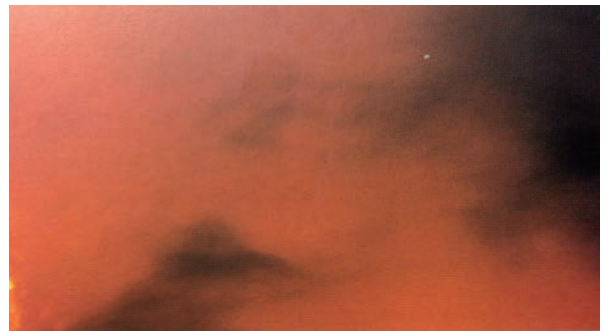


Heat Resistant Nozzle Systems



Hot Stuff – With System to Success

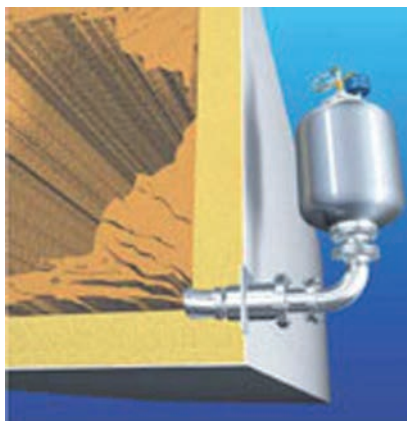
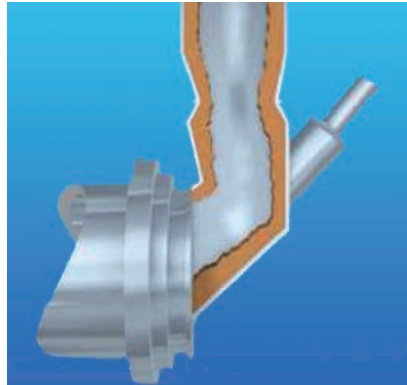
Introduction

Caking and clogging of kiln lines in the cement industry disrupt the production process and reduce the availability of cement making facilities by:

- reduced output of the kiln line
- fluctuations in clinker quality
- Increased energy consumption
- Elaborate and expensive cleaning work
- Increased health and safety risks whilst working in the hot kiln area

In order to minimise the effects of caking on hot kiln lines, air blast units have been used successfully for years.

The pre-stressed compressed inside the air storage tank is released within milliseconds at high velocity between the edge of the caking and the furnace lining and blasts the caking away.



SHOCK-BLOWER® The energy saving concept

AGRICHEMA has continually improved and evolved the technology behind the SHOCK-BLOWER® air-blast units in order to optimise and adapt each unit to its operating conditions.

SHOCK-BLOWER® air-blast units with hot-dip galvanised air storage tanks and vent seats made of CrNi compound steel offer reliable functionality, maximum security and a long service life.

Due to the unique valve technology, millisecond fast hydraulic closing of pistons leads to a 50% energy cost/compressed air reduction.

In cramped conditions, the use of AGRICHEMA POWERPACK systems with a single air storage unit and multiple valves has proven its worth and effectiveness over and over again.



AGRICHEMA's heat resistant nozzle systems

In order to eliminate the caking, heat resistant nozzles are used. The best cleansing effects can be observed when the air-blasts are directed into the dividing surface between the edge of the caking and the furnace lining.

The heat resistant nozzles and pipes are exposed to extreme operating conditions and are subject to a high degree of wear and tear due to:

- Temperatures >900° C
- High chlorine- and sulphur-loads within the hot gas
- Slowly accumulating heat damage



In the past few years AGRICHEMA has developed several versatile heat resistant nozzle systems with 0°, 20° and 90° exhaust angles:

- Heat resistant nozzles in refractory brick lining
- Heat resistant nozzles in changing pipes
- Heat resistant pipes in changing pipes

Heat resistant nozzles in refractory brick lining



Type 0°



Type 20°

Heat resistant pipe in changing pipe

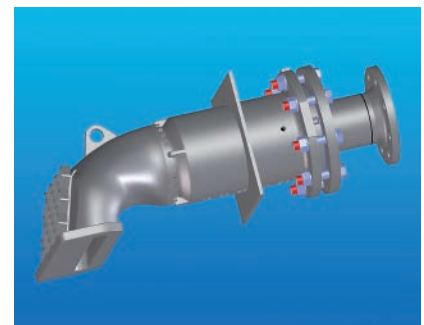


Heat resistant nozzle in a changing pipe (simplified assembly)

