Vilter 440 VMC®

COMPRESSORS

Refrigerating capacities and BHP requirements
Based on **1200** RPM

RATING CONDITIONS AND LIMITATIONS

Ratings for R-22, R-502 and R-717 are based on saturated conditions. Ratings for R-12 are based on +65 F suction gas temperature, superheated by doing useful work in the system. All ratings are based on 1200 rpm. For other speeds use direct ratio. BHP's for sizes 2 thru 8 cylinder include belt losses. BHP's for sizes 12 and 16 cylinder do not include belt losses.

MAXIMUM LIMITS

Suction superheat
R-22, R-502, R-717: 25°F
R-12 (actual gas temp.): +65°F
Compression ratio
R-12, R-22, R-717: 8:1
R-502: 10:1
Pressure differential: 175 PSI
Discharge temperature: 300°F
Discharge pressure: 300 PSI
Suction pressure: 150 PSI
Oil temperature: 150°F
Direct drive motor HP: 300 HP
V-Belt drive:

Compressor Size	RPM	Maximum BHP*
442 thru 448	1200	100
	1130	100
448HD thru 4416	1200	125
	1130	120

* Increase 15% when shot peened crankshaft is ordered.

RATINGS for Refrigerants 12 - 22 - 502 - 717 (Ammonia)

CONDENSING Pressure psig and Corresponding Temperature °F			REFRIGERANT 717 (AMMONIA) Vilter. BASED ON 1200 RPM											
			COMPRESSOR MODEL											
	SUCTION		442		444		446		448		4412		4416	
	Temp. °F	Press. psig	TONS	BHP	TONS	BHP	TONS	BHP	TONS	BHP	TONS	BHP	TONS	BHP
95# 61.1°	-25	1.3	5.4	13.6	12.9	25.8	19.3	37.8	25.8	49.1	38.7	72.3	51.6	95.5
	-20	3.6	8.0	14.5	16.0	27.4	24.0	40.2	32.1	52.3	48.1	76.9	64.2	101.5
	-15	6.2	9.8	15.4	19.7	29.4	29.5	42.9	39.5	55.9	59.2	82.3	79.0	108.5
	-10	9.0	11.9	16.5	23.8	31.4	35.7	45.9	47.6	59.6	71.4	87.7	95.2	114.0
	- 5	12.2	14.1	17.8	28.2	33.7	42.3	49.3	56.5	64.2	84.7	94.5	113.0	124.5
	0	15.7	16.5	19.1	33.1	36.2	49.6	53.0	66.2	68.9	99.3	101.2	133.2	134.0
	5	19.6	19.3	20.2	38.7	38.2	58.0	56.0	77.5	72.9	116.2	107.0	155.0	141.7
	10	23.8	22.4	20.8	44.8	39.6	67.2	57.9	89.6	75.3	134.4	110.7	179.2	146.1
	15	28.4	25.6	20.9	51.3	39.6	76.9	58.0	102.6	75.4	153.9	110.8	205.2	146.3
	20	32.5	28.4	20.4	56.8	38.8	85.2	57.0	113.7	74.0	170.5	108.9	227.4	144.0
	25	39.0	32.7	19.1	65.5	36.3	98.2	53.2	131.0	69.2	196.5	101.8	262.4	134.3
	30	45.0	36.9	17.2	73.8	32.6	110.7	47.9	147.6	62.4	221.4	91.8	295.2	121.1
115# 70.4°	-25	1.3	5.9	14.3	11.9	27.2	17.8	39.7	23.9	51.7	35.8	76.1	47.8	100.2
	-20	3.6	7.5	15.4	15.0	29.3	22.5	42.9	30.1	55.8	45.1	82.2	60.2	108.2
	-15	6.2	9.3	16.7	18.6	32.6	27.9	46.2	37.2	60.2	55.8	88.5	74.4	117.0
	-10	9.0	11.2	18.0	22.5	34.1	33.7	49.9	45.0	64.9	67.5	99.3	90.0	126.0
	- 5	12.2	13.4	19.3	26.8	36.7	40.2	53.7	53.6	69.9	80.4	102.8	107.2	135.8
	0	15.7	15.7	20.6	31.4	39.2	47.1	59.3	62.8	74.6	93.8	109.7	124.8	145.0
	5	19.6	18.4	21.8	36.8	41.4	54.3	60.5	73.6	78.8	110.4	116.0	147.2	153.0
	10	23.8	21.3	22.7	42.6	43.2	63.9	63.0	85.2	82.2	127.8	120.9	170.4	159.5
	15	28.4	24.4	23.1	48.8	43.9	73.2	64.3	97.6	83.6	146.4	122.8	195.2	162.2
	20	32.5	27.1	23.1	54.2	43.9	81.3	64.4	108.5	83.7	162.7	123.0	217.0	162.4
	25	39.0	31.3	22.6	62.7	42.9	94.0	62.8	125.4	81.8	188.1	120.2	250.8	158.8
	30	45.0	35.3	21.7	70.6	41.2	105.9	60.3	141.3	78.5	211.9	115.3	282.6	152.2
135# 78.7°	-25	1.3	5.5	15.2	11.1	27.8	16.6	42.2	22.3	54.8	33.4	80.7	44.6	106.7
	-20	3.6	7.0	16.4	14.1	31.1	21.1	45.6	28.3	59.3	42.4	87.3	56.6	115.0
	-15	6.2	8.9	17.8	17.9	33.8	26.8	49.6	35.8	64.4	53.7	94.5	71.6	125.0
	-10	9.0	10.6	19.2	21.2	36.6	31.8	53.6	42.5	69.6	63.7	102.3	85.0	135.2
	- 5	12.2	12.7	20.7	25.4	39.4	38.1	57.7	50.8	75.0	76.2	110.2	101.6	145.9
	0	15.7	14.9	22.1	29.9	42.0	44.8	61.6	59.8	80.0	89.7	117.6	119.6	155.2
	5	19.6	17.5	23.2	35.0	44.2	52.5	64.9	70.0	84.3	105.0	123.8	140.0	163.8
	10	23.8	20.2	24.3	40.4	46.3	60.6	67.9	80.9	88.2	121.3	129.8	161.8	171.2
	15	28.4	23.2	25.2	46.4	47.8	69.6	70.2	92.8	91.1	139.2	134.0	185.6	177.0
	20	32.5	25.8	25.5	51.6	48.5	77.4	71.3	103.2	92.5	154.8	136.0	206.4	180.0
	25	39.0	30.0	25.6	60.0	49.0	90.0	72.0	120.0	93.4	180.0	137.2	240.0	181.3
	30	45.0	33.7	25.8	67.5	49.2	101.2	72.2	135.0	93.7	202.5	137.8	270.0	182.0
155# 86.1°	-25	1.3	5.1	15.6	10.2	29.6	15.3	43.5	20.4	56.4	30.6	82.9	40.8	109.7
	-20	3.6	6.5	16.9	13.1	32.1	19.6	47.1	26.2	61.1	39.3	89.8	52.4	118.8
	-15	6.2	8.1	18.3	16.3	34.8	24.4	51.0	32.6	66.3	48.9	97.5	65.2	128.8
	-10	9.0	9.9	19.8	19.9	37.7	29.8	55.3	39.9	71.8	59.8	105.6	79.8	139.4
	- 5	12.2	12.0	21.4	24.0	40.6	36.0	58.6	48.0	77.4	72.0	113.8	96.0	150.2
	0	15.7	14.2	22.8	28.4	43.4	42.6	63.7	56.8	82.6	85.2	121.5	113.6	160.3
	5	19.6	16.6	24.2	33.3	46.1	49.9	67.5	66.7	87.7	100.0	129.0	133.4	170.2
	10	23.8	19.2	25.4	38.5	48.3	57.7	70.8	77.1	91.9	115.6	135.0	154.2	178.3
	15	28.4	22.1	26.3	44.3	50.0	66.4	73.3	88.6	95.2	132.9	140.0	177.2	185.0
	20	32.5	24.7	26.8	49.4	51.0	74.1	75.0	98.8	97.2	148.2	143.0	197.6	188.8
	25	39.0	28.7	27.2	57.5	51.8	86.2	76.0	115.0	98.6	172.5	145.0	230.0	191.3
	30	45.0	32.3	27.3	64.7	51.9	97.0	76.1	129.4	98.8	194.1	145.2	258.8	192.0

