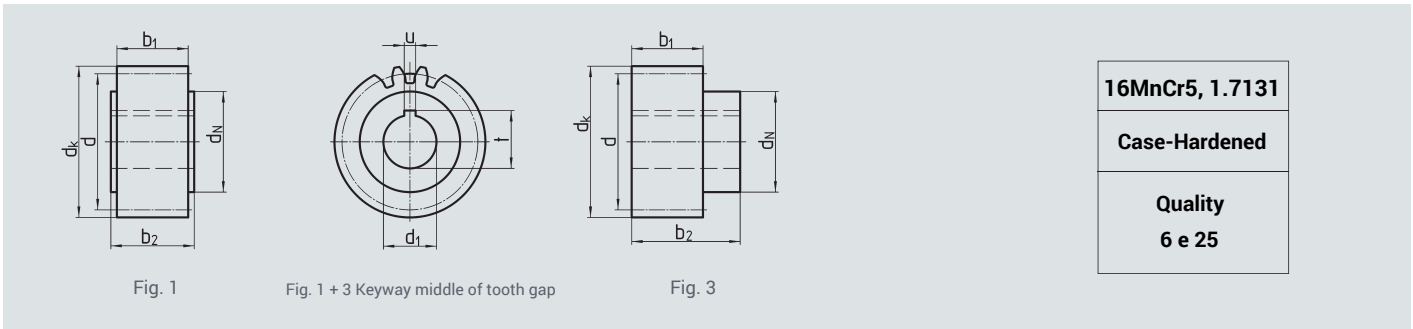
Straight Pinion, with bore $\emptyset H6$ and keyway according to DIN 6885



Order Code	Fig.	N° of Teeth z	d (=d _{wz})	d _k	d ₁ ^{H6}	d _N	b ₁	b ₂	u	t	 kg	Coupling on Page C-76
Module 2												
24 21 216	1	16	32	36	15	25	28	30.0	5	17.3	0.1	
24 21 218	1	18	36	40	15	28	28	30.0	5	17.3	0.2	
24 22 218	1	18	36	40	20	28	28	30.0	6	22.8	0.2	
24 21 220	1	20	40	44	15	25	28	30.0	5	17.3	0.2	
24 29 420	3	20	40	44	19*	30	28	56.0	6	21.8	0.2	80 83 030
24 29 220	1	20	40	44	19*	30	28	30.0	6	21.8	0.2	
24 22 220	1	20	40	44	20*	30	28	30.0	6	22.8	0.2	
24 20 120	3	20	40	44	22*	36	28	56.0	6	24.8	0.3	80 84 036
24 20 220	1	20	40	44	22*	30	28	30.0	6	24.8	0.2	
24 21 222	1	22	44	48	15	25	28	30.0	5	17.3	0.3	
24 29 222	1	22	44	48	19*	30	28	30.0	6	21.8	0.3	
24 29 422	3	22	44	48	19*	30	28	56.0	6	21.8	0.3	80 83 030
24 22 222	1	22	44	48	20*	30	28	30.0	6	22.8	0.3	
24 20 222	1	22	44	48	22*	30	28	30.0	6	24.8	0.2	
24 20 122	3	22	44	48	22	36	28	56.0	6	27.8	0.2	80 84 036
24 23 222	1	22	44	48	25	36	28	30.0	8	28.3	0.2	
24 21 225	1	25	50	54	15	25	28	30.0	5	17.3	0.4	
24 26 225	3	25	50	54	16	30	28	54.0	5	18.3	0.3	80 83 030
24 29 225	1	25	50	54	19*	30	28	30.0	6	21.8	0.3	
24 29 425	3	25	50	54	19*	30	28	56.0	6	21.8	0.3	80 83 030
24 22 225	1	25	50	54	20	30	28	30.0	6	22.8	0.4	
24 20 225	1	25	50	54	22	30	28	30.0	6	24.8	0.3	
24 20 425	3	25	50	54	22*	36	28	56.0	6	24.8	0.4	80 84 036
