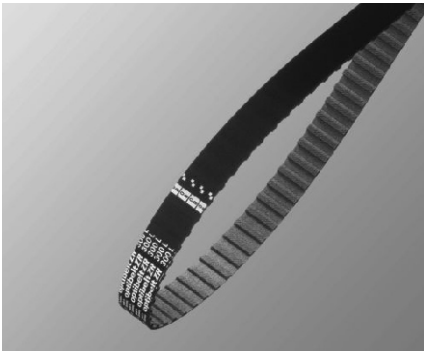
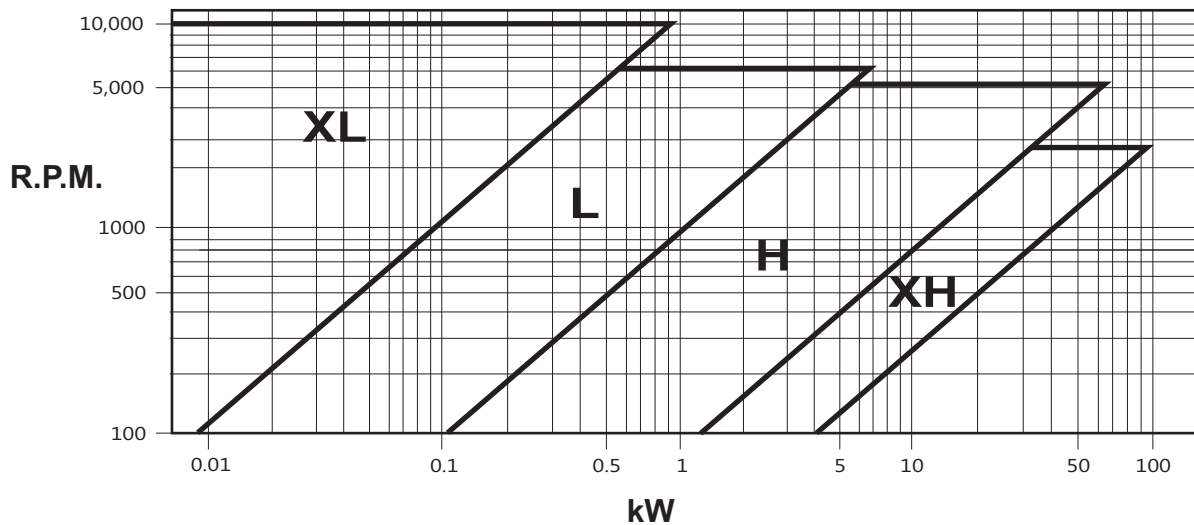


Classical Timing Pulley & Belt Drives



Classical timing belts offer a maintenance free and economical alternative to conventional drives like chains and gears. Capable of transmitting up to 100kW and speeds of 10,000 rpm. Classical timing belts can be used in a wide range of applications from light duty office machinery to heavy duty industrial drives. To select a drive it is necessary to know the driver and driven shaft speeds, the demand power, proposed centre distance and duty cycle. The chart below can be used to select the optimum belt size for a drive. For further information or help in selecting a drive contact Naismith Engineering. Naismith Engineering stock the Optibelt range of Classical timing belts.



OptiBelt ZR Timing Belts

Naismith Engineering stocks the OptiBelt range of Classical Timing belts. They are available off the shelf in XL (Extra Light), L (Light), H (Heavy) & XH (Extra Heavy) in a large range of belt lengths. MXL (Mini Extra Light) & XXH (Extra Extra Heavy) are available on request.

Classical Timing Belts XL & L



Power Transmission



	Pitch (inch)	Pitch (mm)	T	B
XL	1/5"	5.08	1.27	2.30
L	3/8"	9.53	1.91	3.50

Belt	Teeth	Pitch Length
60XL	30	152.4
70XL	35	177.8
80XL	40	203.2
86XL	43	218.4
88XL	44	223.5
90XL	45	228.6
92XL	46	233.6
94XL	47	238.7
96XL	48	243.8
98XL	49	248.9
100XL	50	254.0
102XL	51	259.0
106XL	53	269.2
108XL	54	274.3
110XL	55	279.4
112XL	56	284.4
116XL	58	294.6
118XL	59	299.7
120XL	60	304.8
124XL	62	314.9
126XL	63	320.0
128XL	64	325.1
130XL	65	330.2
134XL	67	340.3
136XL	68	345.4

Belt	Teeth	Pitch Length
138XL	69	350.5
140XL	70	355.6
142XL	71	360.6
148XL	74	375.9
150XL	75	381.0
156XL	78	396.2
160XL	80	406.4
162XL	81	411.4
166XL	83	421.6
168XL	84	426.7
170XL	85	431.8
180XL	90	457.2
190XL	95	482.6
192XL	96	487.6
200XL	100	508.0
210XL	105	533.4
220XL	110	558.8
230XL	115	584.2
240XL	120	609.6
250XL	125	635.0
260XL	130	660.4
280XL	140	711.2
300XL	150	762.0
310XL	155	787.4
360XL	180	914.4
630XL	315	1600.2

Standard widths of:-
 6.4mm (1/4") Code = Length-XL025
 9.5mm (3/8") Code = Length-XL037
 Long Length up to 12.7mm
 (1/2") wide is available.

Belt	Teeth	Pitch Length
124L	33	314.3
150L	40	381.0
165L	44	419.1
169L	45	429.2
173L	46	439.4
187L	50	467.2
202L	54	513.0
210L	56	533.4
225L	60	571.5
232L	62	589.2
236L	63	599.4
240L	64	609.6
255L	68	647.7
259L	69	657.8
263L	70	668.0
270L	72	685.8
285L	76	723.9
300L	80	762.0
322L	86	819.1
345L	92	876.3
360L	96	914.4
367L	98	933.4
390L	104	990.6
405L	108	1028.7
420L	112	1066.8
424L	113	1076.9
435L	116	1104.9
450L	120	1143.0
454L	121	1153.1
480L	128	1219.2
510L	136	1295.4
525L	140	1333.5
540L	144	1371.6
600L	160	1524.0
630L	168	1600.2
660L	176	1676.4

Standard widths of:-
 12.7mm (1/2") Code = Length-L050
 19.1mm (3/4") Code = Length-L075
 25.4mm (1") Code = Length-L100
 Long Length up to 25.4mm
 (1") wide is available.

Classical Timing Belts H & XH



Power Transmission



	Pitch (inch)	Pitch (mm)	T	B
H	1/2"	12.70	2.29	4.00
XH	7/8"	22.23	6.35	11.00

Belt	Teeth	Pitch Length
230H	46	584.2
240H	48	609.6
255H	51	571.5
270H	54	685.8
280H	56	711.2
300H	60	762.0
310H	62	787.4
315H	63	800.1
320H	64	812.8
330H	66	838.2
335H	67	850.9
340H	68	863.6
350H	70	889.0
360H	72	914.4
370H	74	939.8
375H	75	952.5
390H	78	990.6
400H	80	1016.0
410H	82	1041.4
420H	84	1066.8
430H	86	1092.2
450H	90	1143.0
465H	93	1181.1
480H	96	1219.2
490H	98	1244.6
510H	102	1295.4
520H	104	1320.8
530H	106	1346.2
540H	108	1371.6

Belt	Teeth	Pitch Length
560H	112	1422.4
570H	114	1447.8
580H	116	1473.2
600H	120	1524.0
630H	126	1600.2
650H	130	1651.0
660H	132	1676.4
670H	134	1701.8
680H	136	1727.2
700H	140	1778.0
720H	144	1828.8
730H	146	1854.2
750H	150	1905.0
770H	154	1953.8
800H	160	2032.0
810H	162	2057.4
820H	164	2082.8
850H	170	2159.0
860H	172	2184.4
900H	180	2286.0
950H	190	2413.0
1000H	200	2540.0
1100H	220	2794.0
1120H	224	2844.8
1140H	228	2895.6
1150H	230	2921.0
1250H	250	3175.0
1400H	280	3556.0
1700H	340	4318.0

Belt	Teeth	Pitch Length
507XH	58	1289.0
560XH	64	1422.4
630XH	72	1600.2
700XH	80	1778.0
770XH	88	1955.8
840XH	96	2133.6
980XH	112	2489.2
1120XH	128	2844.8
1260XH	144	3200.4
1400XH	160	3556.0
1540XH	176	3911.6
1750XH	200	4445.0

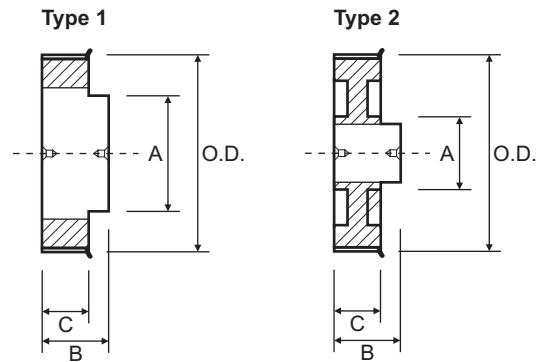
Standard widths of:-
 50.8mm (2") Code = Length-XH200
 76.2mm (3") Code = Length-XH300
 101.6mm (4") Code = Length-XH400
 Off standard widths are available on request.

