

Spur Gears

Technopolymer, pressure angle 20°

MATERIAL

Glass-fibre reinforced polyamide-based (PA) technopolymer, grey colour.

STANDARD EXECUTIONS

- **ZCL-0.5:** module 0.5, not drilled hub (number of teeth $Z \leq 50$) or plain pass-through hole (number of teeth $Z \geq 55$).
- **ZCL-1.0:** module 1.0, not drilled hub (number of teeth $Z = 10$) or plain pass-through hole.
- **ZCL-1.5:** module 1.5, plain pass-through hole.
- **ZCL-2.0:** module 2.0, plain pass-through hole.
- **ZCL-2.5:** module 2.5, plain pass-through hole.
- **ZCL-3.0:** module 3.0, plain pass-through hole.

In the execution with the plain pass-through hole, the size d in the tables represents the diameter of the minimum hole that can be obtained through machining.

FEATURES

The torques indicated in the tables are granted with rpm included between 0 and 150. Torque values can vary depending on lubrication, temperature, pairing with different materials and continuous operating hours.

TECHNICAL DATA

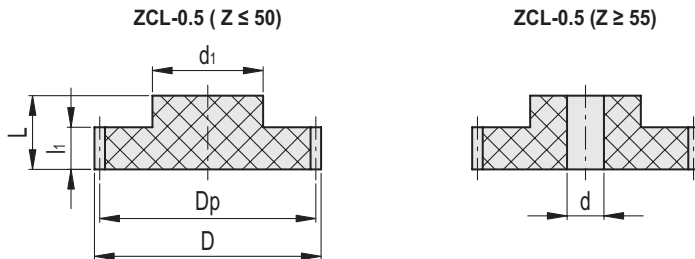
See: Transmission elements (on page).

SPECIAL EXECUTIONS ON REQUEST

- Assembly by means of a transversal grub screw.
- Hub with hole and keyway in compliance with DIN 6885/1 tolerance P9.
- Maximum tolerance on plain pass-through hole: IT 9.

MOUNTING

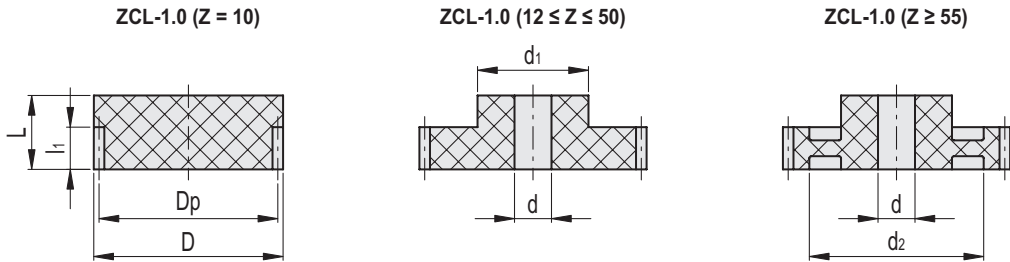
To pair two spur gears, a positive backlash must be considered. For modules 0.5 – 1.0 – 1.5 is recommended the tolerance (+0,03 +0.1). For modules 2.0 – 2.5 – 3.0 is recommended the tolerance (+0,08 +0.3).



ZCL-0.5

Code	Description	Module M	No. of teeth Z	Dp*	D	L	d	d1	li	Max. torque [Nm]	⚖️
550011	ZCL-0.5-24	0.5	24	12	13	16	-	10	8	0.7	2
550013	ZCL-0.5-25	0.5	25	12.5	13.5	16	-	10	8	0.7	2
550015	ZCL-0.5-30	0.5	30	15	16	16	-	10	8	0.8	3
550017	ZCL-0.5-32	0.5	32	16	17	16	-	10	8	0.9	3
550019	ZCL-0.5-36	0.5	36	18	19	16	-	10	8	1.0	4
550021	ZCL-0.5-40	0.5	40	20	21	16	-	10	8	1.1	4
550023	ZCL-0.5-45	0.5	45	22.5	23.5	16	-	10	8	1.2	5
550025	ZCL-0.5-48	0.5	48	24	25	16	-	10	8	1.3	6
550027	ZCL-0.5-50	0.5	50	25	26	16	-	10	8	1.4	6
550029	ZCL-0.5-55	0.5	55	27.5	28.5	16	4	20	8	1.5	8
550031	ZCL-0.5-60	0.5	60	30	31	16	4	20	8	1.6	11
550033	ZCL-0.5-70	0.5	70	35	36	16	4	20	8	1.9	13
550035	ZCL-0.5-80	0.5	80	40	41	16	4	20	8	2.2	17

* Pitch diameter.