Ratings above line for extrapolation only.

CONDENSING Pressure psig and Corresponding Temperature °F	SUCTION		REFRIGERANT 717 (AMMONIA) Vilter. BASED ON 1200 RPM											
			COMPRESSOR MODEL											
			442		444		446		448		4412		4416	
	Temp. °F	Press. psig	TONS	BHP	TONS	BHP	TONS	BHP	TONS	BHP	TONS	BHP	TONS	BHP
165# 89.6°	-15	6.2	7.8	18.8	15.7	35.8	23.5	52.5	31.4	68.2	47.1	100.2	62.8	132.3
	-10	9.0	9.6	20.3	19.2	38.6	28.8	56.7	38.4	73.6	57.6	108.3	76.8	143.0
	- 5	12.2	11.6	21.7	23.2	41.4	34.8	60.6	46.4	78.7	69.8	115.8	92.8	153.0
	0	15.7	13.7	23.1	27.5	44.0	41.2	64.5	55.0	83.7	82.5	123.1	110.0	162.3
	5	19.6	16.1	24.6	32.3	46.7	48.4	68.5	64.7	89.0	97.0	131.0	129.4	172.8
	10	23.8	18.8	25.9	37.6	49.3	56.4	72.3	75.2	93.8	112.8	138.0	150.4	182.0
	15	28.4	21.6	26.9	43.3	51.1	64.9	75.0	86.6	97.4	129.9	143.3	173.2	189.0
	20	33.5	24.1	27.4	48.3	52.2	72.4	76.6	96.6	99.4	144.9	146.0	193.2	193.8
	25	39.0	28.2	27.9	56.4	53.1	84.6	77.7	112.8	101.0	169.2	148.6	225.6	196.0
	30	45.0	31.6	28.0	63.3	53.2	94.9	77.9	126.6	101.2	189.9	148.9	253.2	196.4
175# 93.0°	-15	6.2	7.6	19.3	15.2	36.8	22.8	53.9	30.4	69.9	45.6	102.8	60.8	135.8
	-10	9.0	9.3	20.8	18.6	39.6	27.9	58.0	37.2	75.4	55.8	110.9	74.4	146.2
	- 5	12.2	11.2	22.3	22.5	42.4	33.7	62.0	45.0	80.6	67.5	118.3	90.0	156.2
	0	15.7	13.4	23.7	26.8	45.0	40.2	66.0	53.7	85.7	80.5	126.0	107.4	166.3
	5	19.6	15.8	25.2	31.6	47.7	47.4	70.0	63.3	91.0	94.9	134.0	126.6	176.7
	10	23.8	18.4	26.4	36.8	50.2	55.2	73.5	73.7	95.5	110.5	140.4	147.4	185.2
	15	28.4	21.2	27.4	42.4	52.2	63.6	76.6	84.9	99.4	127.3	146.0	169.8	193.8
	20	33.5	23.7	28.1	47.4	53.4	71.1	78.3	94.8	101.7	142.2	149.6	189.6	197.3
	25	39.0	27.6	28.9	55.3	55.0	82.9	80.5	110.6	104.6	165.9	154.0	221.2	203.0
	30	45.0	31.1	29.3	62.2	55.9	93.3	81.8	124.5	106.2	186.7	156.2	249.0	206.0
185# 96.2°	-15	6.2	7.3	19.6	14.7	37.2	22.0	54.6	29.4	71.0	44.1	104.2	58.8	138.0
	-10	9.0	9.0	21.1	18.0	40.2	27.0	58.7	36.0	76.4	54.0	112.0	72.0	148.0
	- 5	12.2	10.9	22.6	21.8	42.9	32.7	62.8	43.7	81.7	65.5	120.0	87.4	158.5
	0	15.7	13.1	24.1	26.2	45.8	39.3	67.1	52.4	87.2	78.6	128.0	104.8	169.0
	5	19.6	15.5	25.6	31.1	48.7	46.6	71.4	62.2	92.8	93.3	136.2	124.4	180.0
	10	23.8	18.0	26.9	36.1	51.4	54.1	75.2	72.2	97.7	108.3	143.6	144.4	189.5
	15	28.4	20.8	28.0	41.6	53.4	62.4	78.3	83.3	101.6	124.9	149.3	166.6	198.0
	20	33.5	23.2	28.9	46.5	54.9	69.7	80.4	93.0	104.4	139.5	154.8	186.0	203.5
	25	39.0	27.0	29.8	54.1	56.7	81.1	83.4	108.3	108.0	162.4	159.0	216.6	210.0
	30	45.0	30.6	30.7	61.2	58.4	91.8	85.7	122.5	111.1	183.7	163.5	245.0	216.5
205# 102.3°	- 5	12.2	10.3	23.6	20.7	44.8	31.0	65.7	41.5	85.4	62.2	125.5	83.0	165.5
	0	15.7	12.4	25.2	25.0	47.9	37.5	70.2	50.0	91.2	75.0	134.0	100.0	177.0
	5	19.6	14.8	26.6	29.6	50.6	44.4	74.2	59.2	96.4	88.8	141.7	118.4	186.7
	10	23.8	17.3	27.9	34.7	53.3	52.0	78.0	69.5	101.2	104.2	149.0	139.0	197.5
	15	28.4	20.0	29.1	40.1	55.5	60.1	81.2	80.3	105.6	120.4	155.0	160.6	205.0
	20	33.5	22.5	30.1	45.0	57.3	67.5	84.0	90.0	109.0	135.0	160.0	180.0	212.3
	25	39.0	26.3	31.4	52.6	59.8	78.9	87.7	105.2	113.8	157.8	167.3	210.4	222.0
	30	45.0	29.7	32.9	59.5	62.0	89.2	91.0	119.1	118.0	178.6	173.5	238.2	230.0
225# 108.0°	20	33.5	21.7	31.5	43.4	60.0	65.1	88.0	86.9	114.2	130.3	168.1	173.8	223.0
	25	39.0	25.4	33.0	50.9	62.7	76.3	92.0	101.9	119.4	152.8	175.5	203.8	233.0
	30	45.0	28.9	34.1	57.9	65.0	86.8	95.2	115.8	123.8	173.7	182.0	231.6	241.5
	35	51.6	32.7	35.6	65.4	67.7	98.1	99.2	130.8	128.8	196.2	189.7	261.6	251.0

