



200000

Reliable and durable values for use in air and CO_2 compressors

ESKAMAXFLOW

Valves are used for controlling the air, oil and refrigerant circuits in compressors. They function mechanically and open and close at defined pressures. In case a valve functions incorrectly or does not function at all, this can lead to contamination of the connected system and end product, overheating as well as an unforeseen failure of the compressor.

Valves thus fall within the scope of those wear parts that are replaced during proactive maintenance before they can possibly fail.

Development

The STASSKOL valves go under the name ESKAmaxflow. They complete the wide product range of wear parts that the company offers for piston compressors.

The design of the ESKAmaxflow valve series has been developed on the basis of the finite element method, abbreviated as FEM.

Tests of various valve designs revealed that valve seats with conical holes are significantly better in terms of flow behaviour, stress and deformation as compared to seats with oblong holes.

The gas flow has been calculated and optimised with CFD. This was followed by extensive tests of the valves in the in-house technical centre as well as numerous test runs in the field.





ESKAmaxflow pressure valves





Design with FEM

Calculation of the gas flow rate with CFD

Average usage times

The valve dynamic was optimised with DVA. This development work resulted in reliable and durable valves.



DVA before optimisation

ESKAmaxflow matches up to its competition

The pressure drop and volume flow curve is an important parameter in the assessment and selection of valves. It provides information about the scope of the flow resistance Δp depending on the volume flow V. In the test by an independent institute, the ESKAmaxflow clearly showed the best values as compared to valves from other suppliers that had the same design or had oblong valve seats.

Valves from the ESKAmaxflow series have been in use for over 24 months now without any interruptions or failures.



DVA after optimisation





Test setup of the independent institute to determine the flow resistance

STASSKOL

ESKAmaxflow with top grades



Pressure lost Δp [Pa] vs. volume flow \dot{V} at discharge in [m³/h]

Valve no. 1 - ESKAmaxflow with hole valve seat

Valve no. 2 - Valve from another provider with oblong valve seat

from 200 m³/h "whistling" Valve no. 3 - Valve from yet another provider with oblong valve seat

Valve no. 4 - STASSKOL development variant with oblong valve seat - not followed up

Valve no. 5 - Valve from another provider with long valve seat

Repair

In addition to the manufacturing of new valves, STASSKOL also offers valve repairs. This includes the following services:

- ✓ Dismantling
- ✓ Pre-inspection and cleaning
- ✓ Evaluation, degreasing in the washing machine, sandblasting reusable components
- \checkmark Assessment of the components and processing
- ✓ Rework or manufacturing of the components
- \checkmark Installation
- ✓ Packaging, VCI corrosion protection





Valve leakage test bench

The test bench is used for quality testing of repaired valves as well as newly manufactured or newly developed valves.

There are two measuring ranges, 0.03-1.5 Nm³/h and 0.3-30 Nm³/h. The valves are tightened using a special pneumatic cylinder at a pressure of 5 bar with a force of approx. 3.5 tonnes. Valves with a diameter of up to 280 mm can be tested on the valve leakage test bench.





Nomenclature

Nomenclature VVWWWXX-YY-Z			Example: SV134AL-oG-S
vv	Valve type	SV = suction valve, DV = pressure valve	suction valve
www	Size	e.g. 134	134 mm
XX	Design feature	Plate guide: A = guided, B = routed Plate material: F = Plastic, L = Steel	Plate guide: guided Plate material: Steel
YY	Unloader	oG = without unloader, mG = with unloader	without unloader
Z	Application	S = Standard, P = Process	Standard



Headquarter STASSKOL GmbH Maybachstrasse 2 39418 Stassfurt Germany

Please go to www.stasskol.de for more information about your contact person.