24 23 225	1	25	50	54	25	36	28	30.0	8	28.3	0.3	
24 24 225	1	25	50	54	30	45	28	30.0	8	33.3	0.3	
24 21 228	1	28	56	60	15	25	28	30.0	5	17.3	0.5	
24 29 228	1	28	56	60	19*	30	28	30.0	6	21.8	0.5	
24 29 428	3	28	56	60	19*	30	28	56.0	6	21.8	0.5	80 83 030
24 22 228	1	28	56	60	20	30	28	30.0	6	22.8	0.5	
24 20 128	3	28	56	60	22*	36	28	56.0	6	24.8	0.3	80 84 036
24 20 228	1	28	56	60	22*	30	28	30.0	6	24.8	0.3	
24 23 228	1	28	56	60	25	36	28	30.0	8	28.3	0.4	
24 22 428	3	28	56	60	30	50	28	60.0	8	33.3	0.4	80 85 050
24 24 228	1	28	56	60	30	45	28	30.0	8	33.3	0.4	
24 25 228	1	28	56	60	35	48	28	30.0	10	38.3	0.3	
24 21 232	1	32	64	68	15	36	28	30.0	5	17.3	0.6	
24 26 232	3	32	64	68	16	30	28	54.0	5	18.3	0.6	80 83 030
24 22 232	1	32	64	68	20	30	28	30.0	6	22.8	0.6	
24 20 232	1	32	64	68	22*	30	28	30.0	6	24.8	0.4	
24 20 432	3	32	64	68	22	36	28	56.0	6	24.8	0.6	80 84 036
24 23 232	1	32	64	68	25	36	28	30.0	8	28.3	0.6	
24 22 432	3	32	64	68	30	50	28	60.0	8	33.3	0.6	80 85 050
24 24 232	1	32	64	68	30	45	28	30.0	8	33.3	0.6	
24 23 432	3	32	64	68	32	55	28	65.0	10	35.3	0.5	80 80 055
24 25 232	1	32	64	68	35	48	28	30.0	10	38.3	0.5	
24 22 236	1	36	72	76	20	30	28	30.0	6	22.8	0.8	
24 23 236	1	36	72	76	25	36	28	30.0	8	28.3	0.8	
24 24 236	1	36	72	76	30	45	28	30.0	8	33.3	0.7	
24 25 236	1	36	72	76	35	48	28	30.0	10	38.3	0.7	
24 25 436	3	36	72	76	40	62	28	65.0	12	43.3	0.5	80 86 062
24 27 236	1	36	72	76	45	58	28	30.0	14	48.8	0.6	