Ratings above line for extrapolation only.

CONDENSING Temperature °F and Corresponding Pressure psig			REFRIGERANT 12		Vilter				BASED ON 1200 RPM					
			COMPRESSOR MODEL											
	SUCTION		442		444		446		448		4412		4416	
	Temp. °F	Press. psig	TONS	BHP	TONS	BHP	TONS	BHP	TONS	BHP	TONS	BHP	TONS	BHP
80° 84.1 #	-20	0.58	5.6	11.3	11.3	23.7	16.9	34.8	22.6	45.1	33.9	66.4	45.2	87.4
	-10	4.5	7.6	14.9	15.2	28.4	22.8	41.6	30.4	54.1	45.6	79.7	60.8	105.0
	0	9.2	10.0	16.2	20.0	30.8	30.0	45.3	40.0	58.8	60.0	86.5	80.0	114.0
	5	11.8	11.3	16.8	22.7	31.9	34.0	46.8	45.4	60.9	68.1	89.5	90.8	118.2
	10	14.7	13.0	17.3	26.1	33.1	39.1	48.5	52.2	63.0	78.3	92.6	104.4	122.2
	15	17.8	14.3	17.6	28.7	33.6	43.0	49.2	57.4	64.0	86.1	94.1	114.8	124.2
	20	21.1	16.0	17.9	32.1	34.1	48.1	50.0	64.2	65.1	96.3	95.7	128.4	126.3
	25	24.7	17.9	18.3	35.9	34.6	53.8	50.9	71.8	66.1	107.7	97.3	143.6	128.3
	30	28.5	20.0	18.5	40.0	35.3	60.0	51.6	80.0	67.2	120.0	98.8	160.0	130.3
	35	32.6	22.2	18.5	44.5	35.3	66.7	51.6	89.0	67.2	133.5	98.8	178.0	130.3
	40	37.0	24.5	18.5	49.0	35.3	73.5	51.6	98.0	67.2	147.0	98.8	196.0	130.3
	50	46.7	29.5	18.5	59.0	35.3	88.4	51.6	118.0	67.2	177.0	98.8	236.0	130.3
85° 91.7 #	-20	0.58	5.4	12.5	10.7	23.8	16.1	35.0	21.5	45.3	32.2	66.6	43.0	88.0
	-10	4.5	7.2	15.0	14.5	28.6	21.7	41.8	29.0	54.4	43.5	80.0	58.0	105.5
	0	9.2	9.6	16.5	19.1	31.4	28.7	46.0	38.3	59.8	57.4	88.0	76.6	116.0
	5	11.8	10.9	17.2	21.8	32.8	32.7	48.0	43.6	62.5	65.4	91.8	87.2	121.2
	10	14.7	12.4	17.7	24.9	33.8	37.3	48.6	49.8	64.6	74.7	96.0	99.6	125.3
	15	17.8	13.8	18.1	27.6	34.4	41.4	50.4	55.2	65.6	82.8	96.5	110.4	127.2
	20	21.1	15.5	18.5	30.9	35.3	46.4	51.6	61.9	67.2	92.8	98.8	123.8	130.3
	25	24.7	17.3	18.8	34.6	35.8	52.0	52.5	69.3	68.2	103.9	100.4	138.6	132.3
	30	28.5	19.3	19.0	38.6	36.3	58.0	53.2	77.3	69.4	115.9	101.8	154.6	134.7
	35	32.6	21.5	19.1	43.0	36.4	64.5	53.4	86.0	69.6	129.0	102.0	172.0	135.0
	40	37.0	23.7	19.2	47.4	36.6	71.1	53.6	94.8	69.8	142.2	102.8	189.6	135.6
	50	46.7	28.6	19.3	57.3	36.8	85.9	54.1	114.6	70.4	171.9	103.3	229.2	136.5
90° 99.6 #	-20	0.58	5.1	12.5	10.2	23.9	15.3	35.1	20.4	45.5	30.6	67.0	40.8	88.3
	-10	4.5	6.9	15.0	13.8	28.7	20.7	42.0	27.6	54.6	41.4	80.3	55.2	106.0
	0	9.2	9.1	16.8	18.3	31.9	27.4	46.8	36.6	60.9	54.9	89.5	73.2	118.1
	5	11.8	10.4	17.6	20.9	33.6	31.3	49.2	41.8	64.0	62.7	94.1	83.6	124.2
	10	14.7	11.8	18.2	23.7	34.6	35.5	50.9	47.4	66.1	71.1	97.4	94.8	128.2
	15	17.8	13.2	18.5	26.5	35.3	39.7	51.6	53.0	67.2	79.5	98.8	106.0	130.3
	20	21.1	14.9	19.1	29.8	36.3	44.7	53.3	59.6	69.4	89.4	101.8	119.2	134.5
	25	24.7	16.7	19.3	33.4	36.8	50.1	54.0	66.8	70.4	100.2	103.3	133.6	136.5
	30	28.5	18.6	19.6	37.3	37.4	55.9	55.0	74.6	71.4	111.9	105.0	149.2	138.4
	35	32.6	20.7	19.8	41.5	37.7	62.2	55.4	83.0	71.9	124.5	105.8	166.0	139.4
	40	37.0	22.9	19.9	45.8	38.0	68.7	55.7	91.6	72.5	137.4	106.6	183.2	140.7
	50	46.7	27.8	20.2	55.6	38.5	83.4	56.5	111.2	73.5	166.8	108.1	222.4	142.6
95° 108.1 #	-20	0.58	4.8	12.6	9.5	24.0	14.3	35.3	19.1	45.7	28.6	67.4	38.2	88.7
	-10	4.5	6.5	15.1	13.0	28.8	19.6	42.2	26.1	54.8	39.1	80.5	52.2	106.3
	0	9.2	8.7	17.0	17.4	32.6	26.2	47.6	34.9	62.0	52.3	91.0	69.8	120.2
	5	11.8	10.0	17.7	19.9	33.8	29.9	49.6	39.9	64.6	59.8	95.0	79.8	125.3
	10	14.7	11.3	18.4	22.7	35.0	34.0	51.2	45.4	66.6	68.1	98.1	90.8	129.2
	15	17.8	12.7	18.9	25.5	36.1	38.2	52.9	51.0	68.8	76.5	101.2	102.0	133.6
	20	21.1	14.3	19.6	28.7	37.4	43.0	54.9	57.4	71.4	86.1	105.0	114.8	138.4
	25	24.7	16.1	20.0	32.1	38.2	48.2	56.1	64.3	73.0	96.4	107.3	128.6	141.7
	30	28.5	18.0	20.4	36.0	38.8	54.0	56.9	72.0	74.0	108.0	108.9	144.0	143.5
	35	32.6	20.0	20.6	40.0	39.0	60.1	57.4	80.1	74.6	120.1	109.8	160.2	144.7
	40	37.0	22.1	20.7	44.2	39.4	66.4	57.7	88.5	75.1	132.7	110.7	177.0	145.8
	50	46.7	26.9	20.8	53.9	39.7	80.8	58.1	107.8	75.5	161.7	111.1	215.6	146.4
100° 116.9 # (cont)	-20	0.58	4.5	12.7	8.9	24.1	13.4	35.4	17.9	46.0	26.8	67.6	35.8	89.3
	-10	4.5	6.1	15.1	12.3	28.9	18.4	42.3	24.6	55.0	36.9	80.9	49.2	106.7
	0	9.2	8.3	17.3	16.6	33.1	24.9	48.4	33.2	63.0	49.8	92.6	66.4	122.2
	5	11.8	9.5	17.9	19.0	34.1	28.5	50.0	38.0	65.1	57.0	95.8	76.0	126.3
	10	14.7	10.8	18.5	21.7	35.3	32.5	51.6	43.4	67.2	65.1	98.8	86.8	130.3
	15	17.8	12.2	19.3	24.5	37.0	36.7	54.1	49.0	70.4	73.5	103.4	98.0	136.5
	20	21.1	13.8	20.2	27.6	38.6	41.4	56.5	55.2	73.5	82.8	108.1	110.4	142.6
	25	24.7	15.4	20.9	30.9	39.7	46.3	58.1	61.8	75.6	92.7	111.1	123.6	146.7