Standard widths of:-
 19.1mm (3/4") Code = Length-H075
 25.4mm (1") Code = Length-H100
 38.1mm (1.1/2") Code = Length-H150
 50.8mm (2") Code = Length-H200
 76.2mm (3") Code = Length-H300
 Long Length up to 50.8mm (2") wide is available.

Plastic Timing Pulleys

XL Pitch 0.200"

L Pitch 0.375"



XL037					
Suit 9.5mm wide belt (3/8")					
Part No.	O.D.	Type	A	B	C = 13.0
PP11XL037	17.3	1	12.5	21.0	
PP12XL037	18.9	1	12.5	21.0	
PP14XL037	22.1	1	16.0	21.0	
PP15XL037	23.7	1	18.0	25.0	
PP16XL037	25.4	1	18.0	25.0	
PP18XL037	28.6	1	20.0	25.0	
PP20XL037	31.8	1	20.0	25.0	
PP21XL037	33.5	1	20.0	25.0	
PP22XL037	35.1	1	20.0	25.0	
PP24XL037	38.3	1	25.0	25.0	
PP28XL037	44.8	1	25.0	25.0	
PP30XL037	48.0	2	25.0	25.0	
PP32XL037	51.2	2	25.0	25.0	
PP36XL037	57.7	2	35.0	25.0	
PP40XL037	64.2	2	35.0	25.0	
PP42XL037	67.4	2	35.0	25.0	
PP44XL037	70.6	2	35.0	25.0	
PP48XL037	77.1	2	35.0	25.0	
PP50XL037	80.3	2	35.0	25.0	

Plastic with an Aluminium hub
1 Flange on boss side only

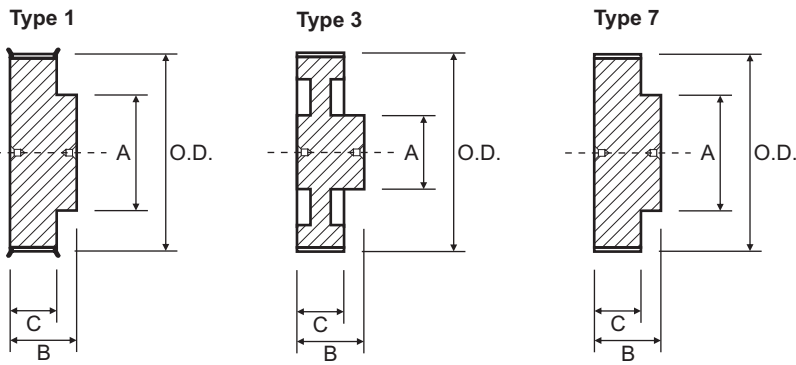
L050					
Suit 12.7mm wide belt (1/2")					
Part No.	O.D.	Type	A	B	C = 17.0
PP10L050	29.6	1	20.0	25.0	
PP12L050	35.6	1	25.0	25.0	
PP14L050	41.7	1	30.0	30.0	
PP16L050	47.8	1	30.0	30.0	
PP18L050	53.8	2	30.0	30.0	
PP20L050	59.9	2	30.0	30.0	
PP22L050	65.9	2	40.0	30.0	
PP24L050	72.0	2	40.0	30.0	
PP26L050	78.1	2	40.0	30.0	
PP28L050	84.1	2	40.0	30.0	
PP30L050	90.2	2	40.0	30.0	
PP32L050	96.3	2	40.0	30.0	
PP36L050	108.4	2	50.0	40.0	
PP40L050	120.5	2	50.0	40.0	

Plastic with an Aluminium hub
1 Flange on boss side only

L100					
Suit 25.4mm wide belt (1")					
Part No.	O.D.	Type	A	B	C = 30.0
PP10L100	29.6	1	20.0	40.0	
PP12L100	35.6	1	25.0	40.0	
PP14L100	41.7	1	30.0	40.0	
PP16L100	47.8	1	30.0	40.0	
PP18L100	53.8	1	40.0	50.0	
PP20L100	59.9	1	40.0	50.0	
PP22L100	65.9	2	40.0	50.0	
PP24L100	72.0	2	40.0	50.0	
PP26L100	78.1	2	40.0	50.0	
PP28L100	84.1	2	48.0	50.0	
PP30L100	90.2	2	48.0	50.0	
PP32L100	96.3	2	48.0	50.0	
PP36L100	108.4	2	57.0	50.0	
PP40L100	120.5	2	57.0	50.0	

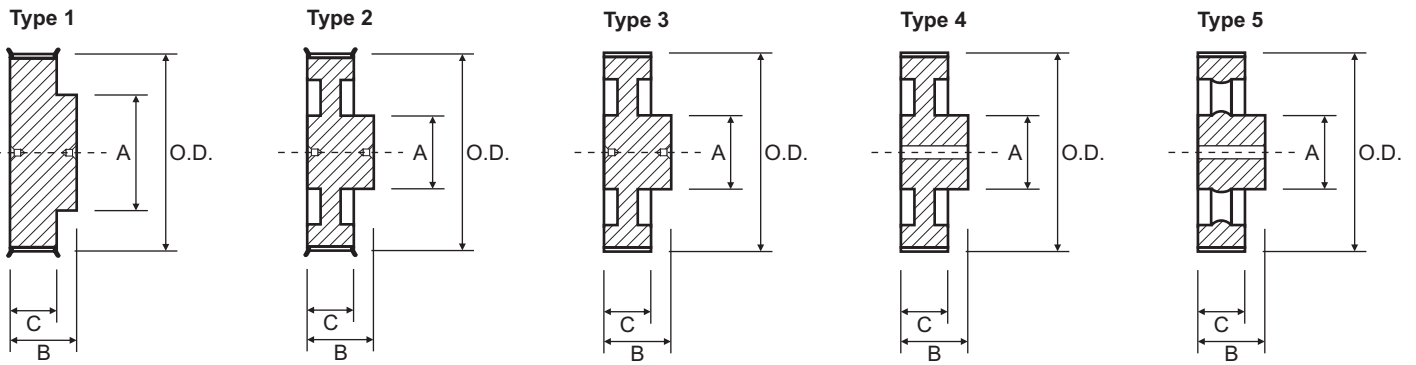
Plastic with a Steel hub
1 Flange on boss side only

