Technical Bulletin

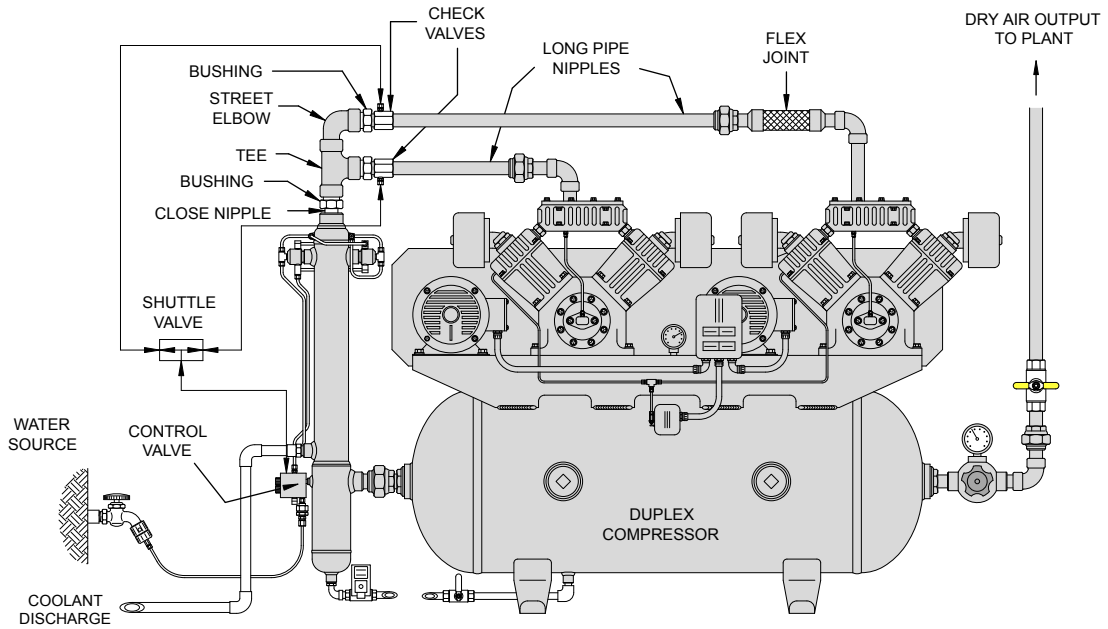
Duplex Installations

Duplex compressors are rather common systems for applications that have high peak load demands or systems that require a high degree of redundancy. These installations may be either a single unit with two pump/motor assemblies (shown in the illustration below) or two completely separate compressors with common controls (shown in the illustrations on the following page). In either case, the installation of an Air-Options dryer is the same.

The two pump/motor assemblies must be able to operate independently or together. Additionally, each assembly must be serviceable without affecting the operation of the other. To accomplish this, the dryer must be equipped with a simple input manifold carrying 2 check valves. The check valves should be "compressor rated". Air-Options recommends the use of ordinary in-tank check valves for this purpose. The input manifold is constructed using a 300 Lbs. tee and street elbow that are one size up from the dryer size. Forged steel bushings are used to match the manifold to the dryer and check valve sizes. The manifold is completed with the addition of the check valves and an extra strong nipple, sized to match the output of the pumps and input of the dryer, respectively. The pumps are connected to the manifold with 2 long extra heavy pipe nipples. The longer of the two nipples should be interrupted with a flex joint to allow for differential expansion.

Control of the dryer is accomplished by installing a shuttle valve between the unloader ports of the manifold check valves and the pilot port of the control valve, as shown in the illustration below. An optional duplex control kit is available through Air-Options, Inc.

The dryer size should be matched to the maximum SCFM of the system. If the system is used as a peak demand system, then the dryer should be equal to the output of both pumps running together simultaneously. i.e. If the system has two 10 HP pumps, then an 80 SCFM dryer should be selected. If the system is intended for redundancy only, then the dryer should be sized to match the output of the larger of the two pumps.