1. Heat resistant nozzle
2. Changing pipe
3. Clamping unit



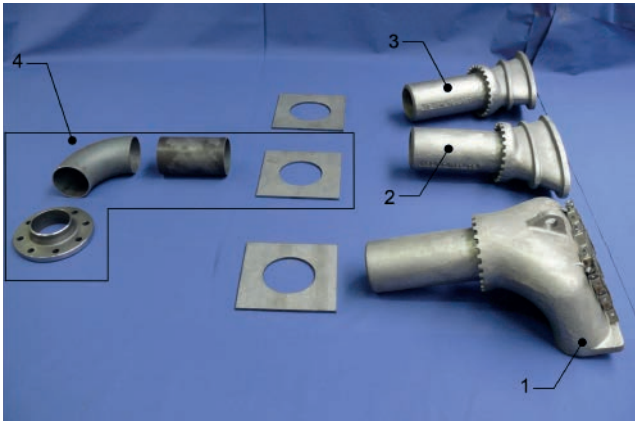
Type 0°



Type 90°

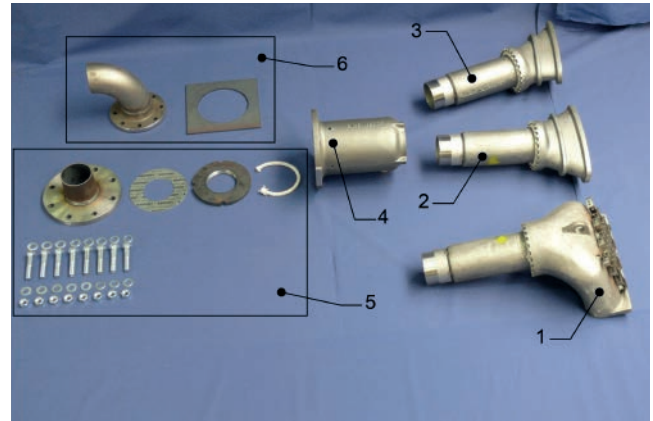
Heat-resistant nozzles

in brickwork



1. Heat-resistant nozzle 90°
2. Heat-resistant nozzle 0°
3. Heat-resistant nozzle 20°
4. Accessories for heat-resistant nozzles in brickwork

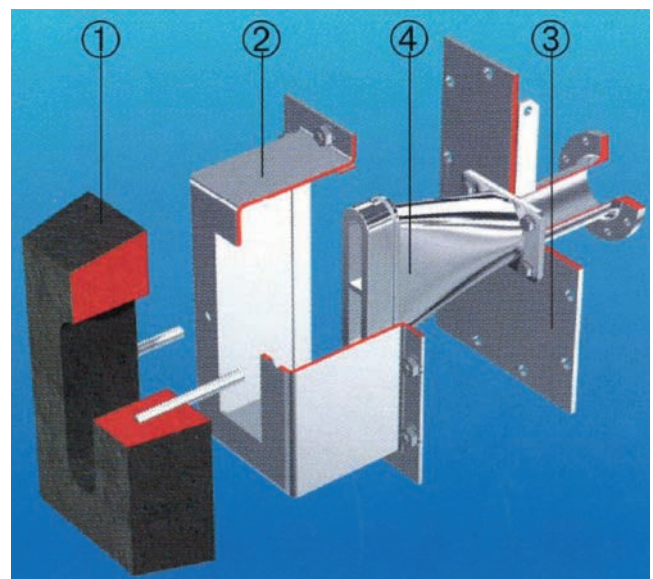
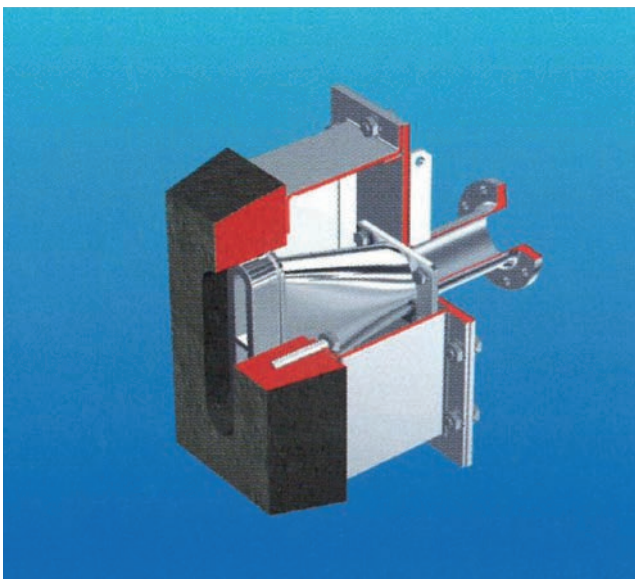
in the changing pipe