XL 0.200" Timing Pulleys



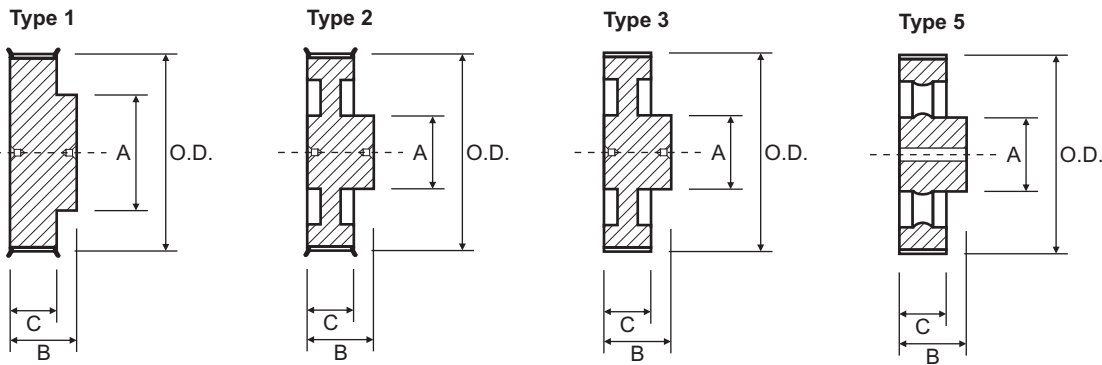
XL037						
Suit 9.5mm wide belt (3/8")						
Part No.	O.D.	Type	A	B	C = 14.3	
10XL037F	15.7	1	12.0	25.0	Aluminium	Flanged
11XL037F	17.3	1	12.0	25.0		
12XL037F	18.9	1	12.0	25.0		
13XL037F	20.5	1	12.0	25.0		
14XL037F	22.1	1	16.0	25.0		
15XL037F	23.7	1	17.0	25.0		
16XL037F	25.4	1	20.0	25.0		
17XL037F	27.0	1	20.0	25.0		
18XL037F	28.6	1	20.0	25.0		
19XL037F	30.2	1	25.0	25.0		
20XL037F	31.8	1	25.0	25.0		
21XL037F	33.5	1	26.0	25.0		
22XL037F	35.1	1	27.0	25.0		
24XL037F	38.3	1	30.0	25.0		
25XL037F	39.9	1	25.0	22.5	Steel	No Flanges
26XL037F	41.5	1	30.0	25.0		
27XL037F	43.2	1	32.0	25.0		
28XL037F	44.8	1	34.0	25.0		
30XL037F	48.0	1	38.0	25.0		
32XL037	51.2	7	45.0	25.0		
34XL037	54.5	7	45.0	25.0		
36XL037	57.7	7	52.0	25.0		
40XL037	64.2	7	52.0	25.0		
42XL037	67.4	7	52.0	25.0		
44XL037	70.6	7	52.0	25.0		
48XL037	77.1	7	52.0	25.0		
52XL037	83.8	3	52.0	25.0		
56XL037	90.0	3	52.0	25.0		
60XL037	96.5	3	52.0	25.0		
72XL037	115.9	3	52.0	25.0		

L Pitch 0.375" Timing Pulleys



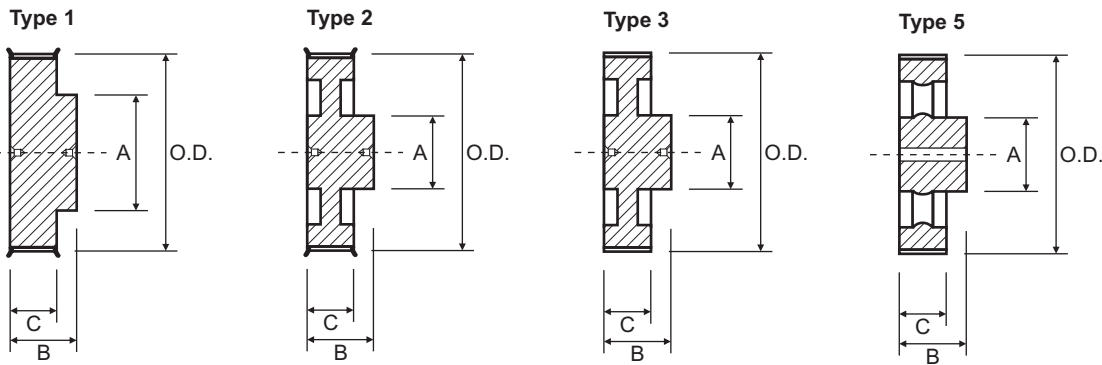
L050						L100					
Suit 12.7mm wide belt (1/2")						Suit 25.4mm wide belt (1")					
Part No.	O.D.	Type	A	B	C = 19.0	Part No.	O.D.	Type	A	B	C = 32.0
10L050F	29.6	1	20.0	30.0	Steel Flanged	10L100F	29.6	1	20.0	46.0	Steel Flanged
11L050F	32.6	1	20.0	30.0		11L100F	32.6	1	20.0	46.0	
12L050F	35.6	1	27.0	30.0		12L100F	35.6	1	27.0	46.0	
13L050F	38.7	1	27.0	30.0		13L100F	38.7	1	27.0	46.0	
14L050F	41.7	1	29.0	30.0		14L100F	41.7	1	29.0	46.0	
15L050F	44.7	1	32.0	30.0		15L100F	44.7	1	32.0	46.0	
16L050F	47.8	1	37.0	30.0		16L100F	47.8	1	37.0	46.0	
17L050F	50.8	1	37.0	30.0		17L100F	50.8	1	37.0	46.0	
18L050F	53.8	1	41.0	30.0		18L100F	53.8	1	41.0	46.0	
19L050F	56.8	1	41.0	30.0		19L100F	56.8	1	41.0	46.0	
20L050F	59.9	1	47.0	30.0		20L100F	59.9	1	47.0	46.0	
21L050F	62.9	1	47.0	30.0		21L100F	62.9	1	47.0	46.0	
22L050F	65.9	1	50.0	30.0		22L100F	65.9	1	50.0	46.0	
23L050F	69.0	1	50.0	30.0		23L100F	69.0	1	50.0	46.0	
24L050F	72.0	1	57.0	32.0		24L100F	72.0	1	57.0	46.0	
25L050F	75.0	1	58.0	32.0		25L100F	75.0	1	58.0	46.0	
26L050F	78.1	1	64.0	32.0		26L100F	78.1	1	64.0	46.0	
27L050F	81.1	1	64.0	32.0		27L100F	81.1	1	64.0	46.0	
28L050F	84.1	1	70.0	32.0		28L100F	84.1	1	70.0	46.0	
30L050F	90.2	1	72.0	34.0		30L100F	90.2	1	72.0	46.0	
32L050F	96.3	1	75.0	34.0		32L100F	96.3	1	75.0	46.0	
34L050F	102.3	1	85.0	34.0	34L100F	102.3	1	85.0	46.0		
36L050F	108.4	1	88.0	34.0	36L100F	108.4	1	88.0	46.0		
40L050F	120.5	2	68.0	34.0	40L100F	120.5	2	68.0	46.0		
44L050F	132.6	2	68.0	34.0	44L100F	132.6	2	68.0	46.0		
48L050F	144.8	2	68.0	46.0	48L100F	144.8	2	68.0	50.0		
60L050	181.2	3	68.0	46.0	60L100	181.2	3	75.0	54.0		
72L050	217.5	3	75.0	46.0	72L100	217.5	3	75.0	54.0		
84L050	253.9	3	75.0	46.0	84L100	253.9	3	80.0	54.0		
96L050	290.3	4	80.0	46.0	96L100	290.3	4	80.0	54.0		
120L050	363.1	5	85.0	46.0	120L100	363.1	5	90.0	54.0		

