Table of Equivalents

To convert units appearing in Column 1 (left column) into equivalent values in Column 2 (center column), multiply by factor in Column 3. Example: To convert 7 gallons into cubic inches, multiply 7 × 231 = 1617. To convert units appearing in Column 2 (center) into equivalent values of units in Column 1 (left), divide by factor in Column 3. Example: To convert 25 horsepower into Btu per minute, divide 25 by 0.02356 = 1061

To Convert Into	Into To Convert	Multiply By Divide By
Atmospheres	Feet of Water	33.9
Atmospheres	Inches of Mercury (Hg)	29.92
Atmospheres	PSI (LBS per Sq. Inch	14.7
BTU	Foot Pounds	778.3
BTU per hour	Watts	0.2931
BTU per minute	HorsePower	0.02356
Celsius (Centigrade)	Fahrenheit	°C x 1.8 + 32
Centimeters	Inches	0.3937
Cubic Centimeters	Gallons (U.S. Liquid)	0.0002642
Cubic Centimeters	Liters	0.0001
Cubic Feet	Cubic Inches	1728
Cubic Feet	Gallons (U.S. Liquid)	7.48052
Cubic Inches	Cubic Feet	0.0005787
Cubic Inches	Gallons (U.S. Liquid)	0.004329
Days	Seconds	86.400
Degrees (Angle)	Radians	0.01745
Feet	Meters	0.3048
Feet	Miles	0.0001894
Feet of Water	Atmospheres	0.0295
Feet of Water	Inches of Mercury (Hg)	0.8826
Feet of Water	PSI (Lbs per Sq. Inch)	0.4335
Feet per Minute	Miles per Hour	0.01136
Feet per Second	Miles per Hour	0.6818
Foot-Pounds	BTU	0.001286
Foot-Pounds per Minute	Horsepower	0.0000303
Foot-Pounds per Second	Horsepower	0.001818
Gallons (U.S. Liquid)	Cubic Feet	0.1337
Gallons (U.S. Liquid)	Cubic Inches	231
Gallons of Water	Pounds of Water	8.3453
Horsepower	BTU per Minute	42.44
Horsepower	Foot-Pound per Minute	33,000
Horsepower	Foot Pounds per Second	550
Horsepower	Watts	745.7
Hours	Days	0.04167
Hours	Weeks	0.005952
Inches	Centimeters	2.54
Inches of Mercury (Hg)	Atmospheres	0.03342
Inches of Mercury (Hg)	Feet of Water	1.133
Inches of Mercury (Hg)	PSI (Lbs. per Sq. Inch)	0.4912
Inches of Water	PSI (Lbs. per Sq. Inch)	0.03613
Liters	Cubic Centimeters	1000
Liters	Gallons (U.S. Liquid)	0.2642
Micron	Inches	0.00004
Miles (Statute)	Feet	5280
Miles per hour (MPH)	Feet per Minute	88
Miles per hour	Feet per Second	1.467
Ounces (Weight)	Pounds	0.0625
Ounces (Liquid)	Cubic Inches	1.805
Pints (Liquid)	Quarts (Liquid)	0.5
Pounds	Grains	7000
Pounds	Grams	453.59
Pounds	Ounces	16
PSI (Pounds per Sq. Inch)	Atmospheres	0.06804
PSI (Pounds per Sq. Inch)	Feet of Water	2.307
PSI (Pounds per Sq. Inch)	Inches of Mercury (Hg)	2.036
Quarts	Gallons	0.25
Square Feet	Square Inches	144
Temperature (°F - 32)	Temperature (°C)	0.5555
Tons (U.S.)	Pounds	2000
Watts	Horsepower	0.001341