1. Heat-resistant nozzle 90°, for changing pipe
2. Heat-resistant nozzle 0°, for changing pipe
3. Heat-resistant nozzle 20°, for changing pipe
4. Changing pipe for 0°, 20° and 90° heat-resistant nozzles
5. Clamping set for changing pipe nozzles
6. Accessories for heat-resistant nozzles in changing pipe

Heat-resistant nozzle with ceramic nozzle brick and 0° blowing angle

- Long service life even under extreme operating conditions, thanks to the ceramic nozzle brick (1) and fitting case (2).
- Quick external inspection by simply removing the front plate (3) with heat-resistant nozzle (4).



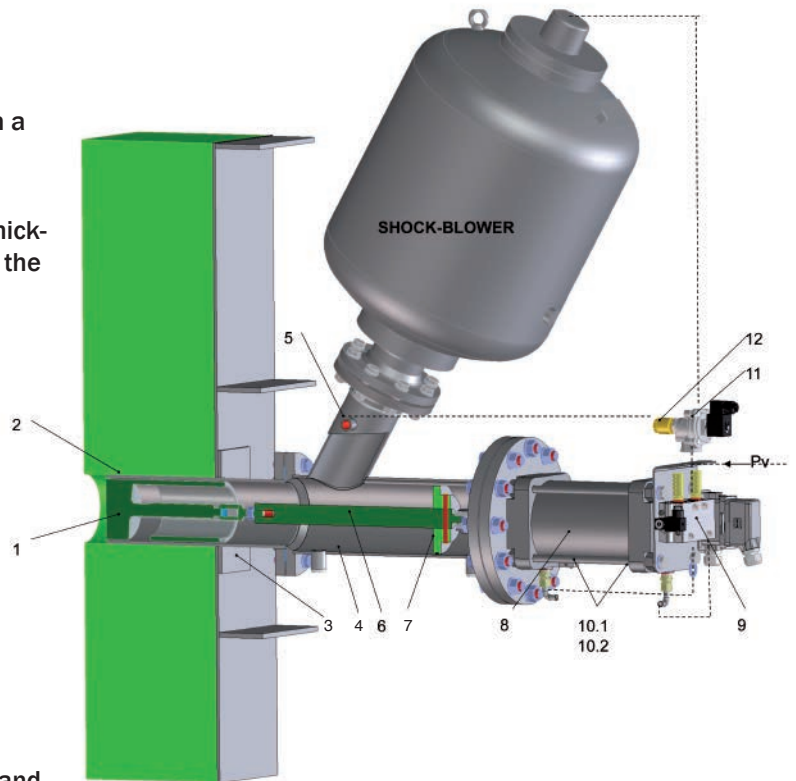
AGRICHEMA'S extendable heat resistant nozzle system

for the targeting of the dividing surface between caking and furnace lining using a directed air-blast

contains:

1. Nozzle, preferentially made of mat. 1.4823
2. Guide tube, made of mat. 1.4841, welded with a connecting flange
3. Mounting plate (loose), which is installed as is deemed appropriate with regards to the wall thickness, welded together with the guide tube and the furnace housing/wall
4. Tube fitting with connecting flanges
5. Socket for the purge air connection
6. A thrust rod
7. A deflector
8. A pneumatic cylinder
9. A 5/2 way valve
10. Proximity switch for end position sensing
11. 2/2 way valve R 3/4" for the purge air control
12. non return valve

this include all connections for the pneumatic and electrical control units, electrical connections, shut-off ball valves, fittings, seals and screws.

