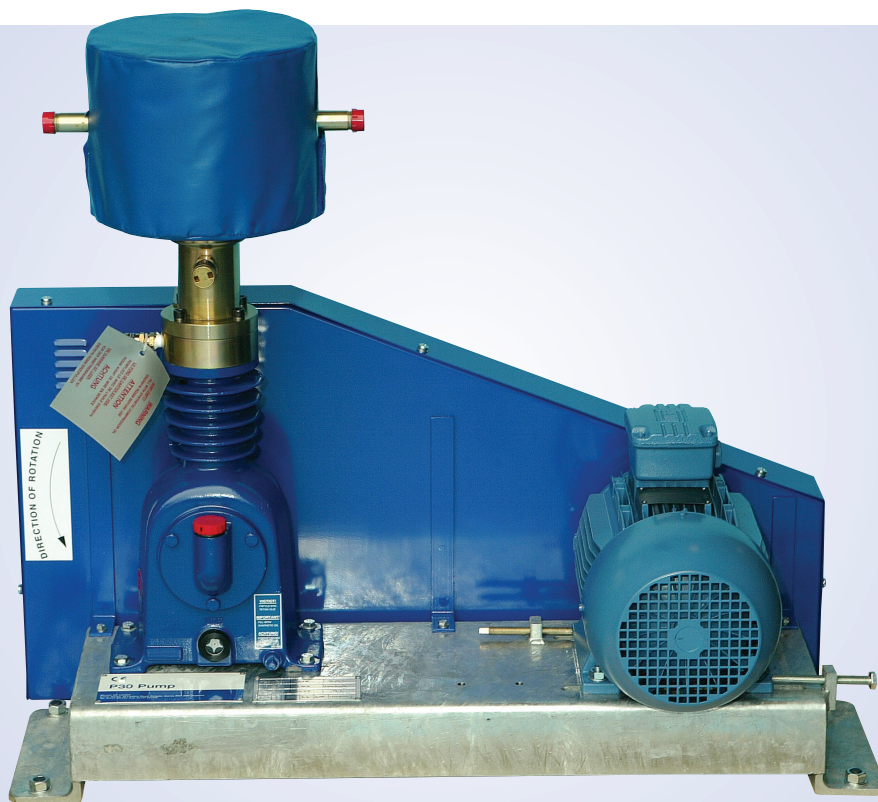


Cylinder Filling Pumps for CO₂ - P30, P50 & P100



P30 Pump

We offer a range of high pressure CO₂ cylinder filling pumps with capacities from 300 kg/h to 1200 kg/h. The P30 is designed to fill cylinders from either bulk liquid CO₂ storage vessels or from cylinder supply. The P50 & P100 pumps are designed to fill cylinders from bulk liquid CO₂ storage vessels only. Where a bulk liquid CO₂ tank is used as a supply source, refrigeration is required in the tank. The pumps may also be used where a high pressure source of liquid CO₂ is required for a particular process.

Pumps are either supplied as a basic pump on a base with motor, pulleys, drive belts and guard or alternatively as a recharging unit with automatic revert system to re-circulate CO₂ back to the storage tank during periods of no demand.

For efficient pumping of liquid CO₂ stored in a bulk storage vessel, the head of the pump must be maintained at a temperature as near that of the liquid CO₂ as possible. This is achieved by pumping continuously and re-circulating liquid CO₂ back to the storage tank during periods of no demand. The recharging unit has a revert system local to the pump to enable pipe runs to be kept short, thereby reducing heat load to a minimum.

As the pumps have a positive displacement, it is essential that a relief valve is installed on the discharge line to protect against inadvertent closure of valves etc.



P30 Recharging Unit

P50 Recharging Unit

The P30 Recharging Unit is supplied as the basic pump plus an auto revert system comprising isolating and filling valves, solenoid operated revert valve, non return valve, relief valves, starter/isolator, control box, pressure indicator, pressure revert valve, all interconnecting pipework and high pressure hoses. Each unit is supplied suitable for cylinder to cylinder transfer. Modification of the pipework and fitting of head insulation (supplied) will be necessary when taking CO₂ from a bulk tank.

The P50 and P100 Recharging Units are supplied as the basic pump plus an auto revert and pressure damping system comprising pneumatically operated auto revert valve, non return valve, pressure switch, pressure indicator, control box, pressure damping buffer vessel with temperature controlled heater, relief valve, blow down valve and all interconnecting pipework on a common baseframe. The pressure pulse damping system is a feature of the larger recharging units. It effectively reduces fluctuations in CO₂ flow caused by the action of the plunger.

