HEALTHCAIR®

Selecting an Air System

There are several considerations in selecting a Medical Compressed Air System. In addition to physical size, expense, and site limitations, capacity is the primary issue. The required capacity, or flow at a given pressure, most generally 50 PSIG, is also referred to as Calculated Peak Demand. The worksheet on the following page is used to determine Calculated Peak Demand for a typical hospital.

You will notice that the categories on the worksheet coincide with various areas in the hospital. Because of the manner in which the space is used, the value given for flow is either per room, per bed, or per outlet. For example, in areas where only one procedure will be performed, such as surgery, we use a per room value. In areas where there is the possibility of vast fluctuations in use, such as an ICU, we calculate the demand per bed. You will also notice the term “Simultaneous Use Factor”. This is a value given to the likelihood that the full demand will exist in a particular area at any given time. The most critical areas, such as surgery, will have the highest likelihood and therefore the greatest value.

To use the worksheet, start by filling in the quantities of each area in the left-hand column. Keep in mind to tally these figures correctly; either per room, bed or outlet. In the case of Ventilators, it is important to consider the type and requirements of each unit the facility intends to operate. Ventilators powered by medical air require considerable capacity and must be accounted for. Also be certain to account for all of the outlets which are part of the proposed system. Some outlets may be easy to overlook and some departments in the facility may be known by a slightly different name. If you encounter an area in the facility that is not listed on the worksheet, categorize it based what procedures are performed in that area.

With all of the areas accounted for, multiply each quantity by the given Design Flow value, and then multiply by the Simultaneous Use Factor. Write the value in the right hand column for each line. Finally, total the values for all of the lines at the bottom of the sheet. This value is the Calculated Peak Demand, expressed in Standard Cubic Feet per Minute at a pressure of 50 Pounds per Square Inch Gauge.

Having tallied the Calculated Peak Demand, you must adjust for any abnormal conditions. High elevation, operation on 50 Cycle current or unusual ambient temperatures can affect performance. If considering future expansion, you may opt for a system with a control package, which will allow for an additional compressor to be added later.

When the Calculated Peak Demand exceeds the capacity of a 15 Horsepower compressor, consider using a triplex or quadruplex system rather than duplex. For example, if you have chosen a 20 Hp duplex system, also consider a 7.5 Hp triplex version where two of the three compressors will meet the Calculated Peak Demand. Demand for Medical Air in a typical facility varies, and in times of low demand, a 7.5 Hp compressor will be required to operate as opposed to a 20 Hp compressor. Each compressor on the system is controlled by a separate pressure switch, allowing more efficient operation and reducing current spikes caused by the in-rush as the larger motors start. In many cases, the initial expense of the multiplex system is also lower.

Please peruse the Accessories tab of the Medical Air Systems section for optional types of air dryers and other related accessories. The ***Healthcair***® Treatment Module is a fabricated package incorporating dual dryers, filters, regulators, and monitors. It can be used to upgrade existing installations.

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