Appendix 1: Torque Specifications

Location #	Part #	Description	Torque in Inch Pounds	Torque in Newton Meters
8	550-081	Regulator mount nut	75	11.3
20	530-317	Nut, air train	35	4
22	530-317	Nut, air train	15	1.6
25	530-050	Screw, sideblock	20	2.25
29	530-052	Screw, port plug	20	2.25
30	530-035	Screw, port retainer	12	1.3
34	550-062	Knob, nose block	12	1.3
38	530-045	Screw, whisker kidney plate	12	1.3
46	550-055	Packing nut, regulator	40 after seating	4.52 after seating
49	530-030	Screw, regulator clamp	12	1.3
61c	550-050	Jam nut, regulator	40	4.5
61b	550-048	Inlet nipple, regulator	40	4.5
62c	530-020	Screw, exhuast flange	6	.67
70	550-040	Mount nut, communications penetrator	20	2.25
71	530-308	Nut, communications posts	20	2.25
78	555-178	Packing nut, waterproof connector	20	2.25
86	550-020	Bonnet, defogger valve	100	11.3
92	550-024	Stud, sideblock	50	5.65
94	550-140	Emergency valve body	See note 1	See note 1
98	550-091	Packing nut, emergency valve	50 after seating	5.65 after seating
103	555-195	One way valve	150	17
104	555-117	Adapter, brass (umbilical)	See note 1	See note 1
105		One way valve seat	150	17
111		One way valve body	150	17
114	550-095	Low pressure plug	20	2.25
116	555-154	Bent tube assy, sideblock end	100	11.3
122c	530-073	Screw,band adjustment	26	2.94

Note 1: Use Teflon® tape for one to one and a half wraps, starting two threads back from the pipe thread end of the fitting to avoid getting Teflon® tape in the valve. Tighten pipe thread using good engineering practices.

* For a neoprene neck dam, turn the screw three turns. Screws may need adjustment after several dives.

Checklist, Maintenance, and Pre-Dive Inspections

For the most current check lists, helmet maintenance procedures, and pre-dive inspections, please check on the Internet at www.divelab.com.

Appendix A2
Maintenance and Inspection Procedures

The following section describes the maintenance and inspection procedures that are used to complete the Annual, Monthly and Daily Checklists, to ensure optimum reliability and performance. These procedures are additionally utilized in conjunction with the daily pre and post dive maintenance checklists. The following service intervals are the minimum recommended for helmets being used under good conditions. Helmets used in harsh conditions, i.e., contaminated water, welding / burning operations, or jetting may require more frequent servicing.

The intention of the maintenance and overhaul program is to help maintain all helmet components in good working order in accordance with KMDSI factory specifications. It will also help to identify worn or damaged parts and components before they affect performance and reliability. Whenever the serviceability of a component or part is in question, or doubt exists, replace it. All helmet components and parts have a service life and will eventually require replacement.

NOTE: The side block does not need to be removed from the helmet annually, providing, after removal of side block components, there is no corrosion and verdigris. Kirby Morgan recommends that every three years the side block assembly be physically removed from the helmet per Section 7.3. Clean and inspect the stud and securing screw, replace if bent, stripped, or any damage is detected.

NOTE: The pipe thread fittings used on the umbilical adapter and the emergency gas valve are the only fittings that require sealing with Teflon tape. Do not use liquid sealant. When installing Teflon tape on pipe threads, apply the tape starting one thread back from the end of the fitting. Apply the tape in a clockwise direction under tension. 1-1½ wraps is all that is needed. The use of more than 1½ wraps could cause excess Teflon tape to travel into the breathing system. Do not overtighten when installing.

Chapters 6, 7 and 8 of this maintenance manual gives guidance on all routine and corrective maintenance and repairs. Disassembly and reassembly of components is explained in a step-by-step manner that may not necessarily call out that all O-rings and normal consumable items will be replaced. The manual is written in this way so that if an assembly, component, or part is being inspected or disturbed between normal intervals it is acceptable to reuse O-rings and components providing they pass a visual inspection . When conducting annual or scheduled overhauls all O-rings should be replaced. The side block should be removed from the helmet at least every three years (or 400 operating hours) so that the stud and securing screw can be inspected. All O-rings should be lightly lubricated with the applicable lubricant.