Transfer Capacity

P30	Pump and Recharging Unit	300 kg/h
P50	Pump and Recharging Unit	600 kg/h
P100	Pump and Recharging Unit	1200 kg/h

Legislation

Basic pumps are CE marked to comply with European Machinery Directive 98/37/EC and Low Voltage Directive 73/23/EC. Recharging Units comply with Pressure Equipment Directive 97/23/EC.

Installation

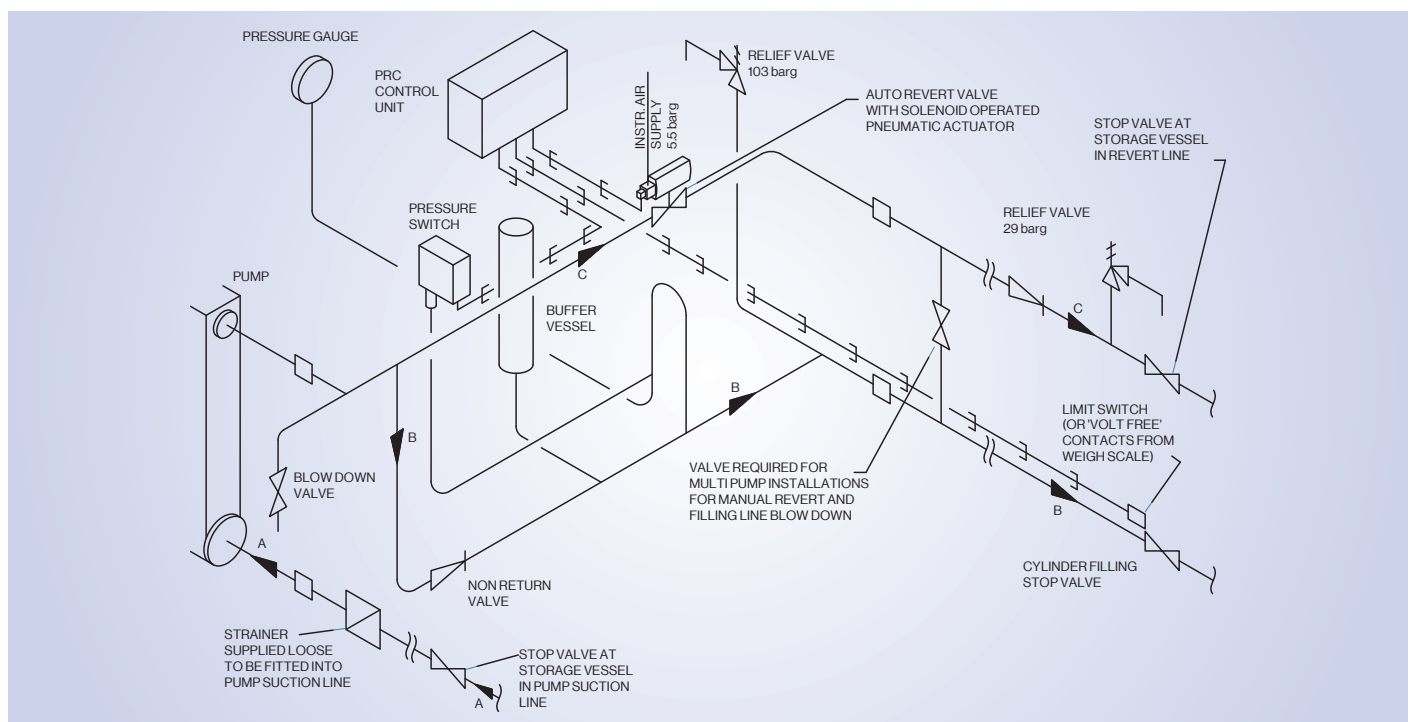
When pumping liquid CO₂ into cylinders, adequate suction conditions are critical. The pump should be installed as low as possible in relation to the liquid CO₂ source to ensure maximum positive suction head on the pump. For a bulk liquid CO₂ source the suction line should be insulated with at least 50 mm expanded polyurethane foam (or similar) and must not exceed 3 metres in length.

