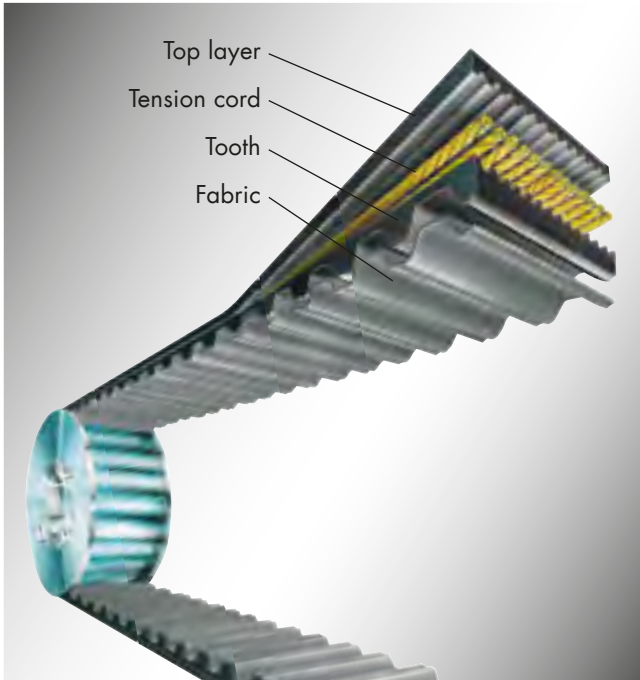


# PRODUCT DESCRIPTION

## optibelt OMEGA TIMING BELTS



### Structure



### Fabric

The polyamide fabric protects the teeth from premature wear and tooth root cracking. At the same time, the low coefficient of friction lowers the operating temperature and helps to reduce the running noise.

High performance optibelt OMEGA timing belts are the result of a continuing development process. Operational experience with optibelt ZR and optibelt HTD® has been applied to this belt generation. Endless optibelt OMEGA timing belts set the standard for synchronous performance and for positioning drives.

The geometry of the optibelt OMEGA tooth profile has been developed to run in the established, curvilinear timing belt pulleys. optibelt OMEGA timing belts can be used in 3M, 5M, 8M and 14M HTD® pulley profiles. optibelt ZRS HTD® timing belt pulleys are standard items in our range with pilot bores or bored for optibelt TB taper bushes. In addition, all OMEGA timing belts can also be used in RPP® timing belt pulleys. Special timing belt pulleys for optibelt OMEGA timing belts are not required.

### Top layer

The belt top layer consists of a flexible polychloroprene compound which protects the tension cord from external influences. In addition, it offers limited resistance to mineral oils and humidity as well as protection from frictional wear and tear.

### Tension cord

The tension member is composed of a pair of counter twisted glass fibre cords. These tension cords have high tensile strength, very high flexibility and very low stretch.

### Teeth

Just like the belt top layer, the teeth consist of a polychloroprene compound guaranteeing high shear strength. The dimples in the teeth promote quiet running.



Application example: lawn mowers

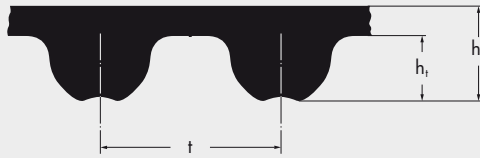
### Overview of the advantages and characteristics

- synchronous speed
- highest precision
- perceptibly lower noise level due to the OMEGA tooth profile
- use in standard HTD® and RPP® timing belt pulleys
- maintenance-free
- temperature resistant from -30°C to +100°C
- efficiency of up to 98%