Lubrication / Cleanliness:
Helmets intended for use with breathing gas mixtures in excess of 50% oxygen by volume, should be cleaned for oxygen service. They must only be lubricated with oxygen compatible lubricants such as Christo-Lube® or Krytox®. All air supply systems must be filtered and must meet the requirements of grade D quality air or better. Helmet breathing gas systems/gas train components used for air diving should only be lubricated with silicone grease Dow Corning® 111 or equivalent. KMDSI uses Christo-Lube® at the factory for lubrication of all gas train components requiring lubrication, and highly recommends its use.

Before 1999, Kirby Morgan Dive Systems, Inc., used Danger and Warning Notices in the helmet and mask owner's manual limiting the breathing gas percentage to less than 23.5 percent oxygen. This was due primarily to cleaning issues in regards to possible fire hazards and was in compliance with the recommendations of the Association of Standard Test Methods (ASTM), National Fire Protection Agency (NFPA), and the Compressed Gas Association (CGA) as well as other industry standards.

During the 1990's, open circuit scuba use of enriched-air (Nitrox) by technical and recreational divers became very popular, and as use increased, so did the number of combustion incidents during the mixing and handling of the breathing mixtures. These combustion incidents brought attention to the dangers and inherent risks associated with oxygen and oxygen enriched gas mixtures.

Kirby Morgan cannot dictate or override regulations or recommendations set forth by industry standards or governing bodies pertaining to enriched gas use. However, it is the opinion of Kirby Morgan that breathing gas mixtures up to 50% oxygen by volume should not pose a significant increased risk of fire or combustion in Kirby Morgan helmets and masks

low-pressure components and does not warrant the need for the stringent specialized oxygen clean post-sampling and particulate analysis normally accomplished for components used in high pressure oxygen valves, regulators, and piping systems. The decision for using 50% has been primarily based on a long history of operational field use.

As long as Kirby Morgan helmets and masks are cleaned and maintained in accordance with the maintenance manual, the equipment should not pose a significant increased risk of a fire or ignition originating in the helmet or mask low-pressure (<250 p.s.i.g. /<17.2 bar or less) components when used with enriched gases of up to 50% oxygen. However, CAUTION should be exercised any time enriched gases are handled or used.

In general, helmets and masks used primarily for mixed gas use are subject to far less oil and particulate contamination than those used for air diving. For this reason, helmets and masks commonly used with both air and enriched breathing gases should be cleaned and maintained with greater care and vigilance. It is important that all internal gas-transporting components, i.e., side block, bent tube, and demand regulator assemblies remain clean and free of hydrocarbons, dirt, and particulates. Whenever the equipment is depressurized, all exposed ports or fittings should be plugged/capped to help maintain foreign material exclusion.

Gas train components should be cleaned according to the procedures outlined in the operations manual at least annually and/or whenever contamination is suspected or found. Helmet interior and exterior surfaces should be cleaned at least daily at the completion of daily diving operations. Helmets and masks used in waters contaminated with oils and other petroleum or chemical contaminants may require cleaning after each dive.

Helmet and mask components requiring lubrication should be lubricated sparingly with lubricants approved for oxygen use such as Christo-Lube®, Krytox®, or Flourolube®. KMDSI highly recommends using Christo-Lube®, and uses Christo-Lube® during the assembly of all KMDSI gas train components.

Regardless of the approved lubricant used, never mix different kinds of lubricants. Persons mixing handling and working with breathing gases should be properly trained in all aspects of safe gas handling.

⚠ WARNING

Do not use lubricants of any kind on the diaphragm or exhaust valves. Use of lubricants can attract and hold debris that could interfere with the proper operation of the regulator.

NOTE: Refer to Chapter 7 for removal and disassembly / reassembly procedures.

NOTE: The helmet weights do not need to be removed from the helmet unless fiberglass damage is present or suspected.

NOTE: During annual overhauls, all O-rings and soft goods, i.e., valve seats and washers should be replaced. KMDSI offers kits that have all the necessary parts.

NOTE: The neck dam rubber need not be replaced if the inspection reveals no damage or significant wear and the rubber components are not dried out.

NOTE: The oral nasal mask and oral nasal valve requires replacement, only if inspection reveals damage, distortion, or signs of damage.