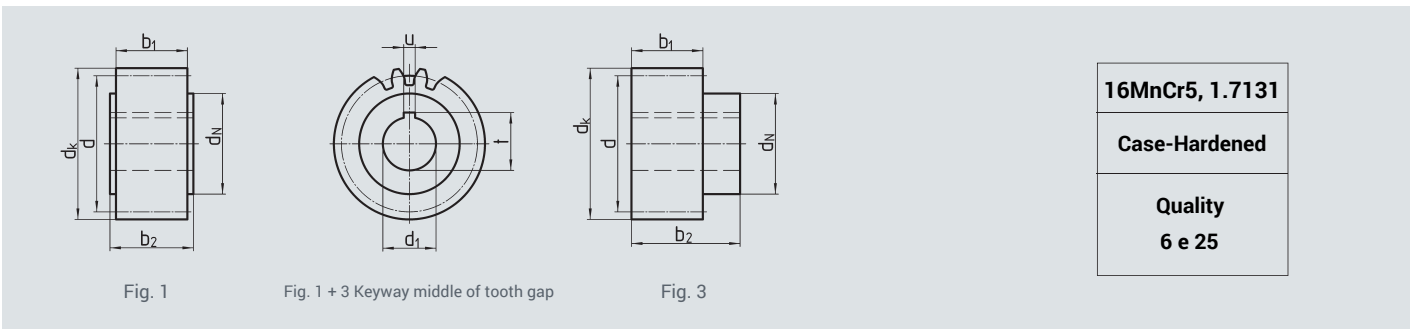
* Bore G6 or H7

Straight Pinion, with bore $\varnothing H6$ and keyway according to DIN 6885



Order Code	Fig.	N° of Teeth z	d (=d _{wz})	d _k	d ₁ ^{H6}	d _N	b ₁	b ₂	u	t	kg	Coupling on Page C-76
Module 2												
24 21 240	1	40	80	84	15	36	28	30.0	5	17.3	1.0	
24 22 240	1	40	80	84	20	30	28	30.0	6	22.8	1.0	
24 23 240	1	40	80	84	25	36	28	30.0	8	28.3	1.0	
24 24 240	1	40	80	84	30	45	28	30.0	8	33.3	1.0	
24 23 440	3	40	80	84	32	55	28	65.0	10	35.3	0.9	80 80 055
24 25 240	1	40	80	84	35	48	28	30.0	10	38.3	0.9	
24 25 440	3	40	80	84	40	62	28	65.0	12	43.3	0.7	80 86 062
24 26 440	3	40	80	84	45	68	28	65.0	14	48.8	1.3	80 80 068
24 27 240	1	40	80	84	45	58	28	30.0	14	48.8	0.8	
24 22 245	1	45	90	94	20	30	28	30.0	6	22.8	1.3	
24 23 245	1	45	90	94	25	36	28	30.0	8	28.3	1.2	
24 25 245	1	45	90	94	35	48	28	30.0	10	38.3	1.2	
24 27 245	1	45	90	94	45	58	28	30.0	14	48.8	1.1	
24 22 250	1	50	100	104	20	30	28	30.0	6	22.8	1.6	
24 23 250	1	50	100	104	25	36	28	30.0	8	28.3	1.5	
24 25 250	1	50	100	104	35	48	28	30.0	10	38.3	1.5	
24 27 250	1	50	100	104	45	58	28	30.0	14	48.8	1.4	
24 26 450	3	50	100	104	45	68	28	65.0	14	48.8	2.0	80 80 068
24 23 256	1	56	112	116	25	36	28	30.0	8	28.3	1.9	
24 25 256	1	56	112	116	35	48	28	30.0	10	38.3	1.8	
24 23 263	1	63	126	130	25	36	28	30.0	8	28.3	2.5	
24 25 271	1	71	142	146	35	48	28	30.0	10	38.3	3.15	
24 25 280	1	80	160	164	35	48	28	30.0	10	38.3	4.2	
24 27 290	1	90	180	184	45	58	28	30.0	14	48.8	5.7	

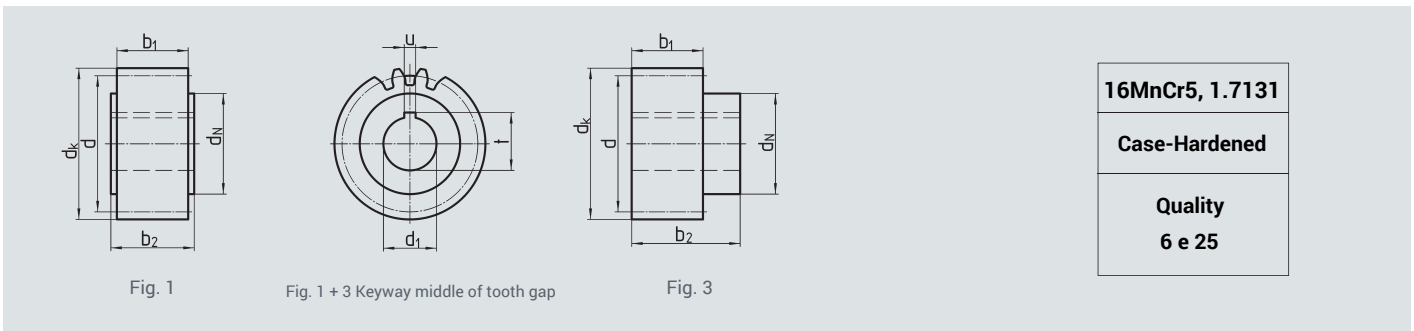
Straight Pinion, with bore ØH6 and keyway according to DIN 6885