# PRODUCT DESCRIPTION

## optibelt **OMEGA** TIMING BELTS

### STANDARD PRODUCT RANGE



Profile	3M
t [mm]	3.0
h <sub>s</sub> [mm]	2.3
h <sub>t</sub> [mm]	1.1

optibelt OMEGA 3M					
Belt designation	Pitch length [mm]	Number of teeth	Belt designation	Pitch length [mm]	Number of teeth
111 3M	111.00	37	255 3M	255.00	85
117 3M (HTD)•	117.00	39	267 3M	267.00	89
120 3M (HTD)•	120.00	40	276 3M	276.00	92
123 3M (HTD)•	123.00	41	282 3M•	282.00	94
126 3M (HTD)•	126.00	42	285 3M	285.00	95
129 3M	129.00	43	288 3M	288.00	96
141 3M	141.00	47	291 3M	291.00	97
144 3M	144.00	48	294 3M	294.00	98
150 3M	150.00	50	300 3M	300.00	100
156 3M (HTD)•	156.00	52	306 3M (HTD)•	306.00	102
159 3M	159.00	53	312 3M	312.00	104
165 3M	165.00	55	315 3M	315.00	105
168 3M	168.00	56	318 3M	318.00	106
171 3M	171.00	57	330 3M	330.00	110
174 3M	174.00	58	333 3M	333.00	111
177 3M	177.00	59	336 3M (HTD)	336.00	112
180 3M	180.00	60	339 3M	339.00	113
183 3M	183.00	61	345 3M	345.00	115
186 3M	186.00	62	357 3M	357.00	119
192 3M	192.00	64	363 3M	363.00	121
195 3M	195.00	65	366 3M	366.00	122
201 3M	201.00	67	384 3M	384.00	128
204 3M	204.00	68	390 3M	390.00	130
207 3M	207.00	69	411 3M	411.00	137
210 3M	210.00	70	420 3M	420.00	140
213 3M	213.00	71	426 3M	426.00	142
216 3M (HTD)	216.00	72	435 3M•	435.00	145
219 3M•	219.00	73	447 3M	447.00	149
225 3M	225.00	75	462 3M	462.00	154
237 3M•	237.00	79	474 3M	474.00	158
240 3M	240.00	80	477 3M (HTD)•	477.00	159
243 3M (HTD)•	243.00	81	480 3M	480.00	160
246 3M	246.00	82	486 3M	486.00	162
249 3M•	249.00	83	489 3M (HTD)•	489.00	163
252 3M	252.00	84	495 3M	495.00	165

**Standard width:** 6 mm, 9 mm, 15 mm  
• Not available ex stock

#### Order example:

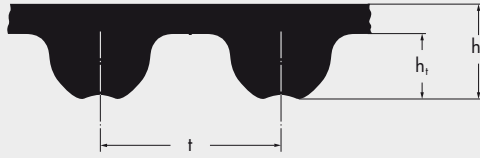
TIMING BELTS: optibelt OMEGA 150 3M 15

150 = 150 mm pitch length  
3M = profile  
15 = 15 mm belt width

# PRODUCT DESCRIPTION

## optibelt **OMEGA** TIMING BELTS

### STANDARD PRODUCT RANGE



Profile	3M
t [mm]	3.0
h <sub>s</sub> [mm]	2.3
h <sub>t</sub> [mm]	1.1

optibelt OMEGA 3M					
Belt designation	Pitch length [mm]	Number of teeth	Belt designation	Pitch length [mm]	Number of teeth
501 3M	501.00	167	1062 3M	1062.00	354
513 3M	513.00	171	1068 3M (HTD)•	1068.00	356
519 3M	519.00	173	1071 3M (HTD)	1071.00	357
522 3M	522.00	174	1125 3M (HTD)•	1125.00	375
525 3M	525.00	175	1176 3M (HTD)•	1176.00	392
531 3M	531.00	177	1245 3M (HTD)•	1245.00	415
537 3M	537.00	179	1263 3M (HTD)	1263.00	421
558 3M	558.00	186	1500 3M (HTD)•	1500.00	500
564 3M	564.00	188	1530 3M (HTD)•	1530.00	510
570 3M	570.00	190	1569 3M	1569.00	523
582 3M	582.00	194	1587 3M•	1587.00	529
591 3M (HTD)•	591.00	197	1692 3M•	1692.00	564
594 3M (HTD)•	594.00	198	1863 3M (HTD)	1863.00	621
597 3M	597.00	199			
600 3M	600.00	200			
606 3M	606.00	202			
612 3M (HTD)•	612.00	204			
615 3M	615.00	205			
633 3M	633.00	211			
648 3M (HTD)•	648.00	216			
669 3M	669.00	223			
672 3M (HTD)•	672.00	224			
675 3M	675.00	225			
708 3M (HTD)•	708.00	236			
711 3M	711.00	237			
738 3M	738.00	246			
753 3M (HTD)	753.00	251			
804 3M	804.00	268			
816 3M	816.00	272			
843 3M	843.00	281			
882 3M	882.00	294			
888 3M	888.00	296			
945 3M (HTD)	945.00	315			
960 3M (HTD)•	960.00	320			
1041 3M (HTD)•	1041.00	347			