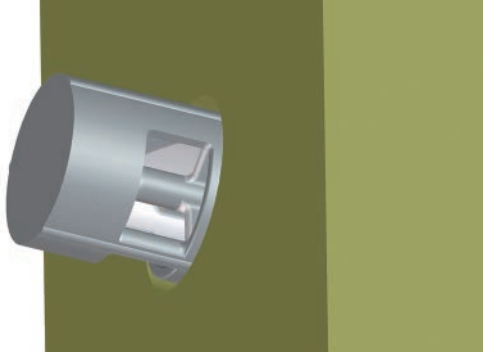


Benefits:

1. The extendable heat-resistant nozzle is only exposed to extreme operating conditions for a short time, when the SHOCK-BLOWER® is firing. After firing, the nozzle retracts and sits protected, back in the brickwork.
2. The nozzle can be fitted and replaced from outside
3. It's also possible to fit a nozzle at a later date while the furnace is in operation, if changes in operational conditions require this. The appropriate safety measures must be adhered to.
4. No scaffolding inside the furnace system
5. No works on the refractory brick lining, only core hole with 150mm diameter
6. No additional works
no flame cutter work required when upgrading
no aligning and stapling the new nozzle
no welding during installation
7. Replacement nozzle heads are inexpensive

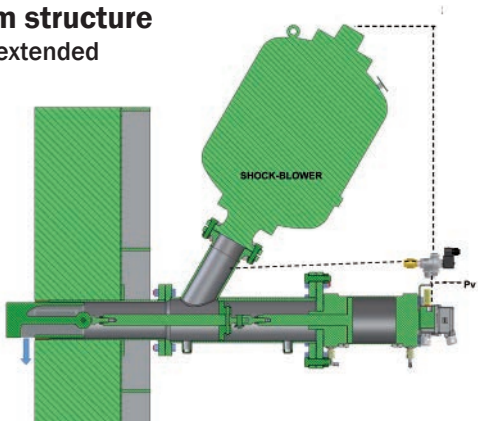
Extendable heat resistant nozzle, discharge angle: 180°

Nozzle extended



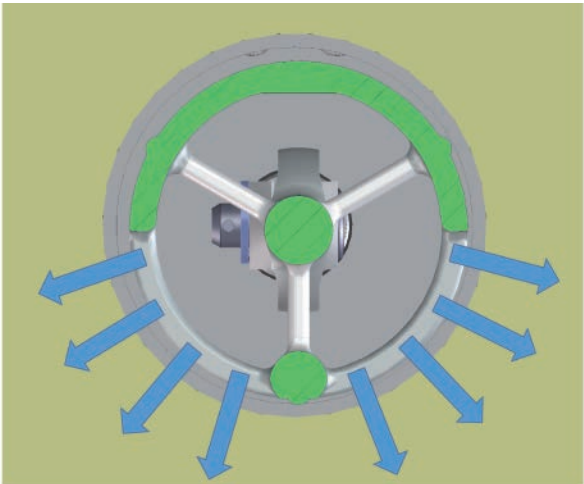
System structure

Nozzle extended



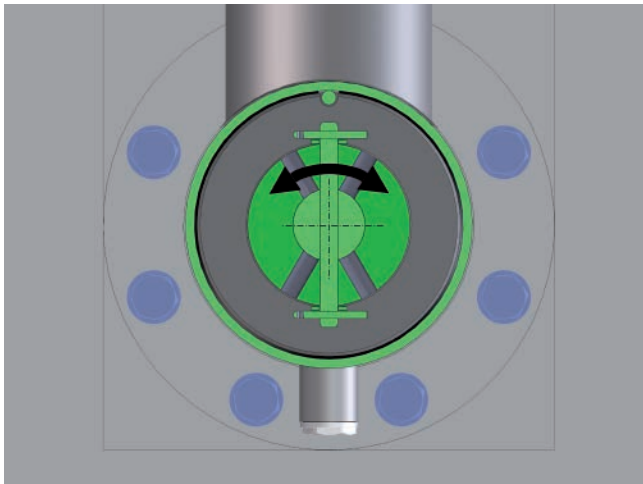
Nozzle (cross section)

Discharge angle 180 °



Deflector (cross section)

with a guide groove and locking bolts (discharge angle can be regulated from the outside)