Order Code	Fig.	N° of Teeth z	d (=d _{wz})	d _k	d ₁ ^{H6}	d _N	b ₁	b ₂	u	t	kg	Coupling on Page C-76
Module 3												
24 33 218	1	18	54	60	25	36	28	30.0	8	28.3	0.4	
24 33 220	1	20	60	66	25	36	28	30.0	8	28.3	0.5	
24 34 220	1	20	60	66	30	45	28	30.0	8	33.3	0.5	
24 35 220	1	20	60	66	35	48	28	30.0	10	38.3	0.4	
24 30 422	3	22	66	72	22	36	28	56.0	6	24.8	0.8	80 84 036
24 31 422	3	22	66	72	25	44	28	60.0	8	28.3	0.9	80 80 044
24 33 222	1	22	66	72	25	36	28	30.0	8	28.3	0.6	
24 32 422	3	22	66	72	30	50	28	60.0	8	33.3	0.9	80 85 050
24 34 222	1	22	66	72	30	45	28	30.0	8	33.3	0.6	
24 33 422	3	22	66	72	32	55	28	65.0	10	35.3	1.0	80 80 055
24 34 422	3	22	66	72	35	55	28	65.0	10	38.3	0.9	80 80 055
24 35 222	1	22	66	72	35	48	28	30.0	10	38.3	0.6	
24 35 422	3	22	66	72	40*	62	28	65	12	43.3	1.0	80 86 062
24 33 225	1	25	75	81	25	36	28	30.0	8	28.3	0.9	
24 34 225	1	25	75	81	30	45	28	30.0	8	33.3	0.8	
24 33 425	3	25	75	81	32*	55	28	65	10	35.3	1.2	80 80 055
24 35 225	1	25	75	81	35	48	28	30.0	10	38.3	0.8	
24 35 425	3	25	75	81	40	62	28	65.0	12	43.3	1.2	80 86 062
24 37 225	1	25	75	81	45	58	28	30.0	14	48.8	0.6	
24 30 428	3	28	84	90	22	36	28	56.0	6	24.8	1.3	80 84 036
24 31 428	3	28	84	90	25	44	28	60.0	8	28.3	1.4	80 80 044
24 33 228	1	28	84	90	25	36	28	30.0	8	28.3	1.1	
24 32 428	3	28	84	90	30	50	28	60.0	8	33.3	1.4	80 85 050
24 34 228	1	28	84	90	30	45	28	30.0	8	33.3	1.1	
24 33 428	3	28	84	90	32	55	28	65.0	10	35.3	1.5	80 80 055
24 34 428	3	28	84	90	35	55	28	65.0	10	38.3	1.4	80 80 055
24 35 228	1	28	84	90	35	48	28	30.0	10	38.3	1.0	
24 35 428	3	28	84	90	40*	62	28	65	12	43.3	1.4	80 86 062
24 36 428	3	28	84	90	45	68	28	65.0	14	48.8	1.5	80 80 068
24 37 228	1	28	84	90	45	58	28	30.0	14	48.8	0.9	
24 33 232	1	32	96	102	25	36	28	30.0	8	28.3	1.5	
24 34 232	1	32	96	102	30	45	28	30.0	8	33.3	1.4	
24 33 432	3	32	96	102	32*	55	28	65	10	35.3	1.8	80 80 055
24 35 232	1	32	96	102	35	48	28	30.0	10	38.3	1.4	
24 35 432	3	32	96	102	40	62	28	65.0	12	43.3	1.8	80 86 062
24 37 232	1	32	96	102	45	58	28	30.0	14	48.8	1.3	
24 39 232	1	32	96	102	60	80	28	30.0	18	64.4	1.1	
24 33 236	1	36	108	114	25	36	28	30.0	8	28.3	1.9	
24 35 236	1	36	108	114	35	48	28	30.0	10	38.3	1.8	
24 36 436	3	36	108	114	45	68	28	65.0	14	48.8	2.2	80 80 068
24 37 236	1	36	108	114	45	58	28	30.0	14	48.8	1.7	
24 39 236	1	36	108	114	60	80	28	30.0	18	64.4	1.4	
24 33 240	1	40	120	126	25	36	28	30	8	28.3	2.3	
24 35 240	1	40	120	126	35	48	28	30.0	10	38.3	2.3	
24 37 240	1	40	120	126	45	58	28	30.0	14	48.8	2.1	
24 39 240	1	40	120	126	60	80	28	30.0	18	64.4	1.9	
24 33 245	1	45	135	141	25	36	28	30.0	8	28.3	3.0	
24 35 245	1	45	135	141	35	48	28	30.0	10	38.3	2.7	
24 37 245	1	45	135	141	45	58	28	30.0	14	48.8	2.4	