**Standard width:** 6 mm, 9 mm, 15 mm  
• Not available ex stock

#### Order example:

TIMING BELTS: optibelt OMEGA 150 3M 15

150 = 150 mm pitch length  
3M = profile  
15 = 15 mm belt width

# POWER RATINGS

## optibelt **OMEGA** TIMING BELTS

### PROFILE AND DESIGN 3M



Table 21

Nominal power $P_N$ [W] for profile and design 3M and a timing belt width of 9 mm															
Speed of the small pulley $n_k$ [min <sup>-1</sup> ]	Number of teeth on the small pulley $z_k$														
	10	12	14	16	18	20	24	28	32	40	48	56	64	72	80
	Pitch diameter of the small pulley $d_{wk}$ [mm]														
	9.55	11.46	13.37	15.28	17.19	19.10	22.92	26.74	30.56	38.20	45.84	53.48	61.12	68.75	76.39
20	1.6	1.6	1.6	1.6	3.2	3.2	3.2	4.8	4.8	6.4	9.6	11.2	12.8	12.8	14.4
40	3.2	3.2	3.2	4.8	4.8	4.8	6.4	8.0	9.6	14.4	17.6	20.9	24.1	27.3	31.0
60	3.2	4.8	4.8	6.4	8.0	8.0	11.2	12.8	16.0	20.9	27.3	32.6	37.4	40.6	45.5
100	6.4	8.0	9.6	11.2	12.8	14.4	17.6	20.9	25.7	34.2	45.5	53.5	62.0	68.4	76.5
200	12.8	16.0	17.6	20.9	24.1	27.3	35.8	43.9	51.9	70.1	89.8	107.5	122.5	136.9	153.5
300	17.6	20.9	25.7	29.4	34.2	39.0	48.7	58.8	70.1	94.7	120.9	142.2	163.1	182.9	204.3
400	20.9	25.7	31.0	37.4	42.2	48.7	60.4	73.3	86.6	116.0	147.1	174.9	199.5	225.7	249.7
500	25.7	31.0	37.4	43.9	50.3	57.2	71.7	86.6	101.1	135.3	173.3	204.3	233.7	263.1	292.5
600	29.4	35.8	43.9	50.3	57.2	65.2	81.3	97.9	116.0	155.1	196.3	232.1	266.3	298.9	331.6
700	32.6	40.6	48.7	57.2	65.2	73.3	91.4	110.7	130.5	173.3	218.7	259.9	295.7	333.2	371.1
800	37.4	45.5	53.5	63.6	71.7	81.3	101.1	122.5	143.9	190.9	241.7	284.5	325.1	366.3	407.0
900	40.6	48.7	58.8	68.4	78.1	89.8	110.7	133.7	156.7	207.5	261.5	309.1	352.9	397.3	441.2
950	42.2	51.9	62.0	71.7	81.3	93.0	116.0	138.5	163.1	215.5	272.7	321.9	367.9	413.4	459.4
1000	43.9	53.5	63.6	74.9	85.0	96.3	119.3	143.9	170.1	223.5	282.9	333.2	380.7	428.3	475.4
1200	50.3	62.0	73.3	85.0	97.9	110.7	136.9	164.7	194.1	255.1	321.9	379.1	433.2	487.2	539.6
1400	57.2	70.1	82.9	96.3	110.7	124.1	153.5	184.5	217.1	286.1	357.8	421.9	482.4	541.2	601.6
1450	58.8	71.7	85.0	99.5	112.8	127.3	158.3	189.3	223.5	292.5	367.9	431.6	493.6	554.0	616.0
1600	63.6	76.5	91.4	105.9	122.5	136.9	170.1	204.3	240.1	313.9	394.1	462.6	527.8	593.6	658.8
1800	68.4	85.0	101.1	117.6	133.7	150.3	186.1	221.9	261.5	341.7	426.7	501.6	573.8	643.9	714.4
2000	74.9	91.4	109.1	125.7	145.5	163.1	201.1	241.7	282.9	369.5	459.4	541.2	616.0	691.4	766.8
2400	86.0	106.0	126.0	145.0	167.0	188.0	231.0	277.0	323.0	421.0	523.0	614.0	700.0	785.0	869.0
2850	98.0	119.0	141.0	163.0	186.0	211.0	259.0	309.0	362.0	470.0	582.0	682.0	777.0	869.0	961.0
3200	108.0	132.0	157.0	182.0	206.0	232.0	286.0	342.0	398.0	516.0	637.0	746.0	847.0	947.0	1046.0
3600	119.0	144.0	172.0	198.0	226.0	254.0	313.0	372.0	434.0	560.0	690.0	806.0	915.0	1020.0	1123.0
4000	129.0	157.0	185.0	214.0	245.0	275.0	337.0	401.0	467.0	603.0	739.0	862.0	977.0	1087.0	1192.0
5000	154.0	186.0	219.0	254.0	290.0	324.0	398.0	472.0	547.0	700.0	854.0	988.0	1111.0	1228.0	1334.0
6000	177.0	214.0	252.0	291.0	331.0	372.0	454.0	536.0	619.0	788.0	952.0	1093.0	1218.0	1331.0	1428.0
7000	198.0	241.0	283.0	327.0	372.0	416.0	506.0	596.0	687.0	865.0	1034.0	1177.0	1295.0	1393.0	1469.0
8000	219.0	267.0	313.0	362.0	409.0	457.0	555.0	652.0	747.0	933.0	1103.0	1236.0	1338.0	1411.0	1451.0
10000	260.0	314.0	370.0	424.0	480.0	534.0	644.0	749.0	851.0	1034.0	1187.0	1280.0	1318.0	1298.0	1211.0
12000	298.0	360.0	421.0	483.0	544.0	603.0	718.0	828.0	928.0	1092.0	1195.0	1211.0	1133.0		
14000	334.0	401.0	469.0	536.0	600.0	662.0	780.0	887.0	977.0	1098.0	1120.0	1010.0			