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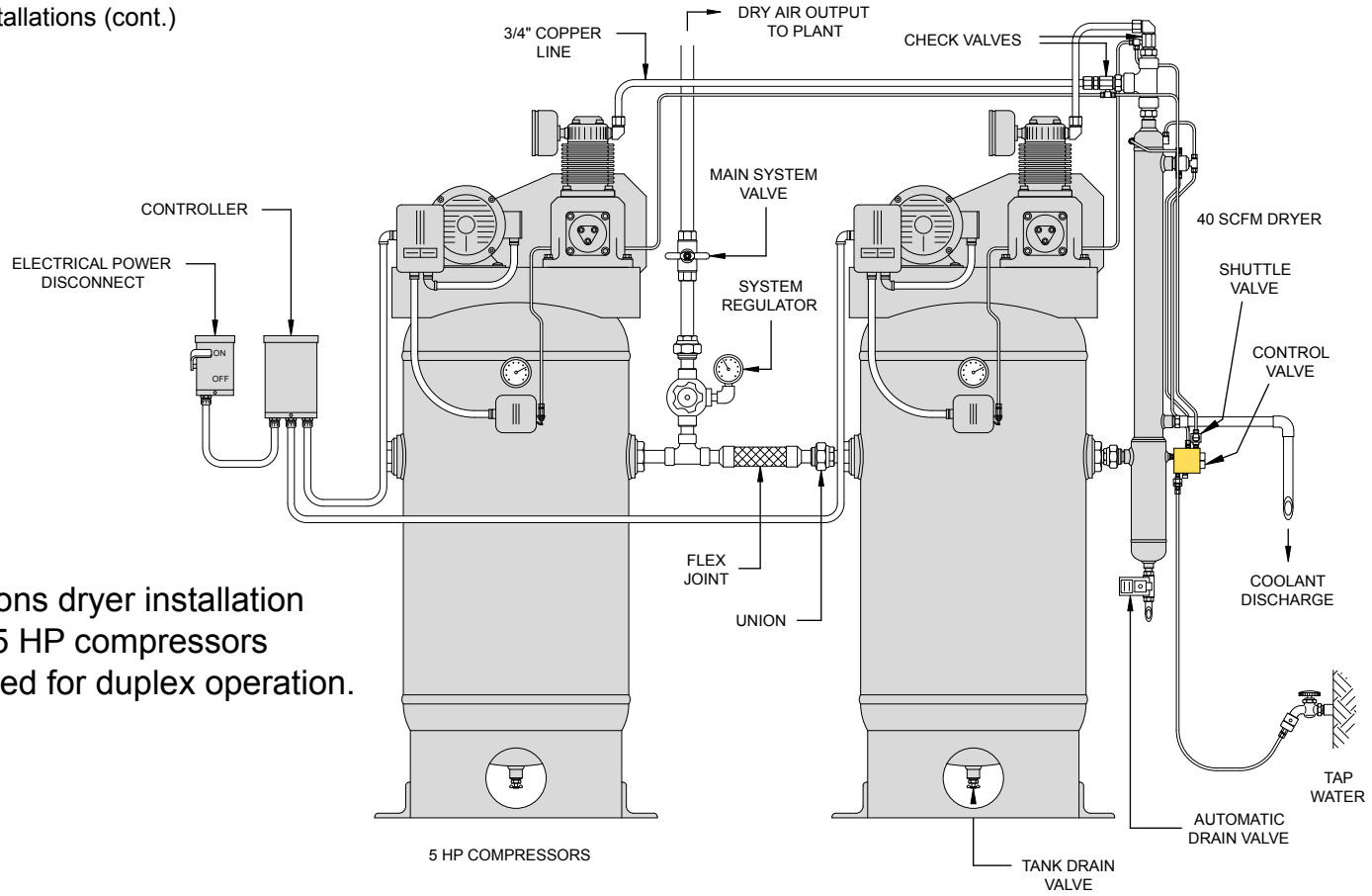