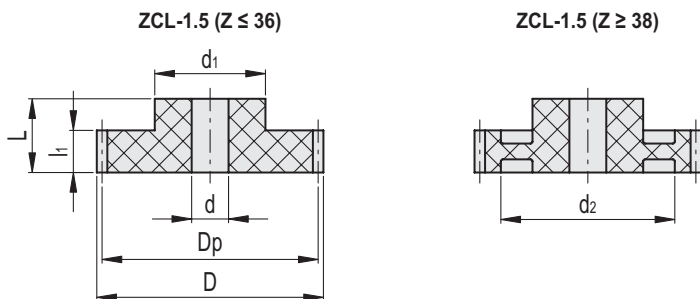
ZCL-1.0

Code	Description	Module M	No. of teeth Z	Dp*	D	L	d	d1	d2	l1	Max. torque [Nm]	⚖
550101	ZCL-1.0-10	1.0	10	10	12	25	-	-	-	15	2.0	2
550103	ZCL-1.0-12	1.0	12	12	14	25	4	9	-	15	2.5	3
550107	ZCL-1.0-14	1.0	14	14	16	25	4	10	-	15	2.9	4
550109	ZCL-1.0-15	1.0	15	15	17	25	4	10	-	15	3.1	4
550111	ZCL-1.0-16	1.0	16	16	18	25	5	13	-	15	3.3	5
550115	ZCL-1.0-18	1.0	18	18	20	25	5	14	-	15	3.7	6
550119	ZCL-1.0-20	1.0	20	20	22	25	5	16	-	15	4.1	8
550121	ZCL-1.0-21	1.0	21	21	23	25	5	16	-	15	4.3	9
550123	ZCL-1.0-22	1.0	22	22	24	25	5	18	-	15	4.5	9
550127	ZCL-1.0-24	1.0	24	24	26	25	6	20	-	15	4.9	12
550129	ZCL-1.0-25	1.0	25	25	27	25	6	20	-	15	5.1	12
550131	ZCL-1.0-26	1.0	26	26	28	25	6	22	-	15	5.3	13
550133	ZCL-1.0-27	1.0	27	27	29	25	6	22	-	15	5.5	15
550135	ZCL-1.0-28	1.0	28	28	30	25	6	22	-	15	5.7	15
550139	ZCL-1.0-30	1.0	30	30	32	25	6	25	-	15	6.1	18
550143	ZCL-1.0-32	1.0	32	32	34	25	6	25	-	15	6.6	19
550145	ZCL-1.0-33	1.0	33	33	35	25	6	25	-	15	6.8	20
550147	ZCL-1.0-34	1.0	34	34	36	25	8	30	-	15	7.0	24
550149	ZCL-1.0-35	1.0	35	35	37	25	8	30	-	15	7.2	24
550151	ZCL-1.0-36	1.0	36	36	38	25	8	30	-	15	7.4	28
550155	ZCL-1.0-38	1.0	38	38	40	25	8	30	-	15	7.8	28
550157	ZCL-1.0-39	1.0	39	39	41	25	8	30	-	15	8.0	28
550159	ZCL-1.0-40	1.0	40	40	42	25	8	30	-	15	8.2	29
550163	ZCL-1.0-42	1.0	42	42	44	25	10	35	-	15	8.6	35
550167	ZCL-1.0-44	1.0	44	44	46	25	10	35	-	15	9.0	36
550169	ZCL-1.0-45	1.0	45	45	47	25	10	35	-	15	9.2	37
550173	ZCL-1.0-48	1.0	48	48	50	25	10	35	-	15	9.8	42
550177	ZCL-1.0-50	1.0	50	50	52	25	10	35	-	15	10.2	45
550183	ZCL-1.0-55	1.0	55	55	57	25	14	35	44	15	11.3	45
550187	ZCL-1.0-58	1.0	58	58	60	25	14	35	44	15	11.9	49
550189	ZCL-1.0-60	1.0	60	60	62	25	14	40	51	15	12.3	58
550195	ZCL-1.0-65	1.0	65	65	67	25	20	40	51	15	13.3	60
550197	ZCL-1.0-70	1.0	70	70	72	25	20	40	61	15	14.3	71
550201	ZCL-1.0-72	1.0	72	72	74	25	20	40	61	15	14.7	78
550205	ZCL-1.0-74	1.0	74	74	76	25	20	40	61	15	15.2	72
550207	ZCL-1.0-75	1.0	75	75	77	25	20	50	66	15	15.4	74
550209	ZCL-1.0-77	1.0	77	77	79	25	20	50	66	15	15.8	90
550211	ZCL-1.0-80	1.0	80	80	82	25	20	50	66	15	16.4	97