Power ratings for other belt widths can be calculated by multiplying by the width correction factors.

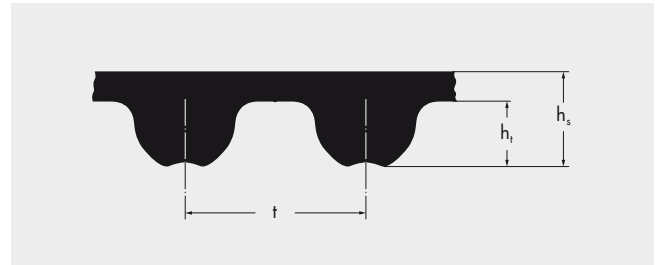
Width correction factor							
Profile and design 3M							
Belt width [mm]	3	Standard 6	Standard 9	12	Standard 15	20	25
Factor	0.28	0.61	1.00	1.44	1.87	2.63	3.40

# DIMENSIONS AND TOLERANCES

## TIMING BELTS IN optibelt OMEGA PROFILE



Timing belts with optibelt OMEGA profiles are produced in a wide range of lengths and widths. Many special lengths, widths and designs are available. Please contact our Application Engineering Department for further details. Timing belts with optibelt OMEGA profiles are produced to ground category G2 with a thickness tolerance of  $\pm 0.25$  mm as standard. If required, the belts can be ground to category G1 with a thickness tolerance of  $\pm 0.13$  mm.



**Table 37**  
**Nominal dimensions and weights**

Profile	2M	3M	5M	8M	D8M	14M
Tooth height $h_t$ [mm]	0.70	1.10	1.90	3.20	3.20	5.60
Total belt thickness $h_s$ [mm]	1.30	2.30	3.40	5.40	7.73	9.50
Tooth pitch $t$ [mm]	2.00	3.00	5.00	8.00	8.00	14.00
Weight [kg/m] for 10 mm belt width	0.013	0.024	0.035	0.058	0.067	0.100

### Length tolerances

Pitch length [mm]	$\leq 250$	$> 250$ $\leq 500$	$> 500$ $\leq 750$	$> 750$ $\leq 1000$	$> 1000$ $\leq 1250$	$> 1250$ $\leq 1500$	$> 1500$ $\leq 1750$	$> 1750$ $\leq 2000$	$> 2000$ $\leq 2250$	$> 2250$ $\leq 2500$	$> 2500$ $\leq 2750$	$> 2750$ $\leq 3000$	$> 3000$
Length tolerances given as centre distance deviation	$\pm 0.20$	$\pm 0.23$	$\pm 0.27$	$\pm 0.30$	$\pm 0.33$	$\pm 0.36$	$\pm 0.39$	$\pm 0.42$	$\pm 0.46$	$\pm 0.49$	$\pm 0.52$	$\pm 0.55$	$\pm 0.55$ $\pm 0.03^*$

### Width tolerance

Standard belt width	Allowed tolerance [mm] of the timing belt			
	Nominal width [mm]	Pitch length up to 838.2 mm	Pitch length 838.3 up to 1676.4 mm	Pitch length over 1676.4 mm
3.0 to 11.0		+ 0.4 - 0.8	+ 0.4 - 0.8	—
11.1 to 38.1		+ 0.8 - 0.8	+ 0.8 - 0.8	+ 0.8 - 1.2
38.2 to 50.8		+ 0.8 - 1.2	+ 1.2 - 1.2	+ 1.2 - 1.6
50.9 to 63.5		+ 1.2 - 1.2	+ 1.2 - 1.6	+ 1.6 - 1.6
63.6 to 76.2		+ 1.2 - 1.6	+ 1.6 - 1.6	+ 1.6 - 2.0
76.3 to 101.6		+ 1.6 - 1.6	+ 1.6 - 2.0	+ 2.0 - 2.0
101.7 to 177.8		+ 2.4 - 2.4	+ 1.6 - 2.0	+ 2.0 - 2.0
177.9 to max.		—	—	+ 4.8 - 6.4

\* For greater lengths additional 0.03 mm should be added in length steps of 250 mm.