



		VERTICAL BENDS													
		$\Delta \rightarrow$	11.25°		22.50°		30°		45°		67.5°		90°		$\leftarrow \Delta$
I.D. (IN.)	I.D. (IN.)	THRUST TONS	VOLUME C.Y.	THRUST TONS	VOLUME C.Y.	THRUST TONS	VOLUME C.Y.	THRUST TONS	VOLUME C.Y.	THRUST TONS	VOLUME C.Y.	THRUST TONS	VOLUME C.Y.	I.D. (IN.)	
4,6,8	4,6,8	1.0	0.5	2.0	1.0	2.5	1.3	3.6	1.8	4.6	2.3	5.0	2.5	4,6,8	
10,12	10,12	2.2	1.1	4.3	2.2	5.7	2.8	8.0	4.0	10.5	5.2	11.3	5.7	10,12	
16,18	16,18	5.0	2.5	9.7	4.9	12.7	6.4	18.0	9.0	23.5	11.8	25.5	12.7	16,18	
20	20	6.1	3.1	12.0	6.0	15.7	7.9	22.3	11.1	29.2	14.5	31.4	15.7	20	
24	24	8.2	4.4	17.3	8.7	22.6	11.3	32.0	16.0	41.8	20.9	45.2	22.6	24	
30	30	10.5	5.2	20.3	10.1	26.5	13.3	37.5	18.8	49.0	24.5	53.1	26.5	30	
36	36	14.9	7.5	29.2	14.6	38.2	19.1	54.0	27.0	70.5	35.3	76.4	38.2	36	
42	42	20.3	10.1	39.8	19.9	52.0	23.0	73.5	36.7	96.0	48.0	104.0	52.0	42	
48	48	26.5	13.2	51.9	26.0	67.9	33.9	96.0	48.0	126.0	62.7	136.0	67.9	48	
54	54	33.5	16.8	65.7	32.9	88.9	42.9	122.0	60.7	159.0	79.4	172.0	85.9	54	
60	60	41.4	20.7	81.2	40.6	106.0	53.0	150.0	75.0	196.0	98.0	212.0	106.0	60	
66	66	50.1	25.0	98.2	49.1	128.0	64.2	182.0	90.7	237.0	119.0	257.0	128.0	66	
72	72	59.6	29.8	117.0	58.4	153.0	76.3	215.0	108.0	282.0	141.0	305.0	153.0	72	
78	78	69.9	35.0	137.0	68.6	179.0	90.0	254.0	127.0	331.0	166.0	358.0	179.0	78	
84	84	81.1	40.5	159.0	79.5	208.0	104.0	294.0	147.0	384.0	192.0	416.0	208.0	84	
90	90	93.1	46.5	183.0	91.3	239.0	119.0	337.0	169.0	441.0	221.0	477.0	239.0	90	
96	96	106.0	53.0	208.0	104.0	272.0	136.0	384.0	192.0	502.0	251.0	543.0	272.0	96	

TYPICAL VERTICAL BEND THRUST BLOCK

(NO SCALE)

SEE W-3A FOR GENERAL NOTES

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ENGINEERING DIVISION



REVISIONS			
NO.	COMMENTS	BY	DATE
##	DESCRIPTION	FL	MO/DY/YEAR

DATE
8/25/2021

W-3E