



PENN BARRY

Motor Positions & Belt Centers For VCR Arrangement 1, 2, 3SW & 3DW

The diagram below and the tables which follow are developed to assist in designating motor position and determining belt centers. This information is provided specifically for fan Arrangements 1, 2, 3 (SW) and 3 (DW). The belt center distances relate only to PennBarry fans with airfoil and backward inclined wheels. For special applications or more complete information, contact the factory directly.

Motor Position

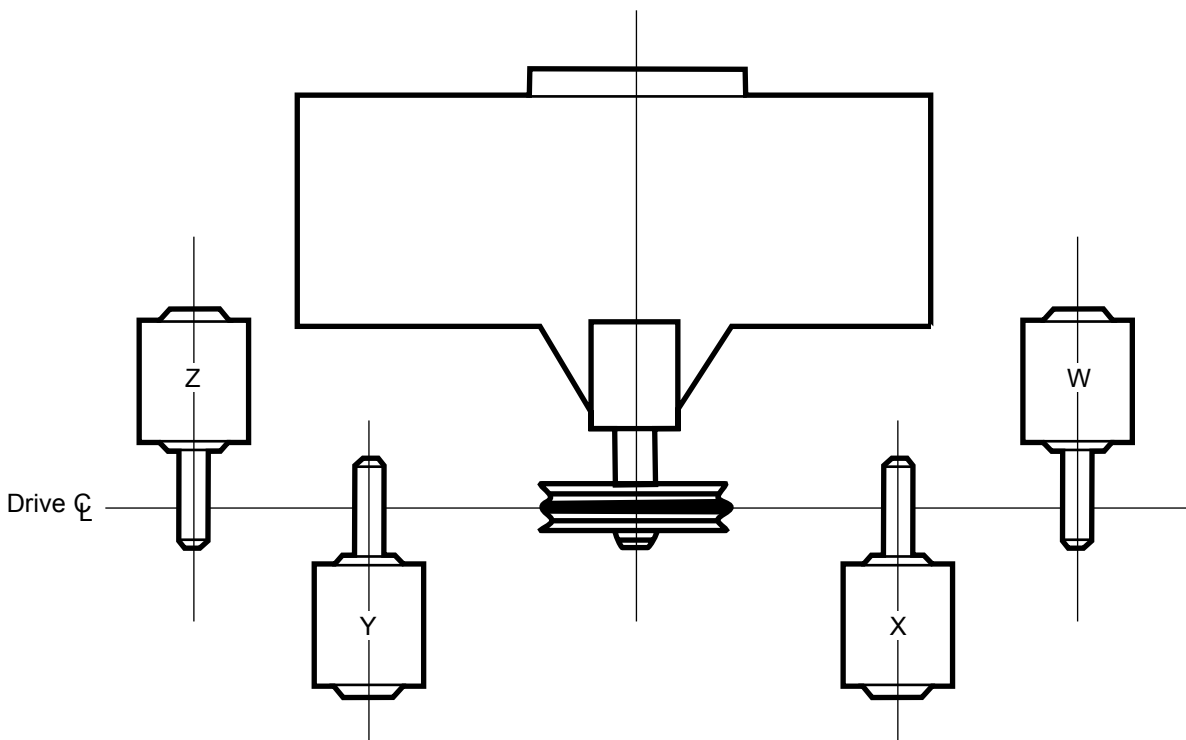
The diagram below indicates the four basic motor positions (W, X, Y, Z) for fans using belt drives and "T" frame motors. The location of the motor is determined by facing the drive side of the fan. In most cases the motor position is independent of fan rotation or discharge. However, motor size and weight must often be considered when determining motor mounting. For pedestal-mounted motors special support or extensions may be necessary.

Belt Centers

The belt center information provided herein is determined by fan size, motor frame size ("T" frame motors only), fan discharge and motor position. These recommended centers are not the actual centers for the drive, but an indication of what the minimum center distance should be. The actual belt center is always determined by the drive selected for specific performance characteristics. This belt center information is provided for convenience only and PennBarry assumes no responsibility for belt centers which are too long or too short for a specific purpose.

The following tables provide minimum recommended belt centers for the discharge positions indicated: top horizontal (THD), downblast (DBD), bottom horizontal (BHD), upblast (UBD). For conditions requiring an angular discharge, the minimum recommended belt center would be the average between the two adjacent discharge positions. There are examples on the following pages.

Figure 1: Plan View Of A Centrifugal Fan



Example 1

For a size 300 fan with a top angular up discharge (TAUD), the discharge position can be noted as halfway between top horizontal and upblast. Using a size 300 fan with a 254T frame motor in position "W," the THD distance indicates 41" and the UBD distance indicates 42". The average between the two would be 41 1/2".

