Minimum Recommended Idler Diameters
C.O. Engineering – Bearings and PT Components
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Idlers are commonly used to allow for tensioning of fixed center distance drives to move the belt around an obstruction, turn a corner, increase the arc of contact on a particular sheave or sprocket, or to reduce belt 'whip' in long spans. The use of idlers imparts additional bending stresses on belts and can greatly reduce the belt life if not sized properly. Cracking on either the top or underside of the belt can indicate an undersized idler. If belt cracking occurs, the drive should be redesigned with larger idler diameters and all belts should be replaced. Minimum idler size is based on the type/size of belt and the location of the idler, front side or back side. Table 1 shows the minimum recommended idler diameters for synchronous sprockets. Table 2 shows the minimum recommended idler diameters for sheaves. For recommendations on idler placement, see WP0113.

	Belt Section	No. of Teeth	Inside Idler		Flat Backside Idler	
			(mm)	(in)	(mm)	(in)
HT500	5MX	18	28.65	1.13	40	1.57
	8MX	22	56.02	2.21	80	3.15
	14MX	28	124.78	4.91	170	6.69
HT250	5M	18	22.28	0.88	45	1.77
	8M	22	56.02	2.21	80	3.15
	14M	28	124.78	4.91	170	6.69
HTD	5M	14	22.28	0.88	33	1.30
	8M	22	56.02	2.21	80	3.15
	14M	28	124.78	4.91	170	6.69
	20M	34	216.45	8.52	286	11.26
Dyna-Sync	XL	12	19.4	0.76	27	1.06
	L	12	36.38	1.43	52	2.05
	H	14	56.6	2.23	80	3.15
	XH	18	127.34	5.01	170	6.69
	XXH	18	163.72	6.45	247	9.72

Table 1. Minimum recommended idler sprocket diameters

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	Belt Section	Inside Idler		Flat Backside Idler	
		(mm)	(in)	(mm)	(in)
Classic	A	85	4.33	110	3.35
	B	112	6.30	160	4.41
	C	160	8.66	220	6.30
	D	300	13.78	350	11.81
	E	500	23.62	600	19.69
Classic Cog	AX	60	4.33	110	2.36
	BX	80	6.30	160	3.15
	CX	150	8.66	220	5.91
Double-V (Hex)	AA	85	-	-	3.35
	BB	112	-	-	4.41
	CC	229	-	-	9.02
Narrow	3V	71	4.72	120	2.80
	5V	160	9.84	250	6.30
	8V	315	17.72	450	12.40
Metric	SPZ	71	4.72	120	2.80
	SPA	100	6.30	160	3.94
	SPB	160	9.84	250	6.30
	SPC	250	13.78	350	9.84
Kevlar Chord	A Section	85	4.33	110	3.35
	B Section	112	6.30	160	4.41
	C Section	160	8.66	220	6.30
	3V Section	71	4.72	120	2.80
	5V Section	160	9.84	250	6.30
	8V Section	315	17.72	450	12.40

Table 2. Minimum recommended idler sheave diameters

For questions regarding Dodge mechanical drives, please visit new.abb.com/mechanical-power-transmission or contact ABB Mechanical Power Transmission engineering by phone at 864-284-5700 or by email at brgpttechsupport@us.abb.com.

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