NOTE: All threaded fasteners and parts require careful cleaning and inspection as well as the mating parts. Replace any and all threaded parts or components that show signs of wear or damage.

KMDSI highly recommends a certified KMDSI repair technician make all repairs and that only genuine KMDSI repair and replacement parts be used. Owners of KMDSI products that elect to do their own repairs and inspections should only do so if they possess the knowledge and experience. All inspections, maintenance and repairs should be completed using the appropriate KMDSI Operation and Maintenance Manual.

Persons performing repairs should retain all replacement component receipts for additional proof of maintenance history. Should any questions on procedures, components, or repairs arise, please telephone Kirby Morgan Dive Systems, Inc., at 1-805-928-7772 or E-mail them at kmdsi@kirbymorgan.com or telephone Dive Lab, Inc., at 1-850-235-2715 or E-mail them at divelab@aol.com.

Appendix 3
Supply Pressure Requirements & Tables

Table 1 should be used whenever low pressure compressors are used or when using surface control panels that are limited to outlet pressures within the range of 220 psig or less.
It is important to insure the required outlet pressure from the table can be maintained in a stable manner at the surface to insure adequate supply at depth.
When used with high pressure consoles that can regulate pressures greater than 220 psig use Appendix 3 Table 3 SuperFlow® / SuperFlow® 350 Regulator High Pressure Regulated Source.

Diver Work Rates

The divers work rate, also known as respiratory minute volume (RMV), is basically how hard the diver breathes. As the diver's physical exercise increases, so does the ventilation rate. Proper training teaches the diver to never push the work rate beyond normal labored breathing. (This is in the 30-50 RMV range). To put things in perspective, heavy work for a physically fit person:

Swimming at one knot is about	38 RMV
Running at 8 miles per hour is about	50 RMV

Once the diver hits 55 RMV, they are entering the extreme range. Many fit divers can do 75 RMV for one to two minutes providing the inhalation resistive effort of the breathing system is not much above 1-1.3 J/L. The divers work rate should never be so heavy that the diver cannot maintain a simple conversation with topside.

When the work rate gets into the moderately heavy to heavy range 40-50 RMV the diver needs to slow down!

Working to the point of being excessively winded should be avoided at all costs!

Working at rates greater than 58 RMV underwater is extreme, and can pose hazards that are not present when doing extreme rates on the surface. When underwater, inhalation and exhalation resistive effort increases due to the density of the breathing gas and resistive effort of the equipment. The increase in resistive effort can cause an increase in blood level CO_2 because the diver cannot ventilate as freely as when breathing at the surface. When breathing air at the deeper depths, nitrogen narcosis can mask CO_2 symptoms which can then snowball into even heavier breathing, often resulting in confusion, panic, and in rare cases muscle spasm, unconsciousness, sometimes resulting in death. In some rare cases high ventilation rates has been suspected as the cause of respiratory barotraumas, including arterial gas embolism. The possibility of suffering a respiratory over inflation event during high work rates while underwater could be even greater for divers that smoke, or have previous known or unknown lung disease or respiratory damage. The safest course for the diver is to keep the equipment properly maintained for peak performance and to know and understand the capabilities and limitations of the equipment including all breathing supply systems they use.
The output capability of the supply system including umbilicals should be known to all that use it and periodic tests should be done to insure flow capability.

Use Of Low Pressure Supply Table

The low pressure supply tables were developed to simplify calculation of supply pressure. In order to get the required volume to the diver, you need to have the proper supply pressure. The table starts at 90 psig and increases in 10 psig increments. The user simply selects the lowest pressure that best represents the low cycling pressure of the compressor being used. The table basically shows the maximum depth that can be attained while breathing at RMV's (breathing rates in liters per minute) listed. It is strongly recommended that divers plan for a minimum supply pressure that will allow the diver to work at no less that 50 - 62.5 RMV.

