

Suction Control Valve Types HAKG40 and HAKO40

Application

For two point capacity control of screw compressors, which can be pressurized with full discharge pressure at shut - down.

Operation

Straight throughflow valve with butterfly type control disc and swing type non-return valve.

Operation of the swing type non-return valve

The suction line is closed quickly, automatically, and independently of any other components of the compressor if the air flow is interrupted or reversed.

Operation of the butterfly type control disc

Two point control - full load or idling - via the integrated rotary cylinder.

Type HAKG 40:

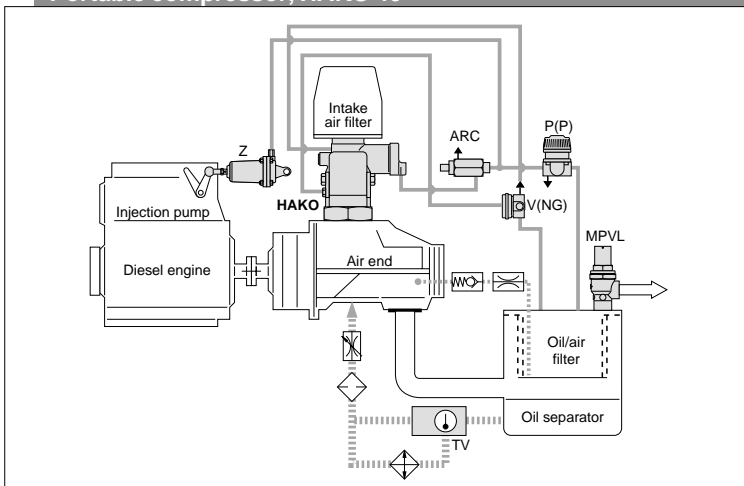
Normally closed. Signal pressure opens the control disc.

Type HAKO 40:

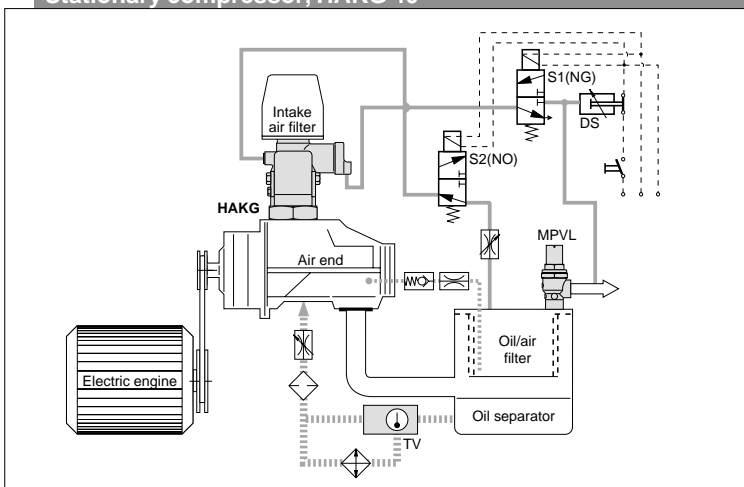
Normally open. Signal pressure closes the control disc.

⚠ Attention! Never attempt to disassemble a cylinder whilst under pressure!

Portable compressor, HAKO 40



Stationary compressor, HAKG 40



Examples:

Portable compressor, HAKO 40

The compressor is controlled steplessly by the proportional controller P(P) via the servo cylinder from full engine speed to minimum speed. At low air demand the compressor is controlled by the two point controller ARC (pilot valve). It closes or opens the control disc of the HAKO via the integrated rotary cylinder.

Start-Up: The user valves are opened. The control disc of the HAKO is open, the injection pump is at full load.

Warming-Up: The user valves are opened. The control disc of the HAKO is open and the engine is at full load.

Capacity Control: The engine speed is controlled by the proportional controller P(P) via the cylinder Z. The control disc of the HAKO is controlled by the two point controller ARC.

Idling: The engine is at minimum speed. The control valve of the HAKO is closed (idling position). Excess air is blown off via the outlet nozzle of the P(P).

Shut-down, Stand-by: The non-return valve of the HAKO is closed tightly. The oil separator is vented via the venting valve V(NG).

Stationary compressor, HAKG 40

The compressor is controlled by the pressure switch DS, which opens or closes the solenoid valves S1(NG) and S2(NO):

Start-up: The control valve of the HAKG is closed, the oil separator is vented via the solenoid valve S2(NO).

Full load: The solenoid valve S2(NO) is closed and the solenoid valve S1 is opened. The control disc of the HAKG is opened by the rotary cylinder.

Idling: The solenoid valve S1 closes and the control disc of the HAKG is closed by the rotary cylinder of the HAKG. The oil separator pressure is lowered via the solenoid valve S2(NO).

Shut-down, stand-by: Both control disc and check valve of the HAKG are closed. The oil separator is vented via the solenoid valve S2(NO).

Installation

At the suction flange of the air end. Fastening of air intake filter and connection of signal pressure or monitoring lines see details.

Order details

Compressor data: Suction load and final pressure at full-load, suction vacuum and final pressure at no-load, manufacturer and type of air-end element or connection measurements of the suction flanges.