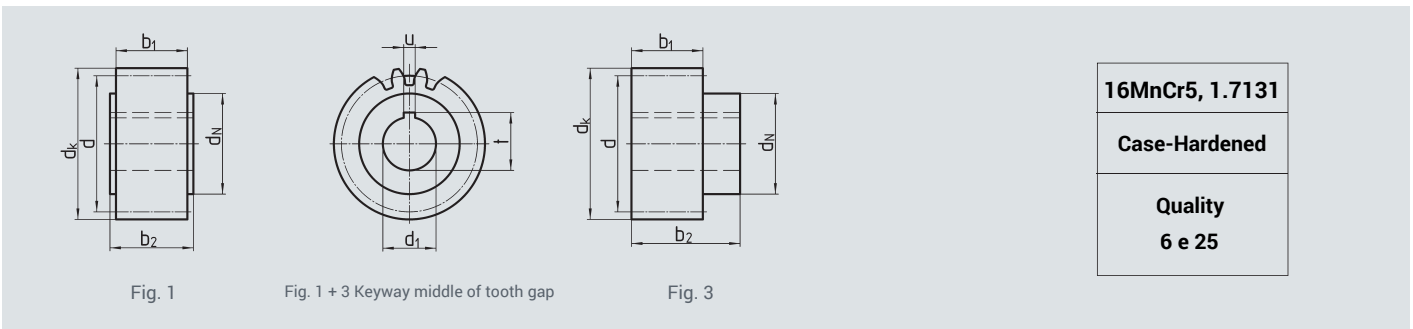
* Bore G6


Straight Pinion, with bore $\emptyset H6$ and keyway according to DIN 6885



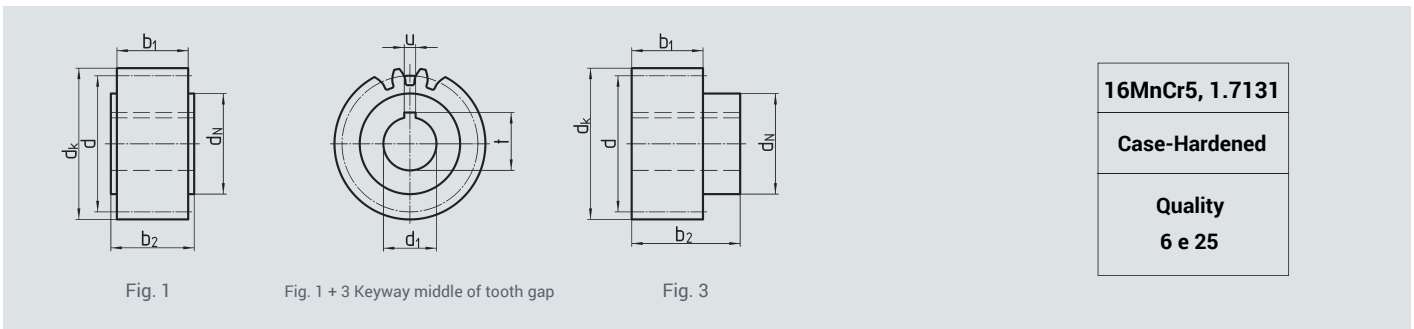
Order Code	Fig.	N° of Teeth z	d (=d _{wz})	d _k	d ₁ ^{H6}	d _N	b ₁	b ₂	u	t	kg
Module 3											
24 39 245	1	45	135	141	60	80	28	30.0	18	64.4	2.4
24 35 250	1	50	150	156	35	48	28	30.0	10	38.3	3.6
24 37 250	1	50	150	156	45	58	28	30	14	48.8	3.5
24 37 256	1	56	168	174	45	58	28	30.0	14	48.8	4.4
24 37 263	1	63	189	195	45	58	28	30.0	14	48.8	5.4
24 39 263	1	63	189	195	60	80	28	30.0	18	64.4	5.4