* Pitch diameter.



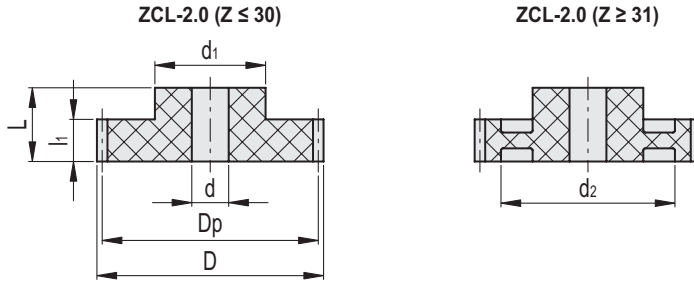
Machine elements



ZCL-1.5

Code	Description	Module M	No. of teeth Z	Dp*	D	L	d	d1	d2	l1	Max. torque [Nm]	Δ
550301	ZCL-1.5-12	1.5	12	18	21	30	5	14	-	17	6.8	7
550305	ZCL-1.5-14	1.5	14	21	24	30	5	16	-	17	8.0	10
550307	ZCL-1.5-15	1.5	15	22.5	25.5	30	5	18	-	17	8.5	13
550309	ZCL-1.5-16	1.5	16	24	27	30	5	18	-	17	9.1	13
550313	ZCL-1.5-18	1.5	18	27	30	30	6	20	-	17	10.3	16
550317	ZCL-1.5-20	1.5	20	30	33	30	8	25	-	17	11.4	23
550319	ZCL-1.5-21	1.5	21	31.5	34.5	30	8	25	-	17	12.0	25
550321	ZCL-1.5-22	1.5	22	33	36	30	8	28	-	17	12.5	25
550325	ZCL-1.5-24	1.5	24	36	39	30	8	28	-	17	13.7	28
550327	ZCL-1.5-25	1.5	25	37.5	40.5	30	8	30	-	17	14.2	34
550329	ZCL-1.5-26	1.5	26	39	42	30	8	30	-	17	14.8	35
550333	ZCL-1.5-28	1.5	28	42	45	30	8	30	-	17	16.0	39
550337	ZCL-1.5-30	1.5	30	45	48	30	12	35	-	17	17.1	45
550341	ZCL-1.5-32	1.5	32	48	51	30	12	35	-	17	18.2	49
550343	ZCL-1.5-33	1.5	33	49.5	52.5	30	12	35	-	17	18.8	55
550345	ZCL-1.5-34	1.5	34	51	54	30	12	35	-	17	19.4	54
550347	ZCL-1.5-35	1.5	35	52.5	55.5	30	12	35	-	17	19.9	61
550349	ZCL-1.5-36	1.5	36	54	57	30	12	35	-	17	20.5	48
550353	ZCL-1.5-38	1.5	38	57	60	30	16	35	42	17	21.7	53
550355	ZCL-1.5-39	1.5	39	58.5	61.5	30	16	35	42	17	22.2	61
550357	ZCL-1.5-40	1.5	40	60	63	30	16	40	48	17	22.8	64
550359	ZCL-1.5-42	1.5	42	63	66	30	16	45	53	17	23.9	72
550363	ZCL-1.5-44	1.5	44	66	69	30	16	45	53	17	25.1	84
550365	ZCL-1.5-45	1.5	45	67.5	70.5	30	16	45	53	17	25.6	85
550367	ZCL-1.5-46	1.5	46	69	72	30	16	45	53	17	26.2	86
550371	ZCL-1.5-48	1.5	48	75	75	30	16	45	53	17	27.4	99
550373	ZCL-1.5-50	1.5	50	75	78	30	16	45	53	17	28.5	111
550375	ZCL-1.5-51	1.5	51	76.5	79.5	30	20	50	63	17	29.1	110
550377	ZCL-1.5-52	1.5	52	78	81	30	20	50	63	17	29.6	113
550381	ZCL-1.5-54	1.5	54	81	84	30	20	50	63	17	30.8	122
550383	ZCL-1.5-55	1.5	55	82.5	85.5	30	20	50	63	17	31.3	126
550385	ZCL-1.5-60	1.5	60	90	93	30	20	55	73	17	34.2	147
550389	ZCL-1.5-65	1.5	65	97.5	100.5	30	20	60	81	17	37.0	175
550391	ZCL-1.5-70	1.5	70	105	108	30	20	60	93	17	39.9	137
550393	ZCL-1.5-75	1.5	75	112.5	115.5	30	20	60	93	17	42.7	155
550395	ZCL-1.5-80	1.5	80	120	123	30	20	60	109	17	45.6	170