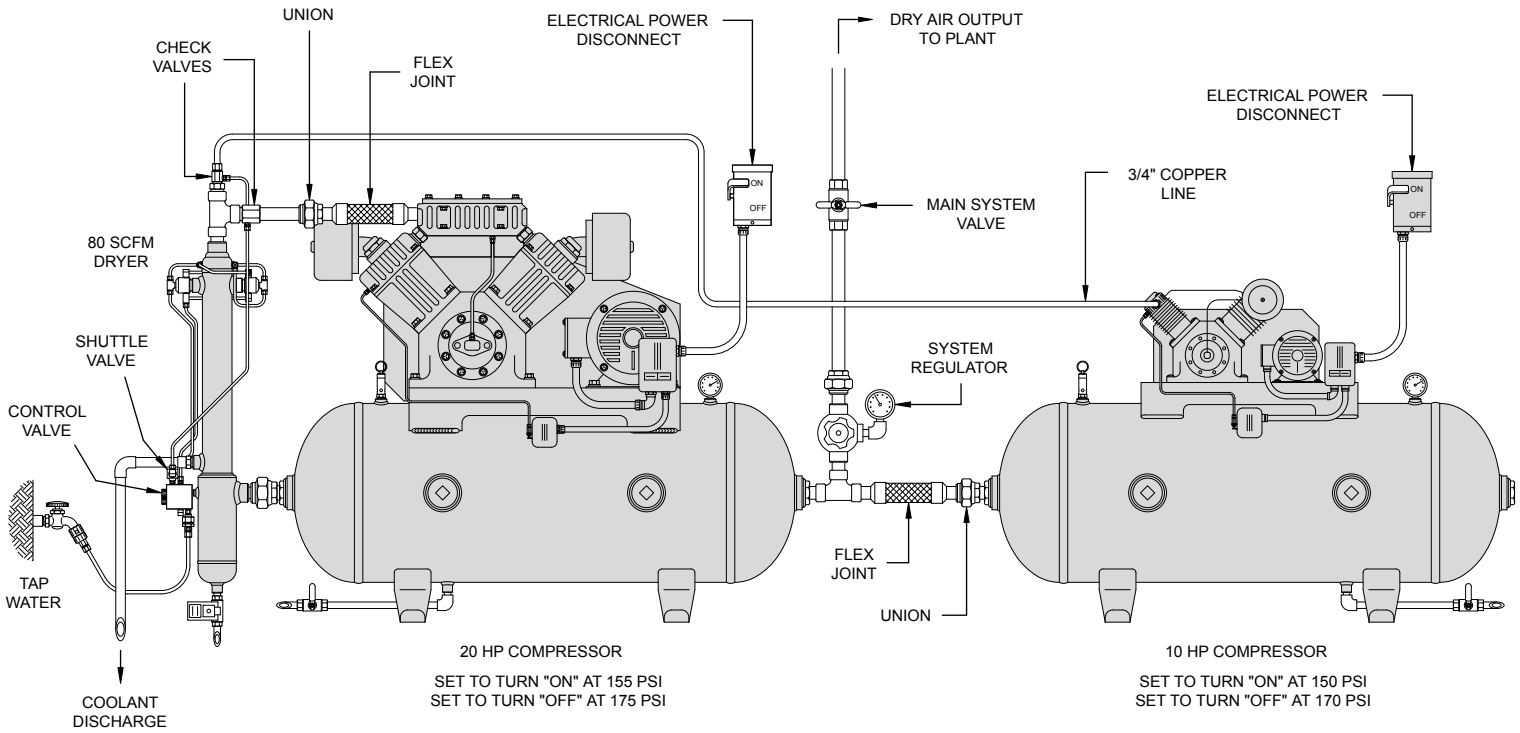
Duplex Installations (cont.)