Example 2

For a size 600 bottom angular up discharge (BAUD) fan with a 365T frame motor in position "W," the BAUD position is halfway between the BHD and UBD positions. In this case, the 83" for a BHD and the 78" for a UBD average to 80 1/2".

Note: Chart is based on CW rotation. For CCW rotation, reverse "W" and "Z." "Z" on CW fans is the same as "W" on CCW fans; "W" on CW fans is the same as "Z" on CCW fans.

Size	Motor Frame	THD				DBD				BHD				UBD			
		W	X	Y	Z	W	X	Y	Z	W	X	Y	Z	W	X	Y	Z
122	48-56	17	12	12	17	21	12	12	17	20	15	15	-	18	13	13	18
	143T-145T	21	12	12	21	23	12	12	20	23	15	15	-	21	13	13	21
	182T-184T	-	11	11	22	24	11	11	21	23	13	13	-	22	12	12	22
	213T-215T	-	10	10	24	27	11	11	24	25	13	13	-	25	12	12	25
135	48-56	19	13	13	19	22	13	13	19	21	16	16	-	20	13	13	20
	143T-145T	22	13	13	22	25	13	13	22	24	16	16	-	23	13	13	23
	182T-184T	24	12	12	24	27	12	12	24	25	15	15	-	25	12	12	25
	213T-215T	26	12	12	26	29	12	12	26	27	14	14	-	26	12	12	26
150	48-56	20	14	14	20	25	15	14	20	23	18	18	-	21	15	15	21
	143T-145T	23	14	14	23	27	14	14	23	26	18	18	-	25	15	15	25
	182T-184T	24	13	13	24	29	13	13	25	27	17	17	-	27	14	14	27
	213T-215T	-	13	13	28	31	12	12	27	29	16	16	-	30	14	14	30
165	48-56	22	16	16	22	26	15	15	22	25	19	19	-	22	16	16	22
	143T-145T	25	15	15	25	29	15	15	25	27	19	19	-	26	16	16	26
	182T-184T	26	14	14	26	30	14	14	26	28	18	18	-	28	15	15	28
	213T-215T	29	14	14	29	32	14	14	28	30	17	17	-	31	14	14	31
182	48-56	23	17	17	23	28	16	16	23	27	22	22	-	24	18	18	24
	143T-145T	27	17	17	27	31	16	16	26	29	21	21	-	27	18	18	27
	182T-184T	28	16	16	28	32	15	15	27	30	20	20	-	29	17	17	29
	213T-215T	30	15	15	30	34	14	14	29	32	20	20	-	32	16	16	32
200	48-56	24	18	18	24	31	18	18	24	28	24	24	-	25	19	19	25
	143T-145T	27	17	17	27	33	17	17	27	31	23	23	-	28	19	19	28
	182T-184T	30	16	16	30	35	16	16	28	32	22	22	-	29	18	18	29
	213T-215T	31	16	16	31	36	16	16	30	33	22	22	-	32	17	17	32
222	48-56	27	21	21	27	35	21	21	27	31	27	27	-	28	23	23	28
	143T-145T	30	20	20	30	37	20	20	30	34	26	26	-	31	22	22	31
	182T-184T	31	19	19	31	38	19	19	31	35	25	25	-	32	21	21	32
	213T-215T	33	19	19	33	40	19	19	33	36	24	24	-	34	20	20	34
245	48-56	28	23	23	28	37	23	23	29	34	30	30	-	30	25	25	30
	143T-145T	31	22	22	31	40	22	22	31	37	29	29	-	33	24	24	33
	182T-184T	33	21	21	33	42	21	21	33	38	28	28	-	34	23	23	34
	213T-215T	34	21	21	34	43	20	20	34	39	27	27	-	36	23	23	36
245	254T-256T	35	20	20	35	44	20	20	36	40	26	26	-	37	22	22	37
	284T-286T	37	20	20	37	45	19	19	37	41	25	25	-	39	21	21	39
	324T-326T	40	19	19	40	47	19	19	39	43	24	24	-	43	20	20	43