Ratings above line for extrapolation only.

CONDENSING Temperature °F and Corresponding Pressure psig			REFRIGERANT 12											
			COMPRESSOR MODEL											
	SUCTION		442		444		446		448		4412		4416	
	Temp. °F	Press. psig	TONS	BHP	TONS	BHP	TONS	BHP	TONS	BHP	TONS	BHP	TONS	BHP
(cont) 100° 116.9 #	30	28.5	17.3	21.1	34.7	40.2	52.0	59.0	69.4	76.6	104.1	113.6	138.8	148.7
	35	32.6	19.3	21.4	38.6	40.7	57.9	59.8	77.2	77.7	115.8	114.1	154.4	150.8
	40	37.0	21.3	21.4	42.7	40.7	64.0	59.9	85.4	77.7	128.1	114.1	170.8	150.8
	50	46.7	26.1	21.4	52.2	40.7	78.3	59.9	104.4	77.7	156.6	114.1	208.8	150.8
105° 126.2 #	-20	0.58	4.1	12.7	8.3	24.1	12.4	35.5	16.6	46.1	24.9	67.8	33.2	89.5
	-10	4.5	5.8	15.2	11.7	29.0	17.5	42.6	23.4	55.2	35.1	81.4	46.8	107.2
	0	9.2	7.9	17.4	15.8	33.2	23.8	49.0	31.7	63.3	47.5	93.1	63.4	122.8
	5	11.8	9.1	18.1	18.2	34.4	27.3	50.9	36.4	65.6	54.6	96.5	72.8	127.2
	10	14.7	10.4	18.6	20.7	35.5	31.1	52.5	41.5	67.7	62.2	99.5	83.0	131.3
	15	17.8	11.7	19.5	23.4	37.2	35.2	54.9	45.9	70.9	70.3	104.3	93.8	137.6
	20	21.1	13.2	20.6	26.5	39.0	39.7	58.1	53.0	74.5	79.5	109.8	106.0	144.5
	25	24.7	14.9	21.1	29.7	40.2	44.6	59.9	59.5	76.6	89.2	112.8	119.0	148.7
	30	28.5	16.7	21.5	33.4	41.0	50.1	61.4	66.8	78.2	100.2	115.0	133.6	151.8
	35	32.6	18.6	22.0	37.1	41.8	55.7	63.0	74.3	79.8	111.4	117.2	148.6	154.8
	40	37.0	20.5	22.1	41.1	42.2	61.6	63.8	82.2	80.4	123.3	118.1	164.4	156.0
	50	46.7	25.2	22.2	50.3	42.4	75.5	64.5	100.7	80.9	151.0	119.0	201.4	157.0
110° 136.0 #	-20	0.58	3.8	12.7	7.7	24.2	11.5	35.6	15.4	46.2	23.1	68.0	30.8	89.7
	-10	4.5	5.5	15.2	11.1	29.1	16.6	42.6	22.2	55.4	33.3	81.6	44.4	107.4
	0	9.2	7.5	17.5	15.1	33.4	22.6	49.0	30.2	63.6	45.3	93.4	60.4	123.3
	5	11.8	8.7	18.3	17.4	34.6	26.1	50.9	34.8	66.1	52.2	97.2	69.6	128.2
	10	14.7	9.9	18.8	19.8	35.8	29.7	52.5	39.6	68.3	58.4	100.4	79.2	132.5
	15	17.8	11.2	19.6	22.4	37.4	33.6	54.9	44.8	71.4	67.2	105.0	89.6	138.4
	20	21.1	12.7	20.8	25.4	39.7	38.1	58.1	50.8	75.6	76.2	111.1	101.6	146.7
	25	24.7	14.3	21.4	28.6	40.7	42.9	59.9	57.2	77.6	85.8	114.0	114.4	150.5
	30	28.5	16.0	22.0	32.1	41.8	48.1	61.4	64.2	79.8	96.3	117.1	128.4	154.8
	35	32.6	17.8	22.8	35.7	43.0	53.5	63.0	71.4	81.9	107.1	120.3	142.8	158.8
	40	37.0	19.7	22.9	39.5	43.5	59.2	63.8	79.0	83.0	118.5	122.0	158.0	161.0
	50	46.7	24.2	23.1	48.5	44.0	72.7	64.5	97.0	84.0	145.5	123.5	194.0	163.0
115° 146.3 #	-10	4.5	5.2	15.3	10.4	29.2	15.6	42.7	20.8	55.6	31.2	81.8	41.6	107.9
	0	9.2	7.1	17.6	14.2	33.5	21.3	49.2	28.4	64.0	42.6	94.0	56.8	124.1
	5	11.8	8.2	18.4	16.4	35.0	24.7	51.2	32.9	66.6	49.3	98.1	65.8	129.2
	10	14.7	9.3	18.9	18.6	36.1	27.9	52.9	37.2	68.8	55.8	101.2	74.4	133.3
	15	17.8	10.6	19.9	21.3	38.0	31.9	55.8	42.6	72.4	63.9	106.5	85.2	140.4
	20	21.1	12.1	21.1	24.2	40.1	36.3	59.0	48.4	76.6	72.6	112.8	96.8	148.7
	25	24.7	13.7	21.6	27.4	41.4	41.1	60.5	54.8	78.7	82.2	116.0	109.6	152.7
	30	28.5	15.3	22.6	30.6	43.0	46.0	63.0	61.3	81.9	91.9	120.4	122.6	158.8
	35	32.6	17.1	23.1	34.2	44.0	51.3	64.5	68.4	84.0	102.6	123.4	136.8	163.0
	40	37.0	18.9	23.5	37.8	44.8	56.8	65.9	75.7	85.5	113.5	125.8	151.4	165.9
	50	46.7	23.4	24.0	46.7	45.6	70.1	67.0	93.5	87.1	140.2	128.1	187.0	169.0
125° 169.0 #	-10	4.5	4.6	15.4	9.0	29.4	13.6	43.1	18.1	56.0	27.1	82.6	36.2	108.7
	0	9.2	6.2	17.7	12.5	33.8	18.7	49.6	25.0	64.6	37.5	95.0	50.0	125.3
	5	11.8	7.3	18.6	14.6	35.5	22.0	52.1	29.3	67.7	43.9	99.5	58.6	131.3
	10	14.7	8.5	19.2	17.0	36.5	25.6	53.8	34.1	69.8	51.1	102.8	68.1	135.7
	15	17.8	9.6	20.5	19.2	39.0	28.8	57.4	38.4	74.5	57.6	109.6	76.8	144.5
	20	21.1	10.9	21.6	21.9	41.3	32.8	60.5	43.8	78.7	64.7	116.0	87.6	152.7
	25	24.7	12.5	22.4	24.9	42.6	37.4	62.5	49.9	81.4	74.8	119.8	99.8	157.8
	30	28.5	13.8	23.5	27.7	46.0	41.5	65.6	55.4	85.6	82.4	125.9	110.8	166.1
	35	32.6	15.6	24.2	31.3	46.2	46.9	67.8	62.6	88.2	93.9	129.8	125.2	171.0
	40	37.0	17.3	25.0	34.6	47.6	52.0	69.8	69.3	90.9	103.9	133.8	138.6	176.3
	50	46.7	21.4	25.7	42.8	50.0	64.3	71.9	85.7	93.4	128.5	137.1	171.4	181.1
135° 193.5 #	15	17.8	8.6	21.1	17.2	40.1	25.9	59.0	34.5	76.6	51.7	112.8	69.0	148.7
	20	21.1	9.8	22.3	19.7	42.4	29.5	62.1	39.4	80.9	59.1	118.9	78.8	156.9
	25	24.7	11.2	23.2	22.4	44.4	33.6	65.0	44.8	84.5	67.2	124.2	89.6	164.0
	30	28.5	12.5	24.4	25.0	46.5	37.5	68.2	50.0	88.7	75.0	130.5	100.0	172.2
	35	32.6	14.1	25.4	28.3	48.5	42.4	71.0	56.6	92.4	84.9	136.0	113.2	179.2
	40	37.0	15.7	26.2	31.4	50.0	47.2	73.5	62.9	95.5	94.3	140.8	125.8	185.3
	50	46.7	19.3	27.3	38.6	52.0	57.9	76.4	77.2	99.2	115.8	146.0	154.4	192.3

Ratings above line for extrapolation only.