H Pitch 0.500" Timing Pulleys



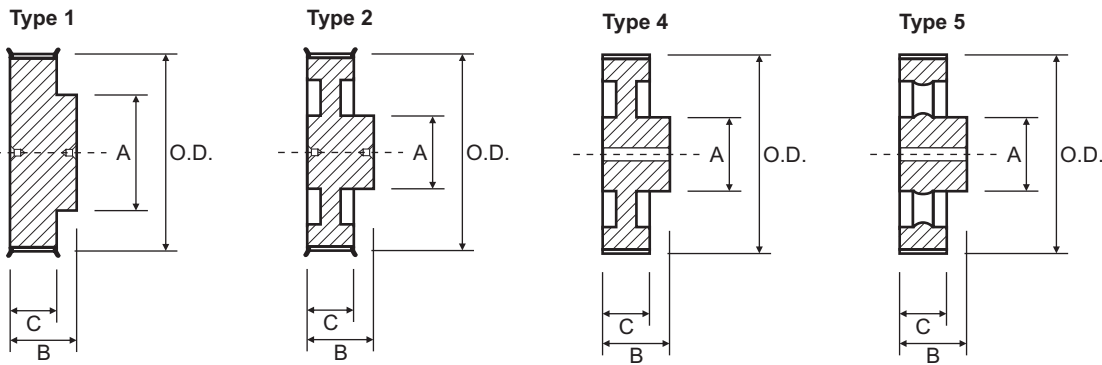
H100					H150								
Suit 25.4mm wide belt (1")					Suit 38.1mm wide belt (1 1/2")								
Part No.	O.D.	Type	A	B	C = 33.0	Part No.	O.D.	Type	A	B	C = 46.0		
14H100F	55.2	1	40.0	44.0	Steel	14H150F	55.2	1	40.0	58.0	Steel		
15H100F	59.3	1	45.0	44.0		15H150F	59.3	1	45.0	58.0			
16H100F	63.3	1	47.0	44.0		16H150F	63.3	1	47.0	58.0			
17H100F	67.4	1	49.0	44.0		17H150F	67.4	1	49.0	58.0			
18H100F	71.4	1	57.0	44.0		18H150F	71.4	1	57.0	58.0			
19H100F	75.4	1	60.0	44.0		19H150F	75.4	1	60.0	58.0			
20H100F	79.5	1	64.0	44.0		20H150F	79.5	1	64.0	58.0			
21H100F	83.5	1	64.0	44.0		21H150F	83.5	1	64.0	58.0			
22H100F	87.6	1	70.0	44.0		22H150F	87.6	1	70.0	58.0			
23H100F	91.6	1	72.0	44.0		23H150F	91.6	1	72.0	58.0			
24H100F	95.7	1	80.0	44.0	Flanged	24H150F	95.7	1	80.0	58.0	Flanged		
25H100F	99.7	1	80.0	44.0		25H150F	99.7	1	80.0	58.0			
26H100F	103.7	1	85.0	44.0		26H150F	103.7	1	85.0	58.0			
27H100F	107.8	1	88.0	44.0		27H150F	107.8	1	88.0	58.0			
28H100F	111.9	1	94.0	48.0		28H150F	111.9	1	94.0	58.0			
30H100F	119.9	1	104.0	50.0		30H150F	119.9	1	104.0	58.0			
32H100F	128.0	1	112.0	52.0		32H150F	128.0	1	112.0	58.0			
34H100F	136.1	1	118.0	52.0		34H150F	136.1	1	118.0	58.0			
36H100F	144.2	2	75.0	52.0		Cast Iron	36H150F	144.2	2	75.0		58.0	Cast Iron
40H100F	160.3	2	75.0	54.0			40H150F	160.3	2	75.0		70.0	
44H100F	176.5	2	75.0	54.0	44H150F		176.5	2	75.0	70.0			
48H100F	192.7	2	75.0	60.0	48H150F		192.7	2	75.0	70.0			
60H100	241.2	3	80.0	60.0	No Flanges		60H150	241.2	3	80.0	70.0	No Flanges	
72H100	289.7	3	80.0	60.0			72H150	289.7	3	80.0	70.0		
84H100	338.2	5	90.0	60.0			84H150	338.2	5	90.0	70.0		
96H100	386.7	5	100.0	60.0			96H150	386.7	5	100.0	70.0		
120H100	483.7	5	100.0	60.0			120H150	483.7	5	100.0	70.0		
156H100	629.3	5	120.0	60.0			156H150	629.3	5	120.0	70.0		

H Pitch 0.500" Timing Pulleys



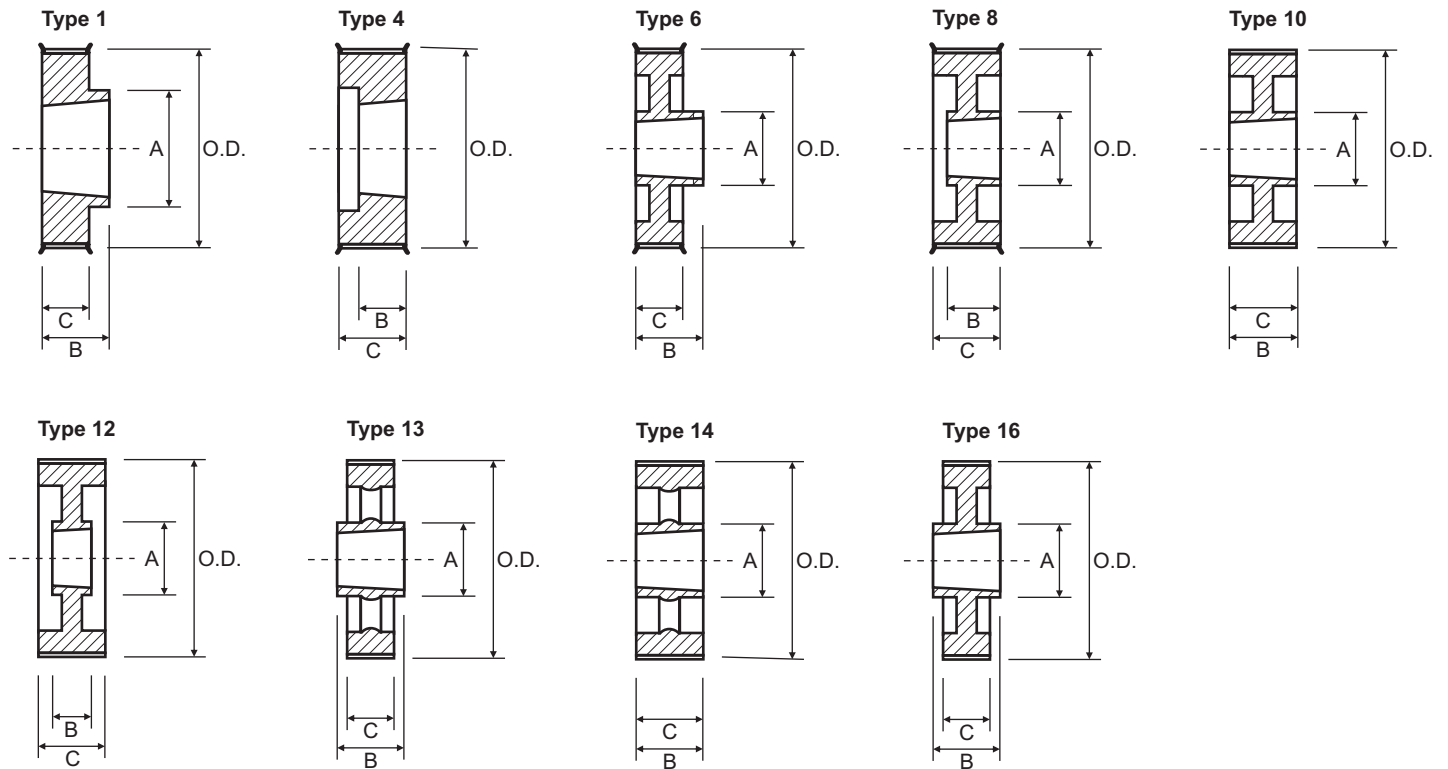
H200					H300						
Suit 50.8mm wide belt (2")					Suit 76.2mm wide belt (3")						
Part No.	O.D.	Type	A	B	C= 59.5	Part No.	O.D.	Type	A	B	C= 85.7
16H200F	63.3	1	47.0	72.0	Steel	18H300F	71.4	1	57.0	98.0	Steel
18H200F	71.4	1	57.0	72.0		20H300F	79.5	1	64.0	98.0	
20H200F	79.5	1	64.0	72.0		22H300F	87.6	1	70.0	98.0	
22H200F	87.6	1	70.0	72.0		24H300F	95.7	1	80.0	98.0	
24H200F	95.7	1	80.0	72.0		26H300F	103.7	1	85.0	98.0	
26H200F	103.7	1	85.0	72.0		28H300F	111.9	1	94.0	98.0	
28H200F	111.9	1	94.0	72.0		30H300F	119.9	1	104.0	98.0	
30H200F	119.9	1	104.0	72.0		32H300F	128.0	1	112.0	98.0	
32H200F	128.0	1	112.0	72.0		36H300F	144.2	2	80.0	98.0	
36H200F	144.2	2	80.0	72.0		40H300F	160.3	2	80.0	98.0	
40H200F	160.3	2	80.0	72.0	44H300F	176.5	2	80.0	98.0	Cast Iron	
44H200F	176.5	2	80.0	72.0	48H300F	192.7	2	90.0	98.0		
48H200F	192.7	2	80.0	80.0	60H300	241.2	3	100.0	98.0		
60H200	241.2	3	90.0	80.0	72H300	289.7	3	100.0	98.0		
72H200	289.7	3	90.0	80.0	84H300	338.2	5	100.0	98.0		
84H200	338.2	5	100.0	80.0	96H300	386.7	5	110.0	98.0		
96H200	386.7	5	100.0	80.0	120H300	483.7	5	120.0	98.0		
120H200	483.7	5	120.0	80.0	156H300	629.3	5	130.0	98.0		
156H200	629.3	5	130.0	80.0							