Size	Motor Frame	THD				DBD				BHD				UBD			
		W	X	Y	Z	W	X	Y	Z	W	X	Y	Z	W	X	Y	Z
270	48-56	31	26	26	31	39	25	25	31	37	33	33	-	34	27	27	34
	143T-145T	34	25	25	34	43	24	24	33	39	32	32	-	35	27	27	35
	182T-184T	35	24	24	35	44	23	23	34	40	30	30	-	36	26	26	36
	213T-215T	36	23	23	36	46	23	23	36	41	29	29	-	38	25	25	38
	254T-256T	37	22	22	37	47	22	22	37	42	29	29	-	39	24	24	39
	284T-286T	39	22	22	39	49	22	22	39	43	28	28	-	41	24	24	41
	324T-326T	41	21	21	41	51	21	21	41	45	27	27	-	44	23	23	44
300	143T-145T	37	28	28	37	47	28	28	38	43	36	36	-	39	30	30	39
	182T-184T	38	27	27	38	48	27	27	39	45	35	35	-	40	29	29	40
	213T-215T	40	27	27	40	49	26	26	40	45	34	34	-	41	29	29	41
	254T-256T	41	26	26	41	50	26	26	41	46	33	33	-	42	28	28	42
	284T-286T	42	25	25	42	52	25	25	43	47	32	32	-	43	27	27	43
	324T-326T	44	24	24	44	54	24	24	45	48	31	31	-	46	26	26	46
	364T-365T	47	24	24	47	57	24	24	47	51	30	30	-	50	26	26	50
330	143T-145T	39	31	31	39	50	31	31	39	44	36	36	-	41	34	34	41
	182T-184T	41	31	31	41	51	31	31	40	44	35	35	-	42	33	33	42
	213T-215T	42	30	30	42	52	30	30	42	45	34	34	-	44	32	32	44
	254T-256T	43	29	29	43	54	29	29	43	46	33	33	-	45	31	31	45
	284T-286T	44	28	28	44	55	28	28	44	47	33	33	-	48	30	30	48
	324T-326T	48	28	28	48	57	27	27	46	47	32	32	-	51	30	30	51
	364T-365T	52	27	27	52	60	26	26	49	51	31	31	-	55	29	29	55
365	143T-145T	42	34	34	42	55	34	34	42	50	43	43	-	45	37	37	45
	182T-184T	43	33	33	43	56	33	33	43	50	42	42	-	45	36	36	45
	213T-215T	45	33	33	45	57	32	32	44	51	41	41	-	47	35	35	47
	254T-256T	46	32	32	46	58	31	31	45	52	40	40	-	48	35	35	48
	284T-286T	48	31	31	48	60	31	31	47	53	40	40	-	51	34	34	51
	324T-326T	50	30	30	50	62	30	30	48	54	38	38	-	54	33	33	54
	364T-365T	55	29	29	55	65	29	29	51	56	38	38	-	58	32	32	58
404T-405T	57	29	29	57	67	28	28	53	58	37	37	-	61	31	31	61	
402	143T-145T	48	39	39	48	56	38	38	46	55	48	48	-	49	41	41	49
	182T-184T	48	38	38	48	57	37	37	47	56	47	47	-	50	41	41	50
	213T-215T	49	37	37	49	59	36	36	48	56	47	47	-	51	40	40	51
	254T-256T	49	36	36	49	59	35	35	49	57	46	46	-	52	39	39	52
	284T-286T	51	36	36	51	61	35	35	50	58	45	45	-	53	38	38	53
	324T-326T	52	35	35	52	63	34	34	52	59	44	44	-	56	37	37	56
	364T-365T	55	34	34	55	66	33	33	55	61	43	43	-	60	37	37	60
404T-405T	60	33	33	60	68	32	32	61	67	42	42	-	69	36	36	69	
445	143T-145T	50	42	42	50	64	40	40	49	60	53	53	-	53	45	45	53
	182T-184T	51	41	41	51	65	40	40	50	61	53	53	-	54	45	45	54
	213T-215T	52	40	40	52	67	39	39	51	62	52	52	-	55	44	44	55
	254T-256T	53	39	39	53	68	38	38	51	62	51	51	-	55	43	43	55
	284T-286T	54	39	39	54	69	37	37	53	63	50	50	-	57	42	42	57
	324T-326T	56	38	38	56	71	37	37	54	63	49	49	-	60	41	41	60
	364T-365T	60	37	37	60	73	36	36	57	65	48	48	-	64	40	40	64
	404T-405T	63	36	36	63	76	35	35	59	67	47	47	-	68	39	39	68
444T-445T	66	35	35	66	79	34	34	62	69	46	46	-	71	38	38	71	
490	182T-184T	54	45	45	54	72	43	43	53	65	57	57	-	58	49	49	58
	213T-215T	56	44	44	56	73	43	43	54	66	56	56	-	59	49	49	59
	254T-256T	57	43	43	57	74	41	41	55	66	55	55	-	61	47	47	61
	284T-286T	58	43	43	58	77	41	41	57	67	54	54	-	64	47	47	64
	324T-326T	60	42	42	60	78	40	40	58	68	53	53	-	66	45	45	66
	364T-365T	62	41	41	62	79	39	39	60	69	52	52	-	70	44	44	70
	404T-405T	64	40	40	64	82	39	39	61	70	51	51	-	72	43	43	72
444T-445T	70	39	39	70	86	38	38	66	74	50	50	-	75	42	42	75	

