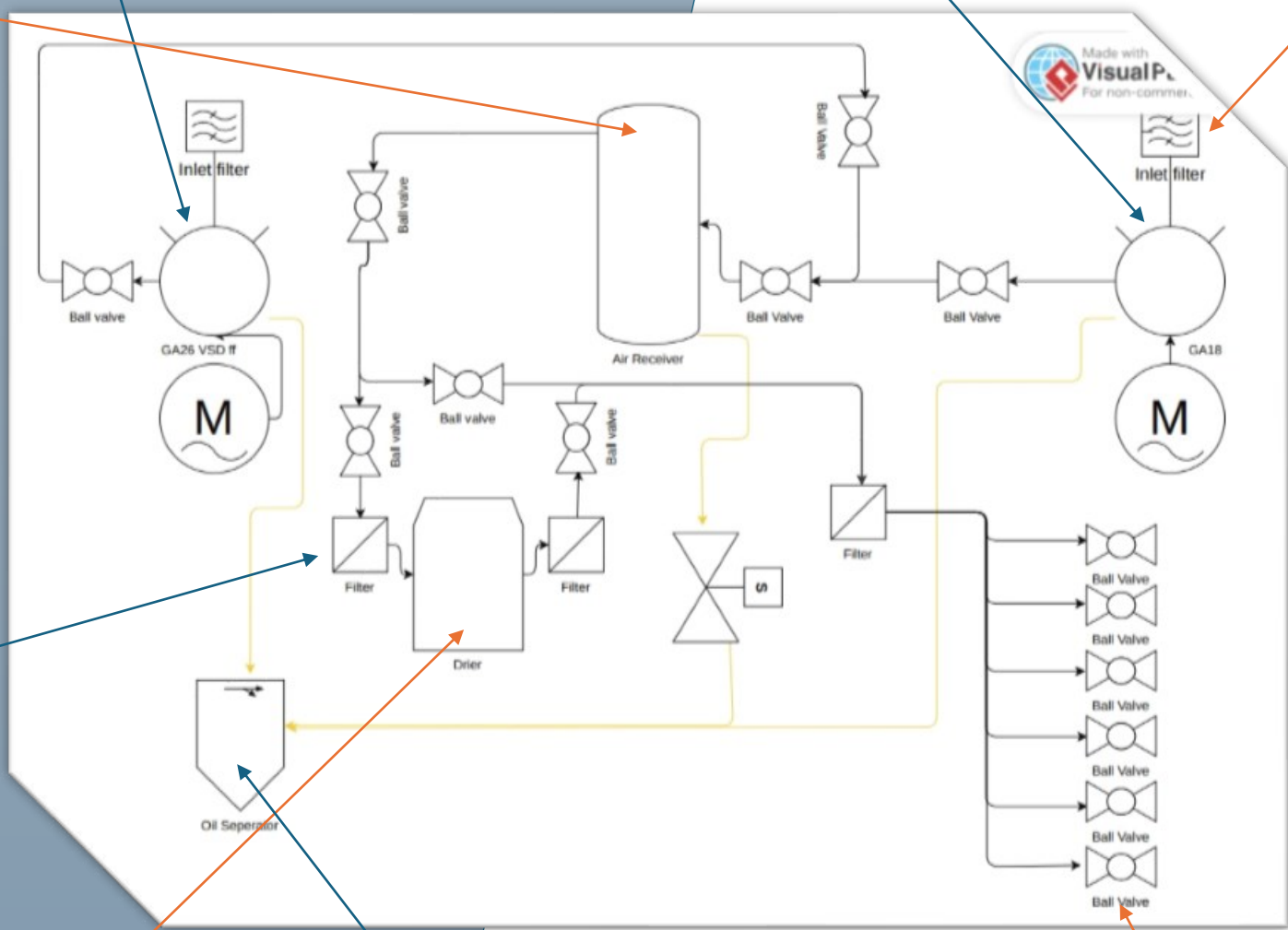


GA26 VSD Compressor: The GA26 VSD (Variable Speed Drive) compressor is the primary unit responsible for compressing atmospheric air. The VSD technology allows the compressor to adjust its speed based on the demand for compressed air, improving energy efficiency and reducing operational costs. The compressor includes several key components such as an air intake valve, compression chamber, cooling system, and control unit. Diagram of the compressor is located within the appendix of the report.

GA18 Compressor: The GA18 compressor acts as a backup unit and only activates if the GA26 VSD fails or cannot meet the demand. This redundancy ensures that the plant always has a reliable supply of compressed air, even during maintenance or unexpected failures of the primary compressor.

Inlet Filter: The inlet filter removes dust, dirt, and other contaminants from the atmospheric air before it enters the compressor. This is crucial for protecting the internal components of the compressor and ensuring the quality of the compressed air.

Air Receiver: The air receiver is a storage tank that holds compressed air at a consistent pressure. This helps to smooth out fluctuations in air supply and ensures a steady flow to the end-use applications. The air receiver also allows the compressor to operate more efficiently by reducing the number of start/stop cycles.



The compressed air system operates by drawing in atmospheric air through an inlet filter, which removes initial contaminants (1). The filtered air then enters the primary compressor (GA26 VSD). The compressor increases the air pressure to the desired level, ensuring a consistent and reliable supply of compressed air (2).

Post-compression, the air flows into an air receiver, where it is stored temporarily (3). From here, the air passes through additional filters (4) to remove any remaining particulates and a drier to eliminate moisture (5). Finally, the air goes through an oil separator to ensure it is free from oil before being distributed for use within the plant (6).

Filters: After compression, the air passes through additional filters to remove oil, moisture, and other impurities. These filters are essential for maintaining the quality of the compressed air and protecting downstream equipment.

Drier: The drier removes moisture from the compressed air, which is important for preventing corrosion and damage to pneumatic equipment. The most common type of drier used in compressed air systems is the refrigerated drier, which cools the air to condense and remove moisture.

Oil Separator: The oil separator removes oil from the compressed air, which is particularly important in applications where oil contamination can cause damage or affect product quality.

Ball Valves: Ball valves are used throughout the system to control the flow of air. These valves can be manually or automatically operated to isolate sections of the system for maintenance or to adjust the flow rate.