* Pitch diameter.

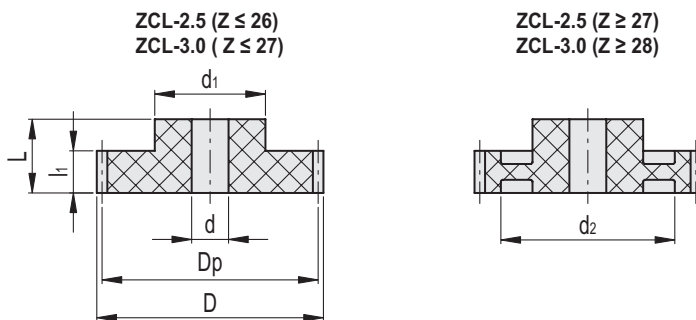


ZCL-2.0

Code	Description	Module M	No. of teeth Z	Dp*	D	L	d	d1	d2	ll	Max. torque [Nm]	⚖
550501	ZCL-2.0-12	2.0	12	24	28	35	8	18	-	20	15.5	15
550503	ZCL-2.0-13	2.0	13	26	30	35	8	18	-	20	16.8	17
550505	ZCL-2.0-14	2.0	14	28	32	35	8	20	-	20	18.1	20
550507	ZCL-2.0-15	2.0	15	30	34	35	8	22	-	20	19.4	23
550509	ZCL-2.0-16	2.0	16	32	36	35	8	25	-	20	20.7	29
550511	ZCL-2.0-17	2.0	17	34	38	35	8	25	-	20	21.9	31
550513	ZCL-2.0-18	2.0	18	36	40	35	10	30	-	20	23.2	34
550515	ZCL-2.0-19	2.0	19	38	42	35	10	30	-	20	24.5	40
550517	ZCL-2.0-20	2.0	20	40	44	35	10	30	-	20	25.8	42
550519	ZCL-2.0-21	2.0	21	42	46	35	10	30	-	20	27.1	46
550521	ZCL-2.0-22	2.0	22	44	48	35	10	30	-	20	28.4	49
550523	ZCL-2.0-23	2.0	23	46	50	35	10	35	-	20	29.7	60
550525	ZCL-2.0-24	2.0	24	48	52	35	10	35	-	20	31.0	56
550527	ZCL-2.0-25	2.0	25	50	54	35	10	35	-	20	32.3	66
550529	ZCL-2.0-26	2.0	26	52	56	35	14	40	-	20	33.6	71
550531	ZCL-2.0-27	2.0	27	54	58	35	14	40	-	20	34.9	71
550533	ZCL-2.0-28	2.0	28	56	60	35	14	40	-	20	36.1	74
550535	ZCL-2.0-29	2.0	29	58	62	35	14	40	-	20	37.4	86
550537	ZCL-2.0-30	2.0	30	60	64	35	14	40	-	20	38.7	83
550539	ZCL-2.0-31	2.0	31	62	66	35	14	40	48	20	40.0	87
550541	ZCL-2.0-32	2.0	32	64	68	35	16	45	51	20	41.3	95
550543	ZCL-2.0-33	2.0	33	66	70	35	16	45	51	20	42.6	98
550545	ZCL-2.0-34	2.0	34	68	72	35	16	45	51	20	43.9	105
550547	ZCL-2.0-35	2.0	35	70	74	35	16	45	51	20	45.2	113
550549	ZCL-2.0-36	2.0	36	72	76	35	16	50	59	20	46.5	115
550551	ZCL-2.0-37	2.0	37	74	78	35	16	50	59	20	47.8	118