Size	Motor Frame	THD				DBD				BHD				UBD			
		W	X	Y	Z	W	X	Y	Z	W	X	Y	Z	W	X	Y	Z
542	182T-184T	59	50	50	59	79	47	47	58	72	63	63	-	64	54	54	64
	213T-215T	60	49	49	60	81	46	46	59	73	62	62	-	65	53	53	65
	254T-256T	61	48	48	61	82	45	45	60	73	61	61	-	67	52	52	67
	284T-286T	62	48	48	62	84	45	45	61	74	60	60	-	68	52	52	68
	324T-326T	64	47	47	64	84	44	44	62	75	59	59	-	70	51	51	70
	364T-365T	67	46	46	67	86	43	43	65	77	58	58	-	74	50	50	74
	404T-405T	70	45	45	70	88	42	42	68	78	57	57	-	76	49	49	76
444T-445T	73	44	44	73	91	41	41	70	80	56	56	-	80	48	48	80	
600	182T-184T	66	56	56	66	86	52	52	63	79	70	70	-	69	60	60	69
	213T-215T	67	55	55	67	87	51	51	64	79	69	69	-	70	59	59	70
	254T-256T	67	54	54	67	88	51	51	65	79	68	68	-	71	58	58	71
	284T-286T	68	53	53	68	91	50	50	66	80	67	67	-	72	58	58	72
	324T-326T	71	52	52	71	93	49	49	68	81	66	66	-	74	57	57	74
	364T-365T	73	51	51	73	94	49	49	70	83	66	66	-	78	56	56	78
	404T-405T	75	50	50	75	97	48	48	72	84	65	65	-	80	55	55	80
444T-445T	78	50	50	78	99	47	47	75	86	64	64	-	84	54	54	84	
660	182T-184T	71	61	61	71	94	58	58	69	86	78	78	-	76	66	66	76
	213T-215T	72	60	60	72	95	58	58	70	86	77	77	-	77	65	65	77
	254T-256T	73	59	59	73	96	57	57	70	86	76	76	-	77	64	64	77
	284T-286T	74	59	59	74	98	56	56	71	87	75	75	-	77	64	64	77
	324T-326T	74	58	58	74	100	55	55	72	88	74	74	-	79	63	63	79
	364T-365T	79	57	57	79	101	55	55	75	90	73	73	-	83	62	62	83
	404T-405T	80	56	56	80	103	54	54	77	91	72	72	-	85	61	61	85
444T-445T	82	55	55	82	105	53	53	79	93	71	71	-	89	60	60	89	
730	182T-184T	77	67	67	77	105	67	67	77	95	86	86	-	82	73	73	82
	213T-215T	78	66	66	78	106	66	66	77	95	85	85	-	83	72	72	83
	254T-256T	78	65	65	78	107	66	66	78	95	84	84	-	83	71	71	83
	284T-286T	79	64	64	79	108	65	65	79	96	83	83	-	84	70	70	84
	324T-326T	80	63	63	80	110	64	64	80	97	82	82	-	85	69	69	85
	364T-365T	82	62	62	82	111	63	63	82	98	81	81	-	89	68	68	89
	404T-405T	84	61	61	84	113	62	62	84	99	80	80	-	91	67	67	91
444T-445T	86	61	61	86	115	61	61	86	100	79	79	-	94	66	66	94	
807	182T-184T	85	74	74	85	114	74	74	85	103	95	95	-	91	81	81	91
	213T-215T	85	73	73	85	116	73	73	85	104	94	94	-	92	80	80	92
	254T-256T	86	72	72	86	117	73	73	86	104	93	93	-	92	79	79	92
	284T-286T	87	71	71	87	118	72	72	87	105	93	93	-	93	79	79	93
	324T-326T	88	70	70	88	119	71	71	88	105	91	91	-	94	77	77	94
	364T-365T	90	69	69	90	121	70	70	90	107	90	90	-	96	77	77	96
	404T-405T	91	68	68	91	123	69	69	91	108	89	89	-	98	76	76	98
444T-445T	93	69	69	93	125	68	68	93	109	88	88	-	100	75	75	100	
890	182T-184T	90	83	83	90	125	84	84	94	115	106	106	-	100	90	90	100
	213T-215T	94	82	82	94	127	83	83	95	116	105	105	-	100	89	89	100
	254T-256T	94	81	81	94	127	82	82	95	116	104	104	-	100	88	88	100
	284T-286T	95	81	81	95	128	81	81	96	117	104	104	-	101	88	88	101
	324T-326T	96	80	80	96	130	80	80	97	117	103	103	-	103	86	86	103
	364T-365T	97	79	79	97	133	80	80	99	119	102	102	-	107	86	86	107
	404T-405T	98	78	78	98	135	79	79	100	120	100	100	-	108	85	85	108
444T-445T	100	78	78	100	138	78	78	103	122	99	99	-	110	84	84	110	