CONDENSING Temperature °F and Corresponding Pressure psig			REFRIGERANT 22 — Vilter — BASED ON 1200 RPM											
			COMPRESSOR MODEL											
	SUCTION		442		444		446		448		4412		4416	
	Temp. °F	Press. psig	TONS	BHP	TONS	BHP	TONS	BHP	TONS	BHP	TONS	BHP	TONS	BHP
60° 102.5 #	-40	0.61	6.4	13.1	12.7	24.8	19.1	36.3	25.5	47.3	38.2	69.4	51.0	91.8
	-30	5.02	8.6	16.1	17.1	30.6	25.7	45.0	34.3	58.5	51.4	86.0	68.6	113.5
	-20	10.31	11.4	18.2	22.8	34.5	34.2	50.7	45.6	66.1	68.4	97.0	91.2	128.2
	-10	16.59	14.9	20.2	29.8	38.5	44.8	56.5	59.7	73.5	89.5	108.1	119.8	142.5
	0	24.09	19.0	21.3	38.0	40.5	57.0	59.5	76.0	77.5	114.0	113.8	152.0	150.3
	10	32.93	24.0	22.3	47.9	42.6	71.9	62.5	95.9	81.3	143.8	119.2	191.8	157.8
	20	43.28	29.8	22.6	59.7	43.2	89.5	63.4	119.4	82.5	179.1	121.0	239.8	160.0
	30	55.23	36.6	22.2	73.3	42.4	109.9	62.2	146.6	80.9	219.9	119.0	293.2	157.0
	40	69.02	44.5	20.3	89.0	38.6	123.5	56.7	178.0	73.7	267.0	108.5	356.0	143.0
	50	84.70	54.0	16.1	108.1	30.6	162.1	45.0	216.2	58.5	324.3	85.9	432.4	113.5
70° 122.5 #	-40	0.61	5.3	14.1	10.6	27.0	16.0	39.6	21.3	51.8	31.9	75.6	42.3	99.9
	-30	5.02	7.3	16.4	15.0	31.2	22.6	45.8	30.1	59.3	45.1	87.5	60.2	115.0
	-20	10.31	10.3	18.6	20.6	35.4	31.0	52.1	41.3	67.7	61.9	99.5	82.6	131.3
	-10	16.59	13.5	20.6	27.1	39.6	40.6	58.1	54.2	75.7	81.3	111.2	108.4	146.8
	0	24.09	17.5	22.3	35.0	42.1	52.5	61.7	70.0	80.5	105.0	118.3	140.0	156.1
	10	32.93	22.2	23.4	44.4	44.6	66.7	65.4	88.9	85.1	133.3	125.1	177.8	165.0
	20	43.28	28.0	24.0	56.0	45.6	84.0	66.9	112.0	87.0	168.0	128.0	224.0	168.7
	30	55.23	34.3	23.8	68.7	45.4	103.0	66.5	137.4	86.5	206.1	127.5	274.8	167.8
	40	69.02	42.0	22.5	84.0	42.7	126.0	62.8	168.0	81.6	252.0	120.0	336.0	158.3
	50	84.70	50.9	18.8	101.8	35.6	152.8	52.2	203.7	68.0	305.5	99.8	407.4	131.8
80° 145.0 #	-40	0.61	4.5	15.0	9.0	29.2	13.6	42.7	18.0	55.8	27.1	80.3	36.2	108.0
	-30	5.02	6.6	16.7	13.2	31.8	19.8	46.7	26.4	60.7	39.6	89.4	52.8	117.8
	-20	10.31	9.3	19.2	18.7	36.4	28.0	53.5	37.4	69.5	56.1	102.0	74.8	134.9
	-10	16.59	12.4	21.5	24.8	40.7	37.2	59.8	49.6	77.8	74.4	114.2	99.2	150.9
	0	24.09	16.1	23.3	32.3	44.3	48.4	65.0	64.6	84.5	96.9	124.2	129.2	164.0
	10	32.93	20.7	24.8	41.4	47.1	62.1	69.1	82.8	89.9	124.2	132.0	165.6	174.4
	20	43.28	26.1	25.7	52.3	49.0	78.4	71.7	104.6	93.4	156.9	137.2	209.2	181.1
	30	55.23	32.2	26.5	64.4	50.0	96.7	73.4	128.9	95.5	193.3	140.4	257.8	185.3
	40	69.02	39.5	25.9	79.1	49.3	118.6	72.3	158.2	94.2	237.3	138.5	316.4	182.7
	50	84.70	48.0	23.9	96.0	45.5	144.0	66.8	192.0	87.0	288.0	127.8	384.0	168.8
85° 157.2 #	-30	5.02	6.2	16.9	12.4	32.0	18.6	47.0	24.8	61.1	37.2	89.9	49.6	118.6
	-20	10.31	8.9	19.4	17.8	36.8	26.8	54.1	35.7	70.4	53.5	103.2	71.4	136.7
	-10	16.59	11.9	21.7	23.9	41.4	35.8	60.7	47.8	79.0	71.7	116.1	95.6	153.3
	0	24.09	15.5	23.8	31.1	45.2	46.6	66.5	62.2	86.5	93.3	127.0	124.4	167.8
	10	32.93	20.0	25.4	40.1	48.5	60.1	71.2	80.2	92.7	120.3	136.1	160.4	180.0
	20	43.28	25.2	26.8	50.5	50.9	75.7	74.7	101.0	97.1	151.5	143.0	202.0	188.4
	30	55.23	31.2	28.0	62.5	53.1	93.7	78.2	125.0	101.5	187.5	149.6	250.0	197.0
	40	69.02	38.4	28.3	76.7	53.9	115.1	79.2	153.5	102.9	230.2	151.2	307.0	199.5
	50	84.70	46.6	27.8	93.2	53.0	139.9	77.7	186.5	101.0	279.7	148.8	373.0	196.0

Ratings above line for extrapolation only.