Appendix 3 Table 1 Work Rate Expressed as Respiratory Minute Volume (RMV)*

Work Load	RMV	Cubic Feet/Minute (CFM)	Equivalent Land Based Exercise
Rest	7-10 RMV	0.2 - 0.35 CFM	
Light Work	10-20 RMV	0.35 - 0.7 CFM	Walking 2 miles per hour
Moderate Work	20-37 RMV	0.7 - 1.3 CFM	Walking 4 miles per hour
Heavy Work	37-54 RMV	1.3 - 1.9 CFM	Running 8 miles per hour
Severe Work	55-100 RMV	1.94 - 3.5 CFM	
** source: U.S. Navy Diving Manual*			

Appendix 3 Table 2 Compressor Supply Table SuperFlow and SuperFlow 350

Supply Pressure Requirements for Helmets & Masks equipped with SuperFlow® and SuperFlow® 350 Non-balanced regulators when used with low pressure compressors

Supply Pressure	RMV	Depth		ATA	Required SLPM	w/20% safety margin	Required SCFM
		FSW	MSW				
90 PSIG / 6.21 BAR	**40**	76	23	3.30	132.12	158.55	5.60
	50	63	19	2.91	145.45	174.55	6.17
	62.5	44	13	2.33	145.83	175.00	6.18
	75	33	10	2.00	150.00	180.00	6.36
100 PSIG / 6.9 BAR	**40**	86	26	3.61	144.24	173.09	6.11
	50	72	22	3.18	159.09	190.91	6.74
	62.5	55	17	2.67	166.67	200.00	7.06
	75	42	13	2.27	170.45	204.55	7.23
110 PSIG / 7.59 BAR	**40**	100	31	4.03	161.21	193.45	6.83
	50	83	25	3.52	175.76	210.91	7.45
	62.5	67	20	3.03	189.39	227.27	8.03
	75	50	15	2.52	188.64	226.36	8.00
120 PSIG / 8.28 BAR	**40**	112	34	4.39	175.76	210.91	7.45
	50	91	28	3.76	187.88	225.45	7.96
	62.5	71	22	3.15	196.97	236.36	8.35
	75	57	17	2.73	204.55	245.45	8.67
130 PSIG / 8.97 BAR	**40**	122	37	4.70	187.88	225.45	7.96
	50	100	31	4.03	201.52	241.82	8.54
	62.5	82	25	3.48	217.80	261.36	9.23
	75	60	19	2.82	211.36	253.64	8.96
140 PSIG / 9.66 BAR	**40**	137	42	5.15	206.06	247.27	8.73
	50	108	33	4.27	213.64	256.36	9.06
	62.5	84	26	3.55	221.59	265.91	9.39
	75	65	20	2.97	222.73	267.27	9.44
150 PSIG / 10.35 BAR	**40**	145	44	5.39	215.76	258.91	9.15
	50	120	37	4.64	231.82	278.18	9.83
	62.5	95	29	3.88	242.42	290.91	10.28
	75	69	21	3.09	231.82	278.18	9.83

Appendix 3 Table 2 Compressor Supply Table SuperFlow and SuperFlow 350 Continued

Supply Pressure	RMV	Depth		ATA	Required SLPM	w/20% safety margin	Required SCFM
		FSW	MSW				
160 PSIG / 11.04 BAR	**40**	157	48	5.76	230.30	276.36	9.76
	50	124	38	4.76	237.88	285.45	10.08
	62.5	100	31	4.03	251.89	302.27	10.68
	75	76	23	3.30	247.73	297.27	10.50
170 PSIG / 11.73 BAR	**40**	167	51	6.06	242.42	290.91	10.28
	50	135	41	5.09	254.55	305.45	10.79
	62.5	107	33	4.24	265.15	318.18	11.24
	75	86	26	3.61	270.45	324.55	11.46
180 PSIG / 12.42 BAR	**40**	181	55	6.48	259.39	311.27	11.00
	50	148	45	5.48	274.24	329.09	11.62
	62.5	115	35	4.48	280.30	336.36	11.88
	75	93	28	3.82	286.36	343.64	12.14
190 PSIG / 13.11 BAR	**40**	190	58	6.76	270.30	324.36	11.46
	50	154	47	5.67	283.33	340.00	12.01
	62.5	122	37	4.70	293.56	352.27	12.44
	75	100	31	4.03	302.27	362.73	12.81
200 PSIG / 13.8 BAR	**40**	192	59	6.82	272.73	327.27	11.56
	50	166	51	6.03	301.52	361.82	12.78
	62.5	132	40	5.00	312.50	375.00	13.25
	75	102	31	4.09	306.82	368.18	13.01
210 PSIG / 14.49 BAR	**40**	212	65	7.42	296.97	356.36	12.59
	50	175	53	6.30	315.15	378.18	13.36
	62.5	137	42	5.15	321.97	386.36	13.65
	75	108	33	4.27	320.45	384.55	13.58
220 PSIG / 15.18 BAR	**40**	220	67	7.67	306.67	368.00	13.00
	50	182	56	6.52	325.76	390.91	13.81
	62.5	147	45	5.45	340.91	409.09	14.45
	75	111	34	4.36	327.27	392.73	13.87