Straight Pinion, with bore $\varnothing H6$ and keyway according to DIN 6885



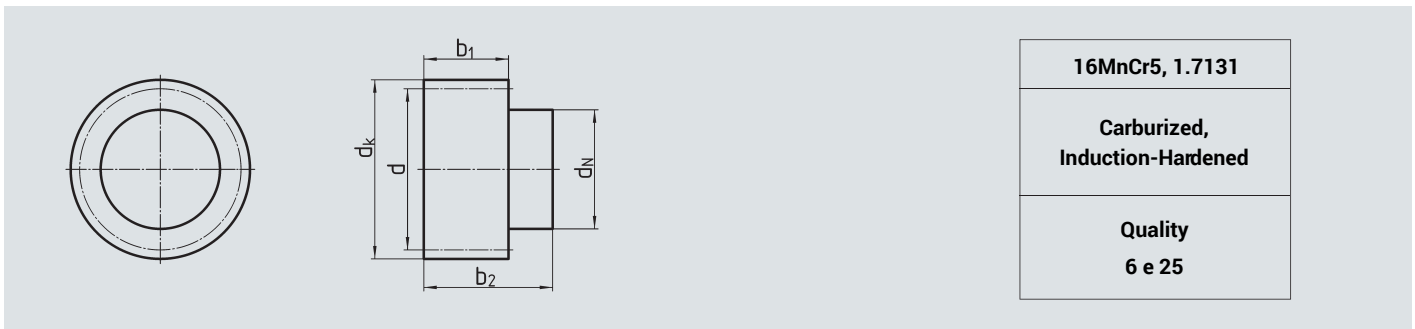
Order Code	Fig.	N° of Teeth z	d (=d _{wz})	d _k	d ₁ ^{H6}	d _N	b ₁	b ₂	u	t	 kg	Coupling on Page C-76
Module 4												
24 43 420	3	20	80	88	32	55	40	75.0	10	35.3	1.7	80 80 055
24 45 220	1	20	80	88	35	52	40	50.0	10	38.3	1.3	
24 44 420	3	20	80	88	35	55	40	75.0	10	38.3	1.7	80 80 055
24 45 420	3	20	80	88	40	62	40	75.0	12	43.3	1.7	80 86 062
24 47 220	1	20	80	88	45	65	40	50.0	14	48.8	1.2	
24 45 222	1	22	88	96	35	52	40	50.0	10	38.3	1.7	
24 47 222	1	22	88	96	45	65	40	50.0	14	48.8	1.5	
24 46 422	3	22	88	96	45	68	40	75.0	14	48.8	2.0	80 80 068
24 43 425	3	25	100	108	32	55	40	75.0	10	35.3	2.6	80 80 055
24 45 225	1	25	100	108	35	52	40	50.0	10	38.3	2.2	
24 44 425	3	25	100	108	35	55	40	75.0	10	38.3	2.5	80 80 055
24 45 425	3	25	100	108	40	62	40	75.0	12	43.3	2.5	80 86 062
24 47 225	1	25	100	108	45	65	40	50.0	14	48.8	2.0	
24 47 425	3	25	100	108	55	80	40	80.0	16	59.3	2.5	80 87 080
24 45 228	1	28	112	120	35	52	40	50.0	10	38.3	2.9	
24 47 228	1	28	112	120	45	65	40	50.0	14	48.8	2.7	
24 46 428	3	28	112	120	45	68	40	75.0	14	48.8	3.1	80 80 068
24 45 232	1	32	128	136	35	52	40	50.0	10	38.3	3.8	
24 47 232	1	32	128	136	45	65	40	50.0	14	48.8	3.7	
24 47 432	3	32	128	136	55	80	40	80.0	16	59.3	4.1	80 87 080
24 48 432	3	32	128	136	75	110	40	100.0	20	79.9	5.0	80 80 110
24 47 240	1	40	160	168	45	65	40	50.0	14	48.8	5.9	
24 49 240	1	40	160	168	60	80	40	50.0	18	64.4	5.6	
24 48 440	3	40	160	168	75	110	40	100.0	20	79.9	7.3	80 80 110