550553	ZCL-2.0-38	2.0	38	76	80	35	16	50	59	20	49.1	125
550555	ZCL-2.0-39	2.0	39	78	82	35	16	50	59	20	50.4	127
550557	ZCL-2.0-40	2.0	40	80	84	35	16	55	66	20	51.6	138
550561	ZCL-2.0-42	2.0	42	84	88	35	16	55	66	20	54.2	156
550565	ZCL-2.0-44	2.0	44	88	92	35	16	60	68	20	56.8	175
550567	ZCL-2.0-45	2.0	45	90	94	35	16	60	68	20	58.1	177
550569	ZCL-2.0-46	2.0	46	92	96	35	16	60	75	20	59.4	181
550573	ZCL-2.0-48	2.0	48	96	100	35	16	60	75	20	62.0	193
550577	ZCL-2.0-50	2.0	50	100	104	35	20	60	84	20	64.6	209
550581	ZCL-2.0-52	2.0	52	104	108	35	20	60	90	20	67.1	203
550585	ZCL-2.0-54	2.0	54	108	112	35	20	60	90	20	69.7	211
550591	ZCL-2.0-57	2.0	57	114	118	35	20	60	90	20	73.6	208
550597	ZCL-2.0-60	2.0	60	120	124	35	20	60	101	20	77.5	238
550601	ZCL-2.0-62	2.0	62	124	128	35	20	60	101	20	80.0	257
550605	ZCL-2.0-64	2.0	64	128	132	35	20	60	101	20	82.6	276
550607	ZCL-2.0-65	2.0	65	130	134	35	20	60	101	20	83.9	226
550609	ZCL-2.0-66	2.0	66	132	136	35	20	60	101	20	85.2	295
550613	ZCL-2.0-68	2.0	68	136	140	35	20	60	101	20	87.8	265
550617	ZCL-2.0-70	2.0	70	140	144	35	20	60	117	20	90.4	274
550621	ZCL-2.0-72	2.0	72	144	148	35	20	60	117	20	93.0	324
550625	ZCL-2.0-74	2.0	74	148	152	35	20	60	117	20	95.5	340
550627	ZCL-2.0-75	2.0	75	150	154	35	20	60	117	20	96.8	349
550629	ZCL-2.0-76	2.0	76	152	156	35	20	60	117	20	98.1	376
550633	ZCL-2.0-78	2.0	78	156	160	35	20	60	117	20	100.7	381
550637	ZCL-2.0-80	2.0	80	160	164	35	20	60	117	20	103.3	292
550657	ZCL-2.0-90	2.0	90	180	184	35	20	60	147	20	116.2	451
550677	ZCL-2.0-100	2.0	100	200	204	35	25	60	183	20	129.1	384

* Pitch diameter.