Air-Options dryer installation for two 5 HP compressors configured for duplex operation.

An Air-Options dryer installation for a 20 HP compression system system with a 10 HP peak demand compressor.



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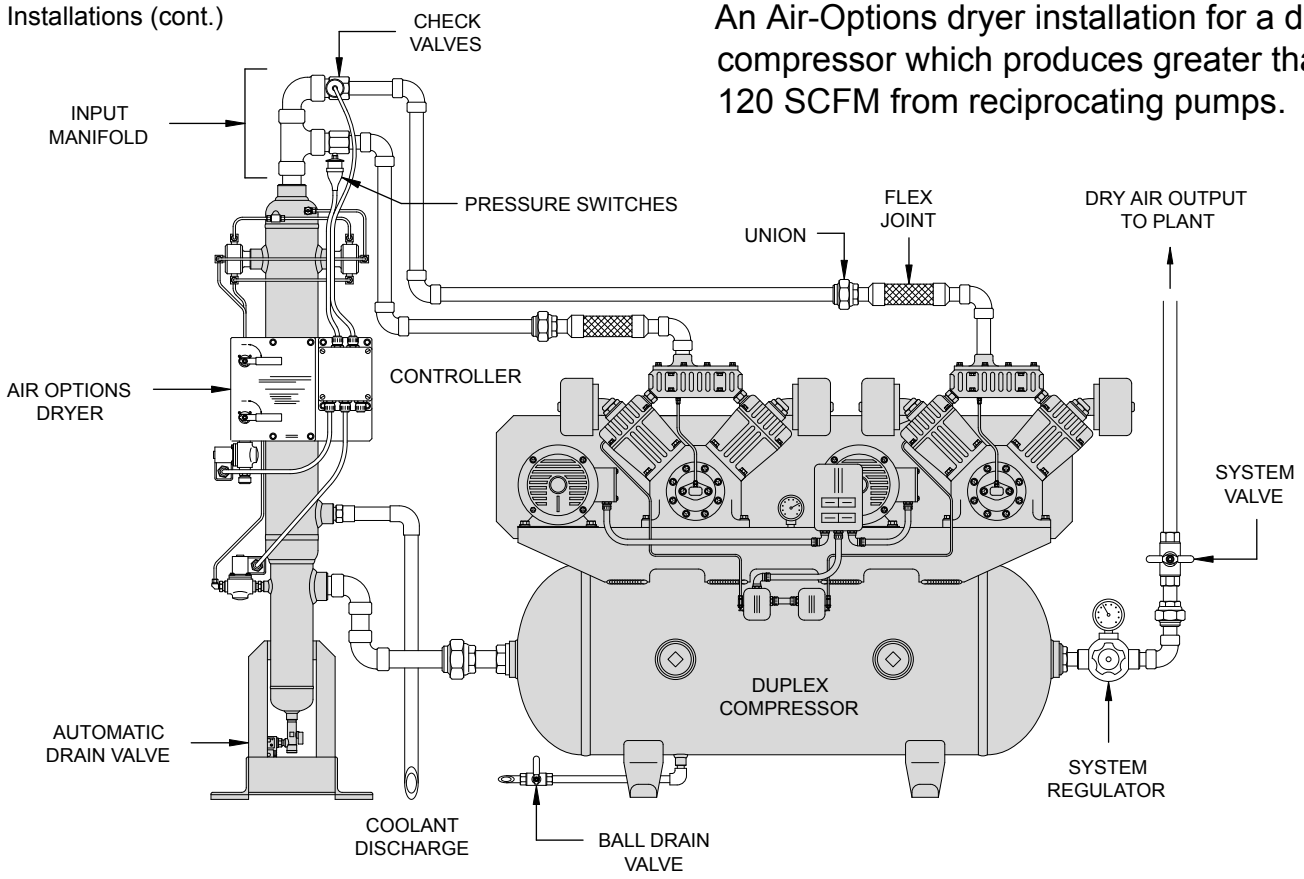