CONDENSING Temperature °F and Corresponding Pressure psig			REFRIGERANT 22												BASED ON 1200 RPM
			COMPRESSOR MODEL												
	SUCTION		442		444		446		448		4412		4416		
	Temp. °F	Press. psig	TONS	BHP	TONS	BHP	TONS	BHP	TONS	BHP	TONS	BHP	TONS	BHP	
90° 170.1 #	-30	5.02	5.9	17.0	11.7	32.4	17.6	47.4	23.5	61.6	35.2	90.5	47.0	119.4	
	-20	10.31	8.4	19.6	16.9	37.2	25.3	54.6	33.8	71.1	50.7	104.5	67.6	138.0	
	-10	16.59	11.4	22.1	22.8	42.1	34.2	61.7	45.6	80.2	68.4	118.0	91.2	155.6	
	0	24.09	14.9	24.3	29.9	46.5	44.8	68.2	59.8	88.6	89.7	130.2	119.6	172.0	
	10	32.93	19.2	26.4	38.4	50.2	57.7	73.8	76.9	96.0	115.3	141.0	153.8	186.3	
	20	43.28	24.3	27.9	48.5	53.2	72.8	78.0	97.1	101.3	145.6	149.0	194.2	196.5	
	30	55.23	30.2	29.4	60.3	56.0	90.5	82.2	120.7	106.9	181.0	157.0	241.4	207.5	
	40	69.02	37.2	30.0	74.3	57.2	111.5	83.8	148.7	109.0	223.0	160.2	297.4	211.5	
	50	84.70	45.2	29.8	90.3	56.7	135.5	83.2	180.7	108.2	271.0	159.1	361.4	210.0	
95° 183.7 #	-30	5.02	5.5	17.1	11.1	32.6	16.6	47.8	22.2	62.0	33.3	91.1	44.4	120.3	
	-20	10.31	8.0	19.8	15.9	37.5	23.9	55.3	31.9	71.8	47.8	105.8	63.8	139.3	
	-10	16.59	10.8	22.4	21.7	42.6	32.5	62.6	43.4	81.4	65.1	119.8	86.8	157.8	
	0	24.09	14.4	25.6	28.7	47.5	43.1	69.5	57.5	90.5	86.2	133.1	115.0	175.6	
	10	32.93	18.4	27.3	36.8	51.9	55.3	76.2	73.7	99.1	110.5	145.8	147.4	192.2	
	20	43.28	23.3	29.0	46.6	55.3	69.9	81.1	93.2	105.5	139.8	155.0	186.4	204.5	
	30	55.23	29.1	30.8	58.2	58.6	87.4	86.8	116.5	111.9	174.7	164.3	233.0	217.0	
	40	69.02	36.0	31.7	72.0	60.2	108.0	88.5	144.0	115.0	216.0	169.0	288.0	223.0	
	50	84.70	43.7	31.8	87.5	60.5	131.2	88.7	175.0	115.5	262.5	169.7	350.0	224.0	
100° 197.9 #	-10	16.59	10.3	22.8	20.6	43.4	30.9	63.6	41.2	82.9	61.8	122.0	82.4	160.8	
	0	24.09	13.7	25.5	27.3	48.5	41.0	71.2	54.7	92.7	82.0	136.3	109.4	180.0	
	10	32.93	17.6	28.1	35.3	53.5	52.9	78.5	70.6	102.0	105.9	150.2	141.2	198.0	
	20	43.28	22.4	30.0	44.8	57.2	67.3	83.8	89.7	109.2	134.5	160.2	179.4	212.0	
	30	55.23	28.0	32.0	56.1	60.9	84.1	89.5	112.2	116.5	168.3	171.1	224.4	226.0	
	40	69.02	34.7	33.2	68.1	63.2	102.1	92.7	136.2	120.6	207.3	177.5	276.4	234.0	
	50	84.70	42.4	33.8	84.8	64.4	127.2	94.4	169.6	122.8	254.4	180.4	339.2	238.0	
105° 212.9 #	10	32.93	16.9	29.0	33.8	55.1	50.7	80.9	67.6	105.1	101.4	154.9	135.2	204.0	
	20	43.28	21.6	31.1	43.1	59.1	64.7	86.7	86.3	113.0	129.4	166.0	172.6	219.0	
	30	55.23	27.0	33.2	54.1	63.4	81.0	93.0	108.0	121.0	162.0	177.8	216.0	235.0	
	40	69.02	33.4	34.8	66.7	66.4	100.1	97.5	133.5	126.7	200.2	186.0	267.0	245.8	
	50	84.70	41.1	35.8	82.1	68.2	123.2	100.0	164.3	130.1	246.4	191.1	328.6	252.3	
110° 228.7 #	20	43.28	20.6	32.2	41.2	61.3	61.9	90.0	82.5	117.1	123.7	172.0	165.0	227.3	
	30	55.23	25.9	34.7	51.7	65.9	77.6	96.9	103.5	126.5	155.2	185.0	207.0	245.5	
	40	69.02	32.1	36.3	64.2	69.2	96.3	101.7	128.4	132.2	192.6	194.3	256.8	256.4	
	50	84.70	39.4	37.6	78.8	71.4	118.2	104.9	157.6	136.2	236.4	200.2	315.2	264.2	
115° 245.3 #	40	69.02	30.8	37.9	61.6	72.1	92.5	106.0	123.3	137.8	184.9	202.5	246.6	267.2	
	50	84.70	37.7	39.2	75.5	74.5	113.2	109.3	151.0	142.2	226.4	209.0	302.2	276.0	

Ratings above line for extrapolation only.