Straight Pinion, with bore $\emptyset H6$ and keyway according to DIN 6885



Order Code	Fig.	N° of Teeth z	d (=d _{wz})	d _k	d ₁ ^{H6}	d _N	b ₁	b ₂	u	t	 kg	Coupling on Page C-76
Module 5												
24 56 421		21	105	115	45	68	50	85.0	14	48.8	3.7	80 80 068
24 57 421		21	105	115	55	80	50	90.0	16	59.3	3.7	80 87 080
24 56 425		25	125	135	45	68	50	85.0	14	48.8	5.2	80 80 068
24 57 425		25	125	135	55	80	50	90.0	16	59.3	5.1	80 87 080
24 58 425		25	125	135	75	110	50	110.0	20	80.4	4.7	80 80 110
Module 6												
24 67 421		21	126	138	55	80	60	100.0	16	59.3	5.6	80 87 080
24 68 421		21	126	138	75	110	60	120.0	20	79.9	4.7	80 80 110
24 67 425		25	150	162	55	80	60	100.0	16	59.3	8.0	80 87 080
24 68 425		25	150	162	75	110	60	120.0	20	79.9	7.1	80 80 110
Module 8												
24 88 420		20	160	176	75	110	80	140	20	79.9	12.0	80 80 110
24 89 420		20	160	176	85	125	80	145	22	90.4	12.1	80 80 125
Module 10												
24 09 620		20	200	220	85	125	100	165	22	90.4	23	80 80 125

Straight-Tooth Pinion, with plain bore



Order Code	Module	N° of Teeth z	d (=d _{wz})	d _k	d _N	b ₁	b ₂	T kg	Coupling on page C-76
24 98 218	2	18	36	40	30	28	56	0.3	80 83 030
24 98 220	2	20	40	44	30	28	56	0.4	80 83 030
24 98 222	2	22	44	48	36	28	56	0.5	80 84 036
24 98 225	2	25	50	54	44	28	60	0.7	80 80 044
24 98 228	2	28	56	60	50	28	60	0.9	80 85 050
24 98 230	2	30	60	64	50	28	60	1.0	80 85 050
24 98 232	2	32	64	68	55	28	65	1.3	80 80 055
24 98 236	2	36	72	76	62	28	65	1.6	80 86 062
24 98 240	2	40	80	84	68	28	65	2.0	80 80 068
24 98 318	3	18	54	60	44	28	60	0.8	80 80 044
24 98 320	3	20	60	66	50	28	60	1.0	80 85 050
24 98 322	3	22	66	72	55	28	65	1.3	80 80 055
24 98 325	3	25	75	81	62	28	65	1.7	80 86 062
24 98 328	3	28	84	90	68	28	65	2.1	80 80 068
24 98 330	3	30	90	96	68	28	65	2.2	80 80 068
24 98 332	3	32	96	102	68	28	65	2.4	80 80 068
24 98 336	3	36	108	114	68	28	65	2.8	80 80 068
24 98 340	3	40	120	126	68	28	65	3.3	80 80 068
24 98 418	4	18	72	80	55	40	77	1.7	80 80 055
24 98 420	4	20	80	88	62	40	77	2.2	80 86 062
24 98 422	4	22	88	96	68	40	77	2.7	80 80 068
24 98 425	4	25	100	108	80	40	80	3.7	80 87 080
24 98 428	4	28	112	120	80	40	80	4.4	80 87 080
24 98 430	4	30	120	128	80	40	80	4.6	80 87 080
24 98 432	4	32	128	136	110	40	100	7.9	80 80 110
24 98 436	4	36	144	152	110	40	100	8.9	80 80 110
24 98 440	4	40	160	168	110	40	100	9.9	80 80 110
24 98 521	5	21	105	115	80	50	90	4.9	80 87 080
24 98 522	5	22	110	120	80	50	90	5.0	80 87 080
24 98 525	5	25	125	135	110	50	110	9.0	80 80 110
24 98 528	5	28	140	150	110	50	110	10.2	80 80 110
24 98 530	5	30	150	160	110	50	110	10.9	80 80 110
24 98 621	6	21	126	138	110	60	120	5.9	80 80 110
24 98 625	6	25	150	162	110	60	120	8.9	80 80 110
24 98 820 ¹⁾	8	20	160	176	125	80	145	18.5	80 80 125

¹⁾ With bore Ø 40^{H7}

The pinion could be fixed at d_k or d_N to be reworked.

Maximum bore diameter of the pinion on request.