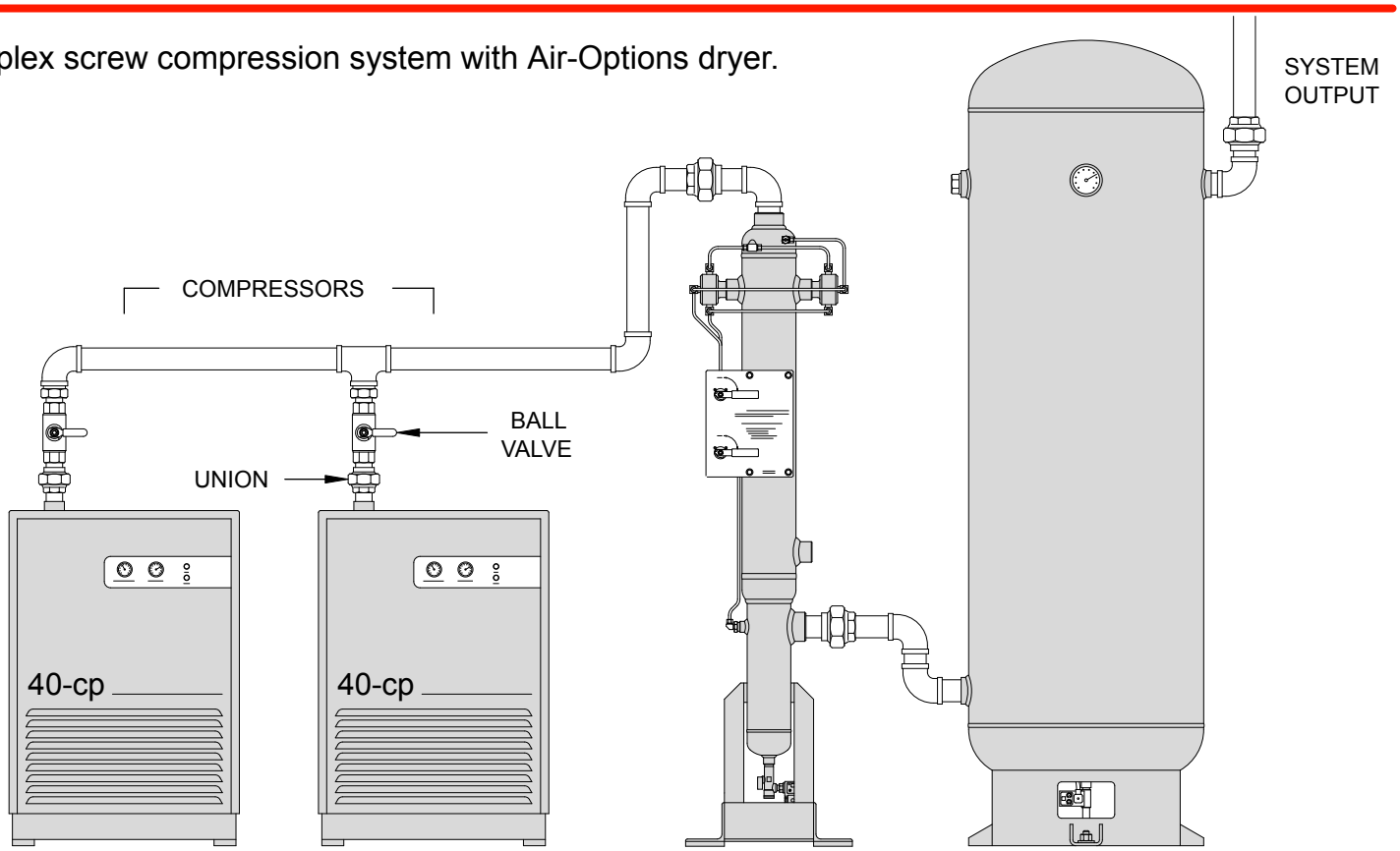
Duplex Installations (cont.)

An Air-Options dryer installation for a duplex compressor which produces greater than 120 SCFM from reciprocating pumps.



Duplex screw compression system with Air-Options dryer.



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