XH Pitch 0.875" Timing Pulleys



XH200					XH300						
Suit 50.8mm wide belt (2")					Suit 76.2mm wide belt (3")						
Part No.	O.D.	Type	A	B	C = 65.0	Part No.	O.D.	Type	A	B	C = 92.0
18XH200F	124.6	1	100.0	80.0	Cast Iron	18XH300F	124.6	1	100.0	107.0	Cast Iron
20XH200F	138.7	1	114.0	80.0		20XH300F	138.7	1	114.0	107.0	
22XH200F	152.9	1	128.0	80.0		22XH300F	152.9	1	128.0	107.0	
24XH200F	167.0	1	141.0	80.0		24XH300F	167.0	1	141.0	107.0	
26XH200F	171.2	1	90.0	80.0		26XH300F	171.2	1	157.0	107.0	
28XH200F	195.3	1	169.0	80.0		28XH300F	195.3	1	169.0	107.0	
30XH200F	209.4	2	100.0	80.0		30XH300F	209.4	2	110.0	107.0	
32XH200F	223.6	2	110.0	80.0		32XH300F	223.6	2	110.0	107.0	
40XH200F	280.2	2	120.0	100.0		40XH300F	280.2	2	120.0	100.0	
48XH200	336.8	4	120.0	100.0		48XH300	336.8	4	120.0	100.0	
60XH200	421.7	4	130.0	100.0		60XH300	421.7	4	120.0	100.0	
72XH200	506.6	5	140.0	100.0		72XH300	506.6	5	140.0	120.0	
84XH200	591.5	5	150.0	100.0		84XH300	591.5	5	160.0	120.0	

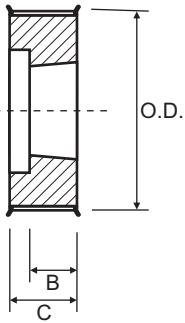
L Pitch 0.375" Timing Pulleys



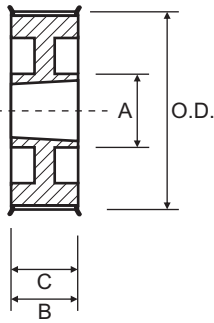
L050							L100						
Suit 12.7mm wide belt (1/2")							Suit 25.4mm wide belt (1")						
Part No.	O.D.	Type	Bush	A	B	C = 19.0	Part No.	O.D.	Type	Bush	A	B	C = 32.0
FG-18L050F	53.8	1	1108	47.0	22.0		FG-18L100F	53.8	4	1108	-	22.0	
FG-19L050F	56.8	1	1108	47.0	22.0		FG-19L100F	56.8	4	1108	-	22.0	
FG-20L050F	59.9	1	1108	48.0	22.0		FG-20L100F	59.9	4	1108	-	22.0	
FG-21L050F	62.9	1	1108	48.0	22.0		FG-21L100F	62.9	4	1108	-	22.0	
FG-22L050F	65.9	1	1108	51.0	22.0		FG-22L100F	65.9	4	1108	-	22.0	
FG-23L050F	69.0	1	1108	51.0	22.0		FG-23L100F	69.0	4	1108	-	22.0	
FG-24L050F	72.0	1	1108	58.0	22.0		FG-24L100F	72.0	4	1108	-	22.0	
FG-25L050F	75.0	1	1108	58.0	22.0		FG-25L100F	75.0	4	1108	-	22.0	
FG-26L050F	78.1	1	1108	58.0	22.0		FG-26L100F	78.1	4	1108	-	22.0	
FG-27L050F	81.1	1	1108	58.0	22.0		FG-27L100F	81.1	4	1108	-	22.0	
FG-28L050F	84.1	1	1108	58.0	22.0		FG-28L100F	84.1	4	1108	-	22.0	
FG-30L050F	90.2	1	1108	58.0	22.0		FG-30L100F	90.2	4	1210	-	25.0	
FG-32L050F	96.3	1	1108	58.0	22.0		FG-32L100F	96.3	4	1210	-	25.0	
FG-36L050F	108.4	6	1108	58.0	22.0		FG-36L100F	108.4	4	1610	-	25.0	
FG-40L050F	120.5	1	1610	90.0	25.0		FG-40L100F	120.5	4	1610	-	25.0	
FG-44L050F	132.6	6	1610	90.0	25.0		FG-44L100F	132.6	8	1610	90.0	25.0	
FG-48L050F	144.8	6	1610	90.0	25.0		FG-48L100F	144.8	8	1610	90.0	25.0	
FG-60L050	181.2	16	1610	90.0	25.0		FG-60L100	181.2	12	1610	90.0	25.0	
FG-72L050	217.5	13	1610	90.0	25.0		FG-72L100	217.5	10	2012	110.0	32.0	
FG-84L050	253.9	13	1610	90.0	25.0		FG-84L100	253.9	14	2012	110.0	32.0	
FG-96L050	290.3	13	2012	110.0	32.0		FG-96L100	290.3	14	2012	110.0	32.0	
FG120L050	363.1	13	2012	110.0	32.0		FG120L100	363.1	14	2012	110.0	32.0	