Cylinder Filling Pumps for CO₂ - P30, P50, P100

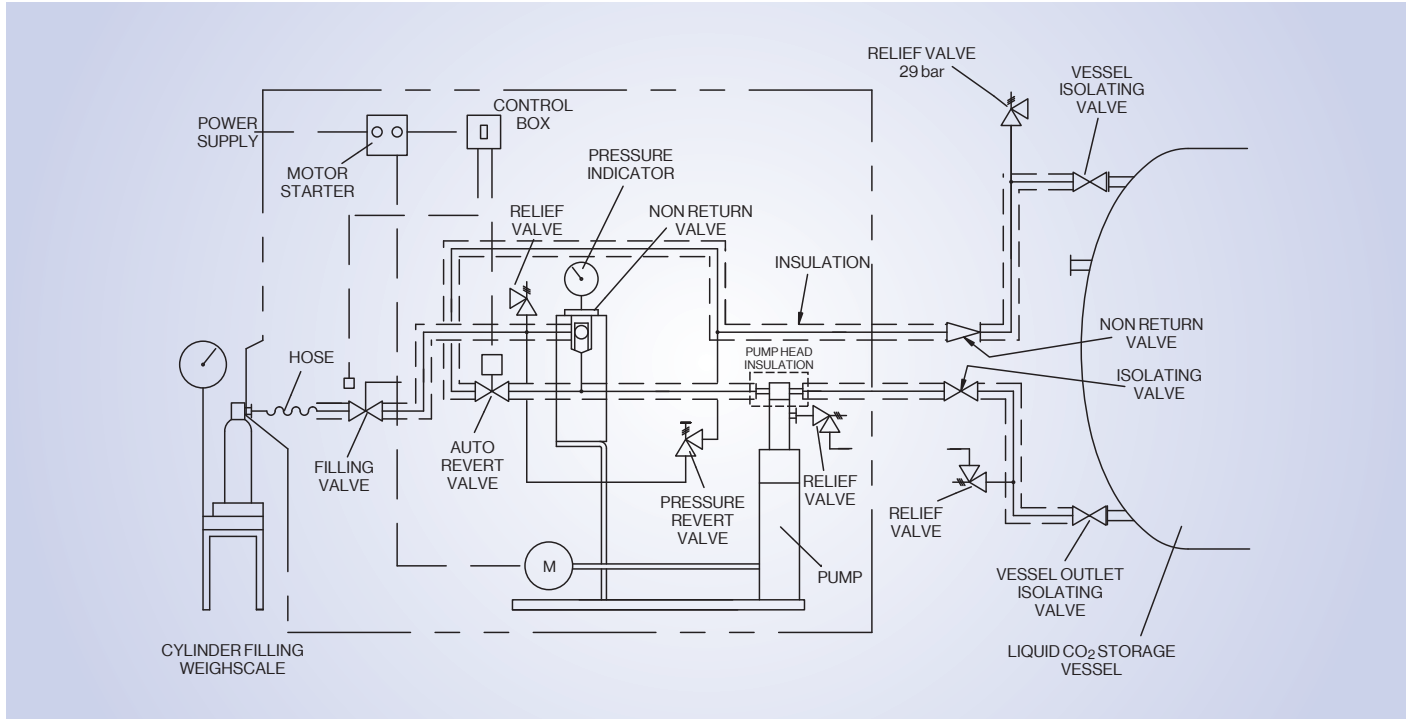
Specification

	P30 Pump	P30 Recharging Unit	P50 Pump	P50 Recharging Unit	P100 Pump	P100 Recharging Unit
Performance Maximum design pressure (bar) Nominal throughput (kg/h) (bulk CO ₂ at 20 bar -17°C)	103.5 300	103.5 300	103.5 600	103.5 600	103.5 1200	103.5 1200
Mechanical CO ₂ suction connection CO ₂ discharge connection Pump speed (rpm)	R½ R½ 400	Rc½ Rc½ 400	2 in NPT 1 in NPT 350	Rc1 Rc½ 350	2 in NPT 1 in NPT 350	Rc1½ Rc1½ 350
Electrical Motor T.E.F.C. Motor frame size Motor speed (rpm) Supply	2.2 kW D:100L 1420 400 V AC, 3 Phase, 50 Hz	2.2 kW D:100L 1420 400 V AC, 3 Phase, 50 Hz	4 kW D:112M 1420 400 V AC, 3 Phase, 50 Hz	4 kW D:112M 1420 400 V AC, 3 Phase, 50 Hz	7.5 kW D:132M 1440 400 V AC, 3 Phase, 50 Hz	7.5 kW D:132M 1440 400 V AC, 3 Phase, 50 Hz
Dimensions/Weight Length (mm) Width (mm) Height (mm) Net weight (approx. kg) Gross packed weight (approx. kg)	912 394 770 91 105	912 417 770 106 123	940 780 540 177 242	1160 780 1130 229 310	940 882 540 270 330	1160 882 1030 326 400
Shipping Dimensions Length (cms) Width (cms) Height (cms)	97 49 85	97 49 85	113 88 78	133 90 130	113 108 78	133 108 130
Part number with motor	2226.0580	2226.0584	2226.0621	2226.0601	2226.0721	2226.0731