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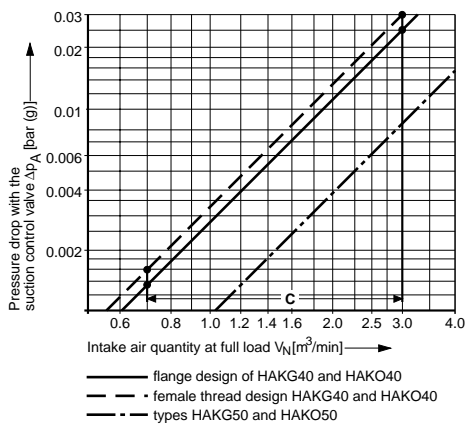
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Details

Nominal diameter DN	mm	40
Type		HAKG 40 for start-up with suction control valve closed HAKO 40 for start-up with suction control valve open
Max. working pressure PS	bar (g)	16
Temperature range	°C	- 20 to +90 • suction duct of air end (+140 in case of an emergency stop)
Control characteristic		up to 45° opening angle approximately logarithmic
K_{VA} -value	m ³ /h	flange design: 44 - for air intake from free atmosphere female thread design: 40 - for air intake from free atmosphere
Air intake capacity	m ³ /min	Pressure drop and proposed range of application see diagram
Idling capacity		idling drilling in the control disc $d = 1 \text{ mm}^1$
Dimensions	mm	see installation drawing
Connections		flange design: Compressor, suction duct: $D = 102 \times 102 \text{ mm}$ $F = 4$ bolt holes (diameter, pitch circle diameter suitable for air end type specified in order) Signal pressure inlet: $E = G 1/8$ Additional connections: $W = G 1/8$ $K = G 1/4$ female thread design: $D = G 2$ $E = G 1/8$ $K, W = G 1/8$
Installation attitude		with hose coupling facing upwards ($\pm 20^\circ$)
Servo cylinder		rotary cylinder for two point control of the butterfly type control valve
Control signal	bar (g)	3 to 16 • compressed air quality see Medium
Medium		oily pressurized air, filtered • recommended compressed air quality according to DIN ISO 8573-1, class 5 Reference oil: see www.hoerbigerkompressortechnik.de
Materials		Housing parts: Aluminium alloy Internal parts: Aluminium alloy, corrosion resistant steel, plated steel PTFE-compound bearings, Viton sealings, Delrin
Weight	kg	flange design: 1.4 • female thread design: 1.15

¹⁾ Manufacturers of air ends sometimes propose an optimum suction vacuum for zero load conditions. Please specify both required suction vacuum and full load capacity or required bypass nozzle diameter.

Pressure drop in dependence of air intake (F.A.D.)



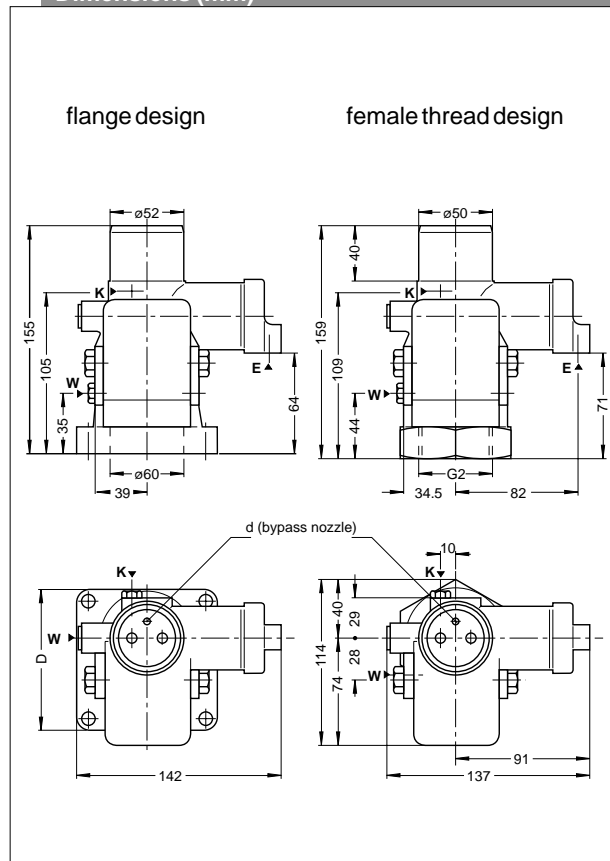
Range C: Recommended application for HAKG40 and HAKO40

The diagram shows the pressure drop Δp_s within the suction control valve at full load, including the pressure loss caused by accelerating ambient air to intake velocity (K_{VA} -value). Pressure drops caused by intake air filters and adjacent air lines are not included, since they are dependent on designs selected by the compressor manufacturer.

Maintenance

The service manual W230RCC contains information regarding the maintenance intervals. While disassembling the valve for inspection, cleaning or retrofitting purposes, also refer to the respective information contained in the service manual W230RCC. For the actual service manuals visit our homepage www.hoerbigerkompressortechnik.de.

Dimensions (mm)



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