H Pitch 0.500" Timing Pulleys

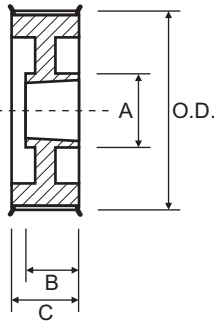
Type 4



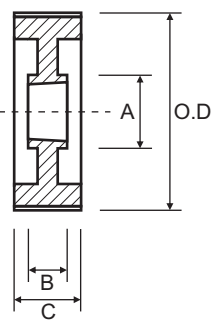
Type 7



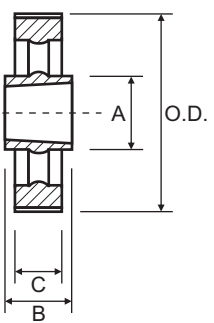
Type 8



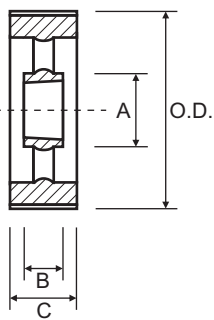
Type 12



Type 13

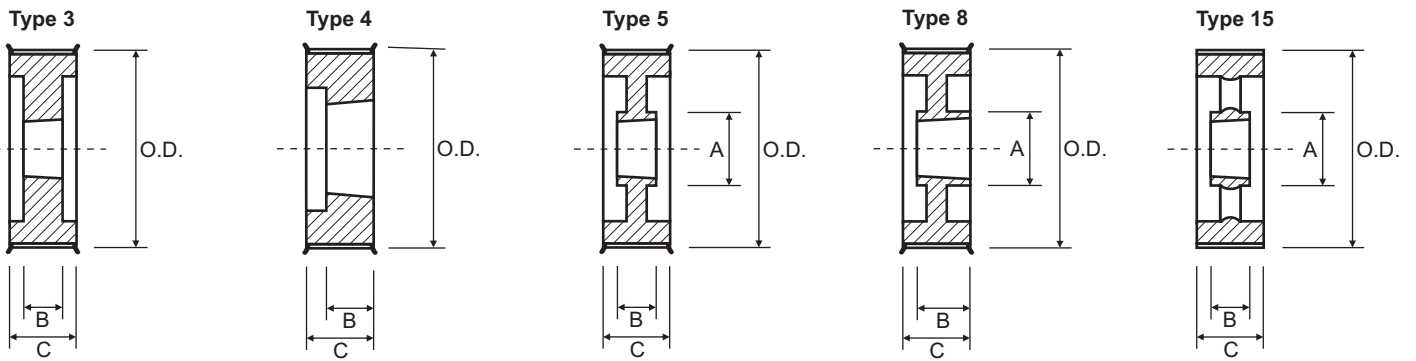


Type 15



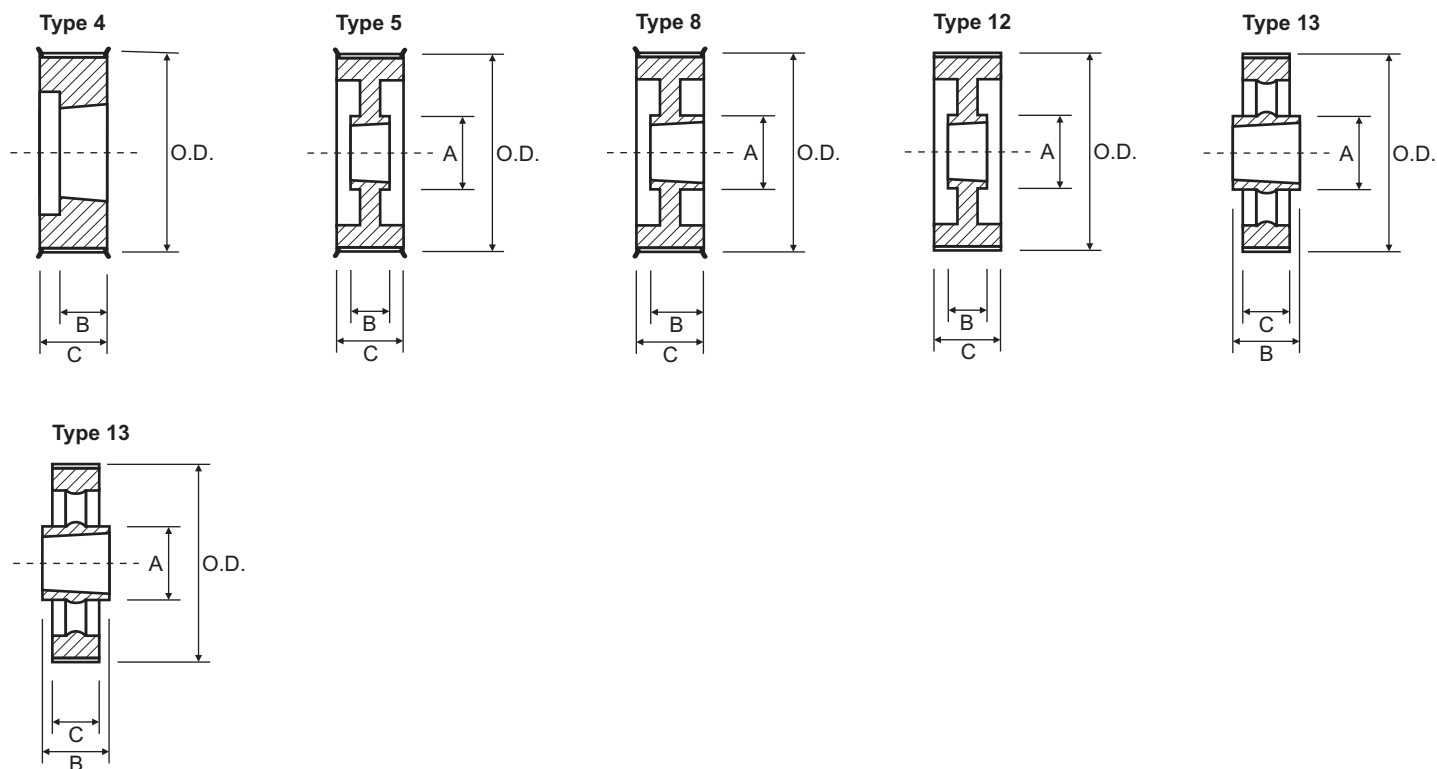
H100 Suit 25.4mm wide belt (1")							H150 Suit 38.1mm wide belt (1 1/2")						
Part No.	O.D.	Type	Bush	A	B	C = 31.0	Part No.	O.D.	Type	Bush	A	B	C = 45.0
FG-14H100F	55.2	4	1108	-	22.0	Cast Iron Flanged	FG-14H150F	55.2	4	1108	-	22.0	Cast Iron Flanged
FG-15H100F	59.3	4	1108	-	22.0		FG-15H150F	59.3	4	1108	-	22.0	
FG-16H100F	63.3	4	1108	-	22.0		FG-16H150F	63.3	4	1108	-	22.0	
FG-17H100F	67.4	4	1210	-	25.0		FG-17H150F	67.4	4	1210	-	25.0	
FG-18H100F	71.4	4	1210	-	25.0		FG-18H150F	71.4	4	1210	-	25.0	
FG-19H100F	75.4	4	1210	-	25.0		FG-19H150F	75.4	4	1210	-	25.0	
FG-20H100F	79.5	4	1210	-	25.0		FG-20H150F	79.5	4	1210	-	25.0	
FG-21H100F	83.5	4	1210	-	25.0		FG-21H150F	83.5	4	1210	-	25.0	
FG-22H100F	87.6	4	1210	-	25.0		FG-22H150F	87.6	4	1210	-	25.0	
FG-23H100F	91.6	4	1610	-	25.0		FG-23H150F	91.6	4	1610	-	25.0	
FG-24H100F	95.7	4	1610	-	25.0		FG-24H150F	95.7	4	1610	-	25.0	
FG-25H100F	99.7	4	1610	-	25.0		FG-25H150F	99.7	4	1610	-	25.0	
FG-26H100F	103.7	4	1610	-	25.0		FG-26H150F	103.7	4	1610	-	25.0	
FG-27H100F	107.8	4	1610	-	25.0		FG-27H150F	107.8	4	1610	-	25.0	
FG-28H100F	111.9	4	1610	-	25.0		FG-28H150F	111.9	4	1610	-	25.0	
FG-30H100F	120.0	4	1610	-	25.0		FG-30H150F	120.0	4	1610	-	25.0	
FG-32H100F	128.0	8	1610	82.0	25.0		FG-32H150F	128.0	8	1610	82.0	25.0	
FG-36H100F	144.2	8	1610	82.0	25.0		FG-36H150F	144.2	8	1610	82.0	25.0	
FG-40H100F	160.3	8	1610	82.0	25.0		FG-40H150F	160.3	8	1610	82.0	25.0	
FG-44H100F	176.5	7	2012	110.0	32.0		FG-44H150F	176.5	8	2012	110.0	32.0	
FG-48H100F	192.7	7	2012	110.0	32.0		FG-48H150F	192.7	8	2012	110.0	32.0	
FG-60H100	241.2	12	2012	110.0	32.0		FG-60H150	241.2	15	2012	110.0	32.0	
FG-72H100	289.7	15	2012	110.0	32.0		FG-72H150	289.7	15	2012	110.0	32.0	
FG-84H100	338.2	15	2012	110.0	32.0		FG-84H150	338.2	15	2012	110.0	32.0	
FG-96H100	386.7	13	2517	120.0	45.0		FG-96H150	386.7	15	2517	120.0	45.0	
FG-120H100	483.7	13	2517	120.0	45.0		FG-120H150	483.7	15	2517	120.0	45.0	

H Pitch 0.500" Timing Pulleys



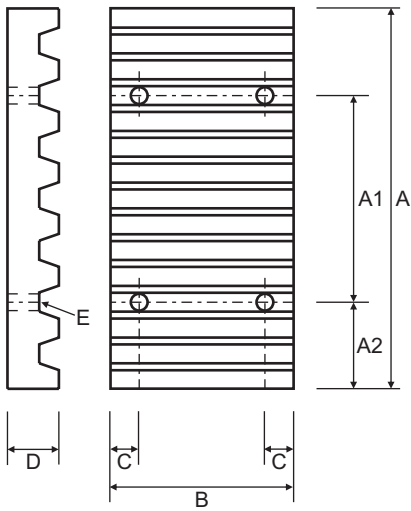
H200							H300						
Suit 50.8mm wide belt (2")							Suit 76.2mm wide belt (3")						
Part No.	O.D	Type	Bush	A	B	C = 58.0	Part No.	O.D	Type	Bush	A	B	C = 84.0
FG-16H200F	63.3	4	1108	-	22.0	Cast Iron	FG-20H300F	79.5	3	1615	-	38.0	Cast Iron
FG-18H200F	71.4	4	1210	-	25.0		FG-22H300F	87.6	3	1615	-	38.0	
FG-20H200F	79.5	4	1610	-	25.0		FG-24H300F	95.7	3	1615	-	38.0	
FG-22H200F	87.6	4	1610	-	25.0		FG-26H300F	103.7	3	1615	-	38.0	
FG-24H200F	95.7	4	1610	-	25.0		FG-28H300F	111.9	3	2012	-	32.0	
FG-26H200F	103.7	4	1610	-	25.0		FG-30H300F	119.9	3	2012	-	32.0	
FG-28H200F	111.9	4	1610	-	25.0		FG-32H300F	128.0	3	2517	-	45.0	
FG-30H200F	119.9	4	1610	-	25.0		FG-36H300F	144.2	3	2517	-	45.0	
FG-32H200F	128.0	4	2012	-	32.0		FG-40H300F	160.3	5	2517	120.0	45.0	
FG-36H200F	144.2	8	2012	102.0	32.0		FG-44H300F	176.5	5	2517	120.0	45.0	
FG-40H200F	160.3	8	2012	110.0	32.0		FG-48H300F	192.7	5	2517	120.0	45.0	
FG-44H200F	176.5	8	2012	110.0	32.0		FG-60H300	241.2	15	2517	120.0	45.0	
FG-48H200F	192.7	8	2517	120.0	45.0		FG-72H300	289.7	15	2517	120.0	45.0	
FG-60H200	241.2	15	2517	120.0	45.0		FG-84H300	338.2	15	2517	120.0	45.0	
FG-72H200	289.7	15	2517	120.0	45.0		FG-96H300	386.7	15	3030	146.0	76.0	
FG-84H200	338.2	15	2517	120.0	45.0		FG-120H300	483.7	15	3030	146.0	76.0	
FG-96H200	386.7	15	2517	120.0	45.0								
FG-120H200	483.7	15	2517	120.0	45.0								