ZCL-2.5

Code	Description	Module M	No. of teeth Z	Dp*	D	L	d	d1	d2	l1	Max. torque [Nm]	⚖
550701	ZCL-2.5-12	2.5	12	30	35	40	8	22	-	25	30.3	26
550703	ZCL-2.5-14	2.5	14	35	40	40	8	22	-	25	35.3	38
550705	ZCL-2.5-15	2.5	15	37.5	42.5	40	10	30	-	25	37.8	45
550707	ZCL-2.5-16	2.5	16	40	45	40	10	30	-	25	40.3	46
550711	ZCL-2.5-18	2.5	18	45	50	40	10	35	-	25	45.4	61
550715	ZCL-2.5-20	2.5	20	50	55	40	10	35	-	25	50.4	73
550719	ZCL-2.5-22	2.5	22	55	60	40	16	40	-	25	55.5	90
550721	ZCL-2.5-23	2.5	23	57.5	62.5	40	16	40	-	25	58.0	90
550723	ZCL-2.5-24	2.5	24	60	65	40	16	40	-	25	60.5	96
550725	ZCL-2.5-25	2.5	25	62.5	67.5	40	16	40	-	25	63.0	109
550727	ZCL-2.5-26	2.5	26	65	70	40	16	40	-	25	65.6	75
550729	ZCL-2.5-27	2.5	27	67.5	72.5	40	16	40	50	25	68.1	121
550731	ZCL-2.5-28	2.5	28	70	75	40	16	40	50	25	70.6	131
550733	ZCL-2.5-29	2.5	29	72.5	77.5	40	16	45	56	25	73.1	141
550735	ZCL-2.5-30	2.5	30	75	80	40	16	45	56	25	75.6	147
550739	ZCL-2.5-32	2.5	32	80	85	40	16	50	61	25	80.7	171
550745	ZCL-2.5-35	2.5	35	87.5	92.5	40	16	50	61	25	88.3	172
550755	ZCL-2.5-40	2.5	40	100	105	40	18	50	73	25	100.9	233
550761	ZCL-2.5-45	2.5	45	112.5	117.5	40	18	60	85	25	113.5	298
550763	ZCL-2.5-50	2.5	50	125	130	40	20	60	105	25	126.1	299

ZCL-3.0

Code	Description	Module M	No. of teeth Z	Dp*	D	L	d	d1	d2	l1	Max. torque [Nm]	⚖
550801	ZCL-3.0-12	3.0	12	36	42	45	12	25	-	30	52.3	43
550805	ZCL-3.0-14	3.0	14	42	48	45	12	30	-	30	61.0	61
550807	ZCL-3.0-15	3.0	15	45	51	45	12	30	-	30	65.4	70
550809	ZCL-3.0-16	3.0	16	48	54	45	12	35	-	30	69.7	82
550813	ZCL-3.0-18	3.0	18	54	60	45	12	40	-	30	78.4	109
550817	ZCL-3.0-20	3.0	20	60	66	45	12	45	-	30	87.1	135
550821	ZCL-3.0-22	3.0	22	66	72	45	16	45	-	30	95.9	156
550823	ZCL-3.0-23	3.0	23	69	75	45	16	45	-	30	100.2	169
550825	ZCL-3.0-24	3.0	24	72	78	45	16	45	-	30	104.6	180
550827	ZCL-3.0-25	3.0	25	75	81	45	16	45	-	30	108.9	175
550829	ZCL-3.0-26	3.0	26	78	84	45	16	45	-	30	113.3	205
550831	ZCL-3.0-27	3.0	27	81	87	45	16	45	-	30	117.6	224
550833	ZCL-3.0-28	3.0	28	84	90	45	16	50	65	30	122.0	207
550835	ZCL-3.0-29	3.0	29	87	93	45	16	50	65	30	126.4	220
550837	ZCL-3.0-30	3.0	30	90	96	45	16	50	65	30	130.7	236
550841	ZCL-3.0-32	3.0	32	96	102	45	16	50	73	30	139.4	243
550845	ZCL-3.0-35	3.0	35	105	111	45	20	60	80	30	152.5	315
550855	ZCL-3.0-40	3.0	40	120	126	45	20	60	85	30	174.3	322
550865	ZCL-3.0-45	3.0	45	135	141	45	20	60	101	30	196.1	434
550875	ZCL-3.0-50	3.0	50	150	156	45	20	60	127	30	217.9	400

* Pitch diameter.

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