Appendix 3 Table 3 SuperFlow® 450 SS Balanced Regulator Low Pressure Compressor Table Supply Pressure Requirements

Supply Pressure	RMV	Depth		ATA	Required SLPM	w/20% safety margin	Required SCFM
		FSW	MSW				
90 PSIG / 6.21 BAR	**40**	90	27	3.73	149.09	178.91	6.32
	50	76	23	3.30	165.15	198.18	7.00
	62.5	62	19	2.88	179.92	215.91	7.63
	75	44	13	2.33	175.00	210.00	7.42
100 PSIG / 6.9 BAR	**40**	101	31	4.06	162.42	194.91	6.88
	50	86	26	3.61	180.30	216.36	7.64

Appendix 3 Table 3 SuperFlow® 450 SS Balanced Regulator Continued

Supply Pressure	RMV	Depth		ATA	Required SLPM	w/20% safety margin	Required SCFM
		FSW	MSW				
	62.5	67	20	3.03	189.39	227.27	8.03
	75	55	17	2.67	200.00	240.00	8.48
110 PSIG / 7.59 BAR	**40**	111	34	4.36	174.55	209.45	7.40
	50	99	30	4.00	200.00	240.00	8.48
	62.5	74	22	3.24	202.65	243.18	8.59
	75	65	20	2.97	222.73	267.27	9.44
120 PSIG / 8.28 BAR	**40**	125	38	4.79	191.52	229.82	8.12
	50	111	34	4.36	218.18	261.82	9.25
	62.5	90	27	3.73	232.95	279.55	9.87
	75	72.5	22	3.20	239.77	287.73	10.16
130 PSIG / 8.97 BAR	**40**	141	43	5.27	210.91	253.09	8.94
	50	115	35	4.48	224.24	269.09	9.51
	62.5	100	30	4.03	251.89	302.27	10.68
	75	76	23	3.30	247.73	297.27	10.50
140 PSIG / 9.66 BAR	**40**	160	49	5.85	233.94	280.73	9.92
	50	123	37	4.73	236.36	283.64	10.02
	62.5	110	33	4.33	270.83	325.00	11.48
	75	83	25	3.52	263.64	316.36	11.17
150 PSIG / 10.35 BAR	**40**	172	52	6.21	248.48	298.18	10.53
	50	137	41	5.15	257.58	309.09	10.92
	62.5	115	35	4.48	280.30	336.36	11.88
	75	93	28	3.82	286.36	343.64	12.14
160 PSIG / 11.04 BAR	**40**	185	56	6.61	264.24	317.09	11.20
	50	147	45	5.45	272.73	327.27	11.56
	62.5	130	40	4.94	308.71	370.45	13.09
	75	102	31	4.09	306.82	368.18	13.01
170 PSIG / 11.73 BAR	**40**	200	61	7.06	282.42	338.91	11.97
	50	161	49	5.88	293.94	352.73	12.46
	62.5	136	41	5.12	320.08	384.09	13.57
	75	110	33	4.33	325.00	390.00	13.78
180 PSIG / 12.42 BAR	**40**	211	64	7.39	295.76	354.91	12.54
	50	169	51	6.12	306.06	367.27	12.97
	62.5	145	44	5.39	337.12	404.55	14.29
	75	116	35	4.52	338.64	406.36	14.35
190 PSIG / 13.11 BAR	**40**	221	67	7.70	307.88	369.45	13.05
	50	173	53	6.24	312.12	374.55	13.23