XH Pitch 0.875" Timing Pulleys



XH200							XH300						
Suit 50.8mm wide belt (2")							Suit 76.2mm wide belt (3")						
Part No.	O.D	Type	Bush	A	B	C = 64.0	Part No.	O.D	Type	Bush	A	B	C = 90.0
FG-18XH200F	124.6	4	2517	-	45.0	Cast Iron	FG-18XH300F	124.6	4	2517	-	45.0	Cast Iron
FG-20XH200F	138.7	4	2517	-	45.0		FG-20XH300F	138.7	4	2517	-	45.0	
FG-22XH200F	152.9	4	2517	-	45.0		FG-22XH300F	152.9	4	2517	-	45.0	
FG-24XH200F	167.0	4	2517	-	45.0		FG-24XH300F	167.0	4	2517	-	45.0	
FG-26XH200F	181.2	4	2517	-	45.0		FG-26XH300F	181.2	4	2517	-	45.0	
FG-28XH200F	195.3	5	2517	120.0	45.0		FG-28XH300F	195.3	8	3020	146.0	51.0	
FG-30XH200F	209.4	5	2517	120.0	45.0		FG-30XH300F	209.4	8	3020	146.0	51.0	
FG-32XH200F	223.6	5	2517	120.0	45.0		FG-32XH300F	223.6	8	3020	146.0	51.0	
FG-40XH200F	280.2	5	3020	146.0	51.0		FG-40XH300F	280.2	5	3020	146.0	51.0	
FG-48XH200	336.8	15	3020	146.0	51.0		FG-48XH300	336.8	12	3020	146.0	51.0	
FG-60XH200	421.7	13	3535	178.0	89.0	No Flanges	FG-60XH300	421.7	12	3535	178.0	89.0	No Flanges
FG-72XH200	506.6	13	3535	178.0	89.0		FG-72XH300	506.6	15	3535	178.0	89.0	
FG-84XH200	591.5	13	3535	178.0	89.0		FG-84XH300	591.5	13	4040	215.0	102.0	

Timing Belt Clamping Plates



Ideal for applications where the belt must be firmly held in one spot. Perfect for use with long length belting. Naismith Engineering keep a large range of Clamp Plates on the shelf.

Classical	Part No	A	A1	A2	B	C	D	E
XL	PIA-XL025	42.5	25.4	8.6	25.4	6.0	8.0	5.5
	PIA-XL037	42.5	25.4	8.6	28.5	6.0	8.0	5.5
L	PIA-L050	76.6	47.6	14.5	39.1	8.0	15.0	9.0
	PIA-L075	76.6	47.6	14.5	45.0	8.0	15.0	9.0
	PIA-L100	76.6	47.6	14.5	51.5	8.0	15.0	9.0
H	PIA-H050	106.9	63.5	21.7	45.0	10.0	22.0	11.0
	PIA-H075	106.9	63.5	21.7	51.0	10.0	22.0	11.0
	PIA-H100	106.9	63.5	21.7	57.4	10.0	22.0	11.0

HTD	Part No	A	A1	A2	B	C	D	E
5M	PIA-5M09	41.8	25.0	8.4	28.0	6.0	8.0	5.5
	PIA-5M15	41.8	25.0	8.4	34.0	6.0	8.0	5.5
	PIA-5M25	41.8	25.0	8.4	44.0	6.0	8.0	5.5
8M	PIA-8M20	66.0	40.0	13.0	45.0	8.0	15.0	9.0
	PIA-8M30	66.0	40.0	13.0	55.0	8.0	15.0	9.0
	PIA-8M50	66.0	40.0	13.0	75.0	8.0	15.0	9.0
	PIA-8M85	66.0	40.0	13.0	110.0	8.0	15.0	9.0
14M	PIA-14M40	116.0	70.0	23.0	71.0	10.0	22.0	11.0
	PIA-14M55	116.0	70.0	23.0	86.0	10.0	22.0	11.0
	PIA-14M85	116.0	70.0	23.0	116.0	10.0	22.0	11.0
	PIA-14M115	116.0	70.0	23.0	146.0	10.0	22.0	11.0
	PIA-14M170	116.0	70.0	23.0	201.0	10.0	22.0	11.0

Metric	Part No	A	A1	A2	B	C	D	E
T5	PIA-T5/10	41.8	25.0	8.4	29.0	6.0	8.0	5.5
	PIA-T5/16	41.8	25.0	8.4	35.0	6.0	8.0	5.5
	PIA-T5/25	41.8	25.0	8.4	44.0	6.0	8.0	5.5
T10	PIA-T10/16	80.0	50.0	15.0	41.0	8.0	15.0	9.0
	PIA-T10/25	80.0	50.0	15.0	50.0	8.0	15.0	9.0
	PIA-T10/32	80.0	50.0	15.0	57.0	8.0	15.0	9.0
	PIA-T10/50	80.0	50.0	15.0	75.0	8.0	15.0	9.0
AT5	PIA-AT5/10	41.8	25.0	8.4	29.0	6.0	8.0	5.5
	PIA-AT5/16	41.8	25.0	8.4	35.0	6.0	8.0	5.5
	PIA-AT5/25	41.8	25.0	8.4	44.0	6.0	8.0	5.5
AT10	PIA-AT10/16	80.0	50.0	15.0	41.0	8.0	15.0	9.0
	PIA-AT10/25	80.0	50.0	15.0	50.0	8.0	15.0	9.0
	PIA-AT10/32	80.0	50.0	15.0	57.0	8.0	15.0	9.0
	PIA-AT10/50	80.0	50.0	15.0	75.0	8.0	15.0	9.0

Taper Bushes



Taper bushes are designed to give the following:-

1. Easy assembly.
2. Rapid dismantling of the pulley and other transmission equipment.
3. No special tool requirement except hexagonal allen key.

A large range of bores are available off the shelf which ensures that an immediate assembly can be made, thus avoiding costly factory down-time.

The bushes are machined with standard keyways. This, in addition to clamping screws is sufficient to meet the required torque.