CONDENSING Temperature °F and Corresponding Pressure psig		REFRIGERANT 502		Vilter.				BASED ON 1200 RPM					
		COMPRESSOR MODEL											
	SUCTION	442		444		446		448		4412		4416	
	Temp. °F / Press. psig	TONS	BHP	TONS	BHP	TONS	BHP	TONS	BHP	TONS	BHP	TONS	BHP
65° 125.8 #	-50 0.04	3.2	11.4	6.4	21.7	9.6	31.9	12.8	41.5	19.2	63.8	25.6	85.2
	-40 4.28	5.0	14.1	10.1	26.9	15.1	39.5	20.1	51.4	30.2	79.0	40.3	105.5
	-30 9.40	7.4	16.7	14.7	31.9	22.1	46.9	29.5	61.0	44.2	93.8	59.0	125.2
	-20 15.52	10.1	19.3	20.2	36.9	30.2	54.2	40.3	70.5	60.4	108.4	80.6	144.7
	-15 18.99	11.7	20.6	23.4	39.4	35.1	57.9	46.8	75.3	70.2	115.8	93.7	154.6
	-10 22.76	13.4	21.9	26.9	41.8	40.3	61.4	53.7	79.8	80.6	122.8	107.6	163.9
	- 5 26.84	15.4	23.2	30.8	44.3	46.2	65.1	61.6	84.6	92.4	130.2	123.4	173.8
70° 136.6 #	-50 0.04	2.8	11.2	5.6	21.5	8.4	31.6	11.2	41.1	16.8	63.2	22.4	84.4
	-40 4.28	4.6	14.1	9.2	26.9	13.8	39.5	18.4	51.4	27.6	79.0	36.8	105.5
	-30 9.40	6.8	16.9	13.5	32.2	20.3	47.4	27.1	61.6	40.6	94.8	54.2	126.6
	-20 15.52	9.4	19.6	18.7	37.5	28.1	55.1	37.5	71.6	56.2	110.2	75.0	147.1
	-15 18.99	10.9	20.9	21.9	40.0	32.8	58.8	43.7	76.4	65.6	117.6	87.6	157.0
	-10 22.76	12.7	22.2	25.3	42.4	38.0	62.4	50.7	81.1	76.0	124.8	101.5	166.6
	- 5 26.84	14.6	23.5	29.1	44.9	43.7	66.0	58.3	85.8	87.4	132.0	116.7	176.2
75° 148.0 #	-40 4.28	4.6	14.1	9.1	26.9	13.7	39.5	18.3	51.4	27.4	79.0	36.6	105.5
	-30 9.40	6.4	17.1	12.7	32.6	19.1	47.9	25.5	62.3	38.2	95.8	51.0	127.9
	-20 15.52	8.8	19.9	17.7	38.0	26.5	55.9	35.3	72.7	53.0	111.8	70.8	149.3
	-15 18.99	10.3	21.3	20.6	40.7	30.9	59.8	41.2	77.7	61.8	119.6	82.5	159.7
	-10 22.76	12.0	22.6	24.0	43.2	36.0	63.5	48.0	82.6	72.0	127.0	96.1	169.5
	- 5 26.84	13.9	23.9	27.8	45.6	41.7	67.1	55.6	87.2	83.4	134.2	111.3	179.2
	0 31.24	16.0	25.1	31.9	47.9	47.9	70.4	63.9	91.5	95.8	140.8	127.9	188.0
	10 41.09	20.4	27.2	41.0	52.0	61.4	76.4	81.8	99.3	122.8	152.8	163.9	204.0
80° 159.9 #	-40 4.28	3.8	13.6	7.5	26.0	11.3	38.2	15.1	49.7	22.6	76.4	30.2	102.0
	-30 9.40	5.9	16.9	11.9	32.4	17.8	47.6	23.7	61.9	35.6	95.2	47.5	127.1
	-20 15.52	8.3	20.0	16.7	38.3	25.0	56.3	33.3	73.2	50.0	112.6	66.8	150.3
	-15 18.99	9.7	21.5	19.4	41.0	29.1	60.3	38.8	78.4	58.2	120.6	77.7	161.0
	-10 22.76	11.2	22.9	22.5	43.7	33.7	64.3	44.9	83.6	67.4	128.6	90.0	171.7
	- 5 26.84	13.0	24.2	26.0	46.2	39.0	67.9	52.0	88.3	78.0	135.8	104.2	181.3
	0 31.24	15.0	25.4	29.9	48.6	44.9	71.4	59.9	92.8	89.8	142.8	119.9	190.6