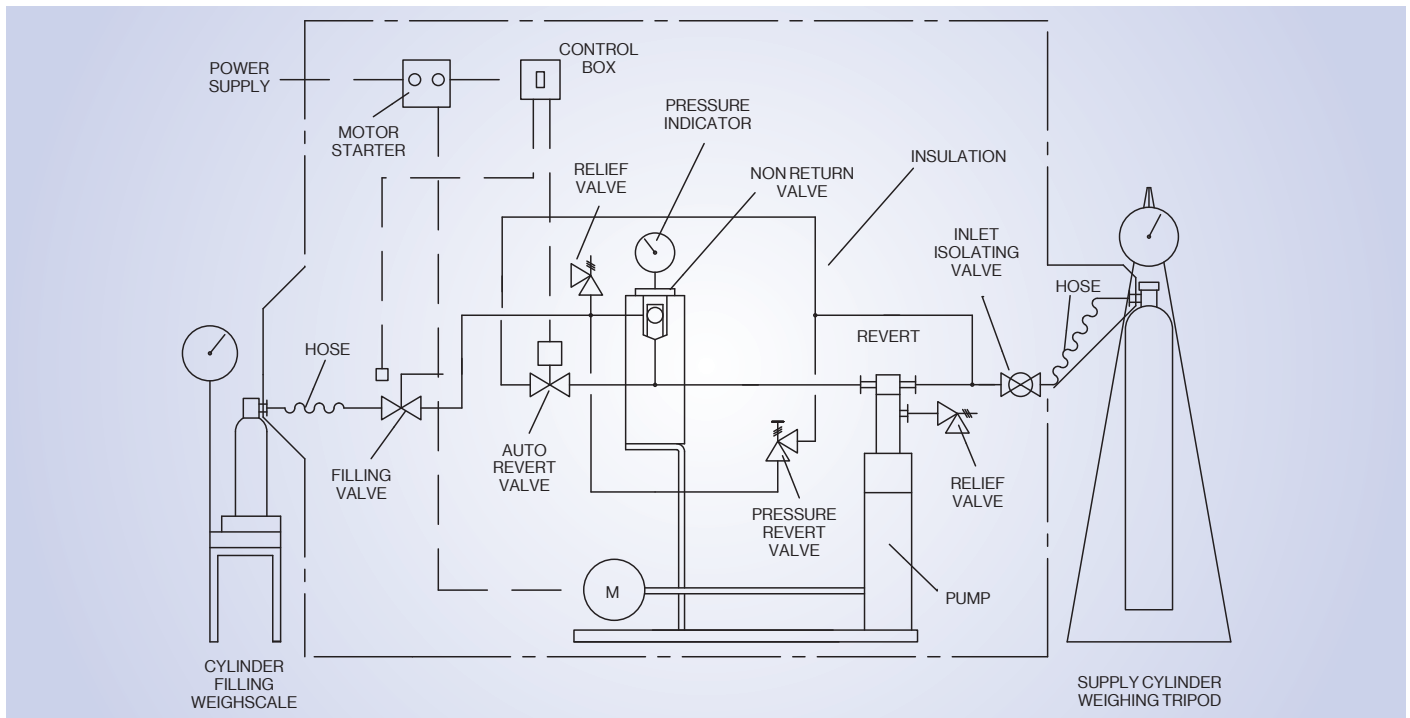
CO₂ Cylinder Recharging Unit P50 & P100 Flow Diagram



CO₂ Cylinder Recharging Unit P30 Flow Diagram - Bulk Supply



CO₂ Cylinder Recharging Unit P30 Flow Diagram - Cylinder Supply



Air Liquide CO₂ Equipment: Freeze, Pump, Vaporise, Protect



FM12962

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The world leader in gases, technologies and services for Industry and Health, Air Liquide is present in 80 countries with approximately 68,000 employees and serves more than 3 million customers and patients.