Part No.		Stock Bore Sizes	OD	L
1008	mm	12, 14, 15, 16, 18, 19, 20, 22, 24, 25	35.0	22.2
	inch	1/2", 5/8", 3/4", 7/8", 1"		
1108	mm	12, 14, 15, 16, 18, 19, 20, 22, 24, 25, 28	38.0	22.2
	inch	1/2", 5/8", 3/4", 7/8", 1", 1 1/8"		
1210	mm	12, 14, 15, 16, 18, 19, 20, 22, 24, 25, 26, 28, 30, 32	47.5	25.4
	inch	1/2", 5/8", 3/4", 7/8", 1", 1 1/8", 1 1/4"		
1215	mm	12, 14, 16, 18, 19, 20, 22, 24, 25, 28, 30, 32	47.5	38.1
	inch	1/2", 5/8", 3/4", 7/8", 1", 1 1/8", 1 1/4"		
1610	mm	12, 14, 16, 18, 19, 20, 22, 24, 25, 28, 30, 32, 35, 38, 40, 42	57.0	25.4
	inch	1/2", 5/8", 3/4", 7/8", 1", 1 1/8", 1 1/4", 1 3/8", 1 1/2", 1 5/8"		
1615	mm	12, 14, 16, 18, 19, 20, 22, 24, 25, 28, 30, 32, 35, 38, 40, 42	57.0	38.1
	inch	1/2", 5/8", 3/4", 7/8", 1", 1 1/8", 1 1/4", 1 3/8", 1 1/2", 1 5/8"		
2012	mm	16,19,20,22,24,25,28,30,32,35,38,40,42,45,48,50	70.0	31.8
	inch	3/4", 7/8", 1", 1 1/8", 1 1/4", 1 3/8", 1 1/2", 1 5/8", 1 3/4", 1 7/8", 2"		
2017	mm	19, 20, 22, 24, 25, 28, 30, 32, 35, 38, 40, 42, 45, 48, 50	70.0	44.4
	inch	3/4", 7/8", 1", 1 1/8", 1 3/8"		
2517	mm	19, 20, 22, 24, 25, 28, 30, 32, 35, 38, 40, 42, 45, 48, 50, 55, 60	85.5	44.5
	inch	3/4", 7/8", 1", 1 1/8", 1 1/4", 1 3/8", 1 1/2", 1 5/8", 1 3/4", 1 7/8", 2", 2 1/8",		
	inch	2 1/4", 2 3/8", 2 1/2"		
2525	mm	19, 20, 22, 24, 25, 28, 30, 32, 35, 38, 40, 42, 45, 48, 50, 55, 60	85.6	63.5
	inch	3/4", 7/8", 1", 1 1/8"		
3020	mm	24, 25, 28, 30, 32, 35, 38, 40, 42, 45, 48, 50, 55, 60, 65, 70, 75	108.0	50.8
	inch	1", 1 1/8", 1 1/4", 1 3/8", 1 1/2", 1 5/8", 1 3/4", 1 7/8", 2", 2 1/8", 2 1/4", 2 3/8", 2 1/2", 2 5/8", 2 3/4", 2 7/8", 3"		
3030	mm	32, 35, 38, 40, 42, 45, 48, 50, 55, 60, 65, 70, 75	108.0	76.2
	inch	1 1/4", 1 3/8", 1 1/2", 1 5/8", 1 3/4", 1 7/8", 2", 2 1/8", 2 1/4", 2 3/8", 2 1/2",		
	inch	2 5/8", 2 3/4", 2 2/8", 3"		
3525	mm	35, 38, 40, 42, 45, 48, 50, 55, 60, 65, 70, 75, 80, 85, 90	108.0	63.5
3535	mm	35, 38, 40, 42, 45, 48, 50, 55, 60, 65, 70, 75, 80, 85, 90	127.0	88.9
	inch	1 1/2", 1 5/8", 1 3/4", 1 7/8", 2", 2 1/8", 2 1/4", 2 3/8", 2 1/2", 2 5/8", 2 3/4",		
	inch	2 7/8", 3", 3 1/8, 3 1/4", 3 3/8", 3 1/2"		
4030	mm	40, 42, 45, 48, 50, 55, 60, 65, 70, 75, 80, 85, 90, 95, 100	146.0	76.2
4040	mm	40, 42, 45, 50, 55, 60, 65, 70, 75, 80, 85, 90, 95, 100	146.0	101.6
	inch	1 3/8", 1 3/4, 1 7/8", 2", 2 1/8", 2 1/4", 2 1/2", 2 5/8", 2 3/4",		
	inch	3", 3 1/4", 3 1/2", 3 3/4", 4"		
4535	mm	60, 65, 70, 75, 80, 85, 90, 95, 100, 105, 110	162.0	88.9
4545	mm	60, 65, 70, 75, 80, 85, 90, 95, 100, 105, 110	162.0	114.3
	inch	3", 3 1/8", 3 1/4", 3 3/8", 3 1/2", 3 3/4", 4 1/2"		
5040	mm	70, 95, 100, 110, 115, 120, 125	177.5	101.6
5050	mm	70, 95, 100, 110, 115, 120, 125	177.5	127.0

The first 2 digits of the part number are the maximum bore size in inches.

The second 2 digits of the part number are the length through bore in inches.

Useful Information

PULLEY DIAMETER - SPEED

When choosing a pulley that is made of cast iron, care must be taken not to exceed pulley rim speed of 40 m/s. Centrifugal forces developed beyond this speed may prohibit the use of stock cast iron pulleys. For rim speeds exceeding 40 m/s, contact Naismith Engineering sales representative for recommendations. The formula below will help you work out what the rim speed of your pulley will be.

$$\text{Metres/Sec} = \frac{(\text{O.D.} \times .001) \times 3.142 \times \text{RPM}}{60}$$

O.D. Is in millimetres

USE OF FLANGED PULLEYS

Flanges are needed in order to keep the belt on the pulley. Due to tracking characteristics, even on the best aligned drives belts will ride off the edge of the pulleys. Flanges will prevent this belt ride off

On all drives using stock or made-to-order pulleys, the following conditions should be considered when selecting flanged pulleys;

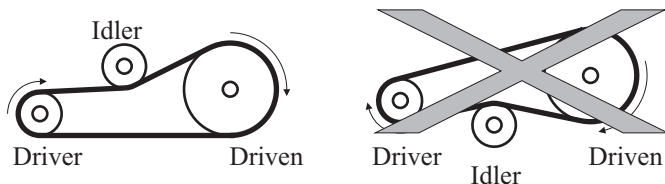
1. On all two-pulley drives, the minimum flanging requirements are two flanges on one pulley or one flange on each pulley on opposite sides.
2. On drives where the center distance is more than eight times the diameter of the small pulley, both pulleys should be flanged on both sides.
3. On drives with more than two pulleys, the minimum flanging requirements are two flanges on every other pulley or one flange on every pulley, alternating sides around the system. On made to order pulleys, flanges must be securely fastened by using mechanical fasteners, welding, shrink fit or other equivalent methods.

IDLERS

Use of idlers should be restricted to those cases in which they are functionally necessary. Idlers usually are used to apply tension when centres are not adjustable

Idlers should be located on the slack side of the belt drive. For inside idlers, grooved pulleys are recommended up to 40 grooves. On larger diameters, flat, uncrowned idlers may be used. Inside idler diameters should not be smaller than the smallest loaded pulley in the system.

Outside or backside idlers should be flat and uncrowned. Flanges are not recommended. Diameters should generally not be smaller than the smallest loaded pulley in the system. Slack side spring loaded idlers can be used, as long as care is taken to avoid resonant vibration conditions and load reversals.



Information on this page has been sourced from the following Gates catalogues
 Powergrip HTD Design Manual - E2/20068/8.92
 Gates Design Manual E2/20099

CENTRE DISTANCE AND BELT LENGTH

If you do not already know a tentative centre distance, a good estimate to use is equal to the diameter of the large pulley, or $\frac{1}{2}(D + 3d)$, whichever is the larger. You can then find a tentative belt length using the following formula.

$$\text{Tentative Belt Length} = 1.57(D + d) + (\text{TCD} \times 2)$$

D = Pitch diameter, Large pulley

d = Pitch diameter, Small pulley

TCD = Tentative Center Distance

TEETH IN MESH

Power ratings are based on a minimum of six teeth in mesh between the belt and the pulley. In cases where fewer than six teeth are in full contact, 20% of the power rating must be subtracted for each tooth less than six. To calculate how many teeth your drive has in mesh use the formula below.

$$\text{Teeth in mesh} = \left[0.5 - \left(\frac{D - d}{6C} \right) \right] T$$

D = Pitch diameter, Large pulley

d = Pitch diameter, Small pulley

C = Center distance between shafts

T = Number of teeth in small pulley

OPERATING ENVIRONMENT

Temperature

Gates PowerGrip (XL, L, H & XH) and HTD (3M, 5M, 8M & 14M) belt performance is generally unaffected in ambient temperature environments between -25°C and 100°C. Gates Poly Chain GT has a temperature range of -54°C to 85°C. Polyurethane T and AT belts work best between -30°C and 80°C. In cases where belts are constantly running at or above these temperature extremes contact Naismith Engineering.

Aircraft & Motor Vehicle drives

Gates belts should not be used on aircraft, motor vehicle or hazardous applications where belt failure may cause injury.

BELT STORAGE AND HANDLING

For storage, the belt should be protected from moisture, oil, temperature extremes, direct sunlight and high ozone environments. The belt should be stored in its original package where applicable, avoiding any sharp bends or crimping, which will damage the belt.