	10 41.09	19.3	27.6	38.8	52.8	58.1	77.6	77.4	100.9	116.2	155.2	155.1	207.2
85° 172.5 #	-40 4.28	3.4	12.7	6.9	24.3	10.3	35.7	13.7	46.4	20.6	71.4	27.5	95.3
	-30 9.40	5.6	16.4	11.2	31.3	16.8	46.1	22.4	59.9	33.6	92.2	44.9	123.1
	-20 15.52	7.8	19.9	15.7	38.1	23.5	56.0	31.3	72.8	47.0	112.0	62.7	149.5
	-15 18.99	9.2	21.6	18.3	41.3	27.5	60.8	36.7	79.0	55.0	121.6	73.4	162.3
	-10 22.76	10.6	23.2	21.3	44.3	31.9	65.1	42.5	84.6	63.8	130.2	85.2	173.8
	- 5 26.84	12.1	24.7	24.3	47.3	36.4	69.5	48.5	90.4	72.8	139.0	97.2	185.6
	0 31.24	14.1	26.2	28.2	50.1	42.2	73.7	56.3	95.8	84.4	147.4	112.7	196.8
	10 41.09	18.4	28.9	37.0	55.3	55.4	81.3	73.8	105.7	110.8	162.6	147.9	217.1
	20 52.45	23.6	31.1	47.2	59.4	70.8	87.4	94.4	113.6	141.6	174.8	189.0	233.4
90° 185.8 #	-40 4.28	3.0	12.1	6.0	23.1	9.0	33.9	12.0	44.1	18.0	67.8	24.0	90.5
	-30 9.40	5.0	16.1	10.1	30.7	15.1	45.2	20.1	58.8	30.2	90.4	40.3	120.7
	-20 15.52	7.3	20.0	14.7	38.1	22.0	56.1	29.3	72.9	44.0	112.2	58.7	149.8
	-15 18.99	8.6	21.8	17.3	41.6	25.9	61.2	34.5	79.6	51.8	122.4	69.2	163.4
	-10 22.76	10.0	23.5	20.0	44.9	30.0	66.0	40.0	85.8	60.0	132.0	80.1	176.2
	- 5 26.84	11.6	25.1	23.2	47.9	34.8	70.5	46.4	91.7	69.6	141.0	92.9	188.2
	0 31.24	13.4	26.7	26.7	50.9	40.1	74.9	53.5	97.4	80.0	149.8	107.1	200.0
	10 41.09	17.6	29.5	35.4	56.4	53.0	82.9	70.6	107.8	106.0	165.8	141.5	221.3
	20 52.45	22.6	31.9	45.3	60.9	67.9	89.6	90.5	116.5	135.8	179.2	181.3	239.2
95° 199.7 #	- 5 26.84	11.0	25.2	22.0	48.1	33.0	70.7	44.0	91.9	66.0	141.4	88.1	188.8
	0 31.24	12.8	26.9	25.5	51.4	38.3	75.6	51.1	98.3	76.6	151.2	102.3	201.9
	10 41.09	16.8	30.0	33.7	57.3	50.5	84.3	67.3	109.6	101.0	168.6	134.8	225.1
	20 52.45	21.7	32.7	43.5	62.5	65.2	91.9	86.9	119.5	130.4	183.8	174.1	245.4
	30 65.44	27.3	34.7	54.7	66.2	82.0	97.4	109.3	126.6	164.0	194.8	219.0	260.1
100° 214.4 #	10 41.09	15.7	30.5	31.5	58.3	47.2	85.8	62.9	111.5	94.4	171.6	126.0	229.1
	20 52.45	20.4	33.5	40.9	64.0	61.3	94.1	81.7	122.3	122.6	188.2	163.7	251.2
	30 65.44	25.8	35.7	51.6	68.2	77.4	100.3	103.2	130.4	154.8	200.6	206.7	267.8
105° 229.7 #	20 52.45	19.1	34.0	38.4	65.0	57.5	95.6	76.6	124.3	115.0	191.2	153.5	255.3
	30 65.44	24.5	36.8	49.1	70.3	73.6	103.4	98.1	134.4	147.2	206.8	196.5	276.1
	35 72.59	27.4	38.1	54.8	72.8	82.2	107.0	109.6	139.1	164.4	214.0	219.5	285.7
	40 80.20	30.4	39.2	60.9	74.9	91.3	110.1	121.7	143.1	182.6	220.2	243.8	294.0