Appendix 3 Table 3 SuperFlow® 450 SS Balanced Regulator Continued

Supply Pressure	RMV	Depth		ATA	Required SLPM	w/20% safety margin	Required SCFM
		FSW	MSW				
	62.5	153	46	5.64	352.27	422.73	14.93
	75	126	38	4.82	361.36	433.64	15.32
200 PSIG / 13.80 BAR	**40**	222	67	7.73	309.09	370.91	13.10
	50	191	58	6.79	339.39	407.27	14.39
	62.5	165	50	6.00	375.00	450.00	15.90
	75	133	40	5.03	377.27	452.73	15.99
210 PSIG / 14.49 BAR	**40**			1.00	40.00	48.00	1.70
	50	191	58	6.79	339.39	407.27	14.39
	62.5	166	50	6.03	376.89	452.27	15.98
	75	140	42	5.24	393.18	471.82	16.67
220 PSIG / 15.18 BAR	**40**			1.00	40.00	48.00	1.70
	50	202	61	7.12	356.06	427.27	15.09
	62.5	170	51	6.15	384.47	461.36	16.30
	75	148	45	5.48	411.36	493.64	17.44

Appendix 3 Table 4 SuperFlow® / SuperFlow® 350 Regulator High Pressure Regulated Source

Depth		Regulator Setting Surface Gauge in P.S.I.G.		Regulator Setting Surface Gauge in BAR	
FSW	MSW	Minimum P.S.I.G.	Maximum P.S.I.G.	Minimum Bar	Maximum Bar
0-60	0-18	150	225	10.3	15.5
61-100	19-30	200	250	13.8	17.2
101-132	31-40	250	275	17.2	18.9
133-165	41-50	250	300	17.2	19.6
*166-220	51-67	300	325	20.6	22.4

*May not be capable of performing at 75 RMV deeper than 165 FSW.

Performance is based on a minimum of 75 RMV to 165 FSW (50 MSW) and 62.5 RMV to 220 FSW (67 MSW) using a 3/8” (9.5 mm) umbilical 600 foot (183 meters) long, made up of two 300 foot (91 meter) sections.

Appendix 3 Table 5 Supply Pressure Guidelines REX® Regulator / KM-47 / KM-77 / and SuperFlow® 450 Stainless Steel Balanced Regulators High Pressure Regulated Source Supply Pressure Guidelines

Depth		Regulator Setting Surface Gauge in P.S.I.G.		Regulator Setting Surface Gauge in BAR	
FSW	MSW	Minimum P.S.I.G.	Maximum P.S.I.G.	Minimum Bar	Maximum Bar
0-60	0-18	140	200	9.7	13.8
61-100	19-30	165	220	11.4	15
101-132	31-40	180	250	12.4	17
133-165	41-50	220	300	15	20.7
*166-220	51-67	270	300	18.6	20.7

Appendix 4 Standard Kirby Morgan Surface Supply Pressure Formula - Old Method

Old Pressure Table Calculation:

The old method of determining supply pressure was to multiply the dive depth by .445 PSI and then add the over-bottom pressure called out in the depth ranges for the depth from the KMDSI operations manual. The old method was based on a minimum RMV of 62.5. This method can still be used. The old method used the formula and called out over bottom pressures for depth as follows [(FSW x .445) + PSIG for depth] from the table below.

Depth in Feet and Meters		Over Bottom Pressure	
0-60 FSW	(0-18 MSW)	90 PSIG	(6.2 Bar)
61-100	(18-30)	115	(7.9)
101-132	(30-40)	135	(9.3)
133-165	(40-50)	165	(11.4)
166-220	(50-67)	225	(15.5)

For more information on determining supply pressure related information check the Dive Lab web site at www.divelab.com.