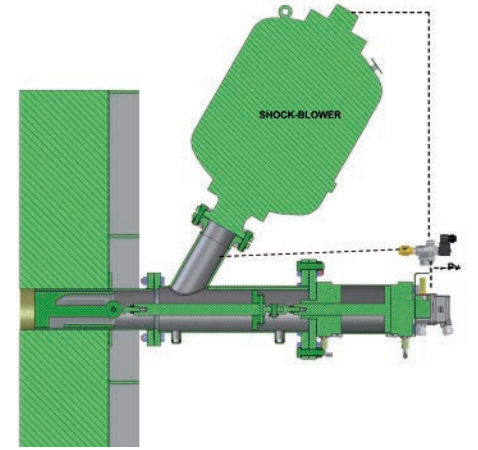


Application example



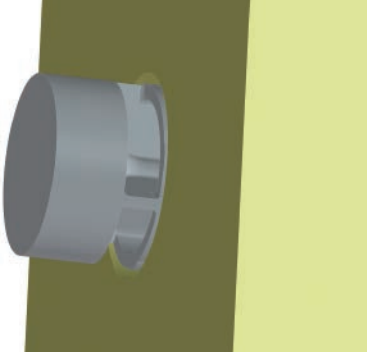
System structure

Nozzle retracted



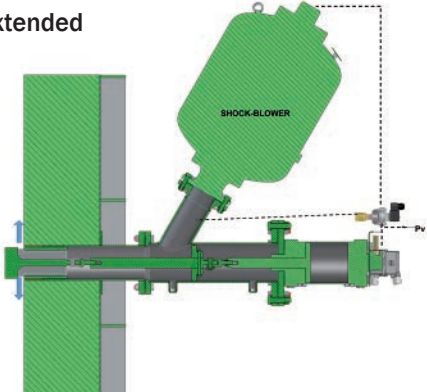
Extendable heat resistant nozzle, discharge angle: 360°

Nozzle extended



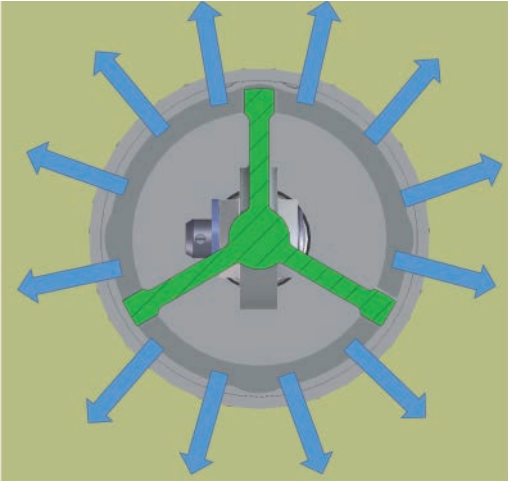
System structure

Nozzle extended



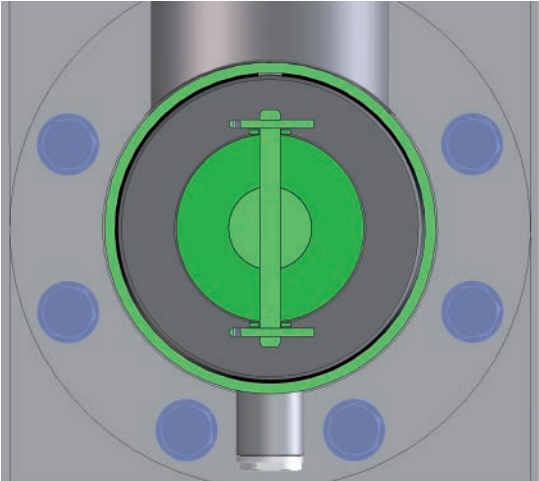
Nozzle (cross section)

Discharge angle: 360°

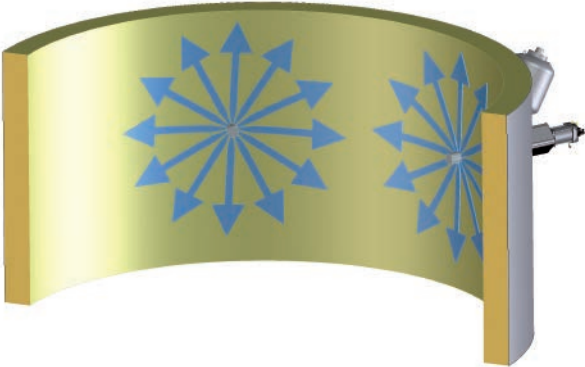


Deflector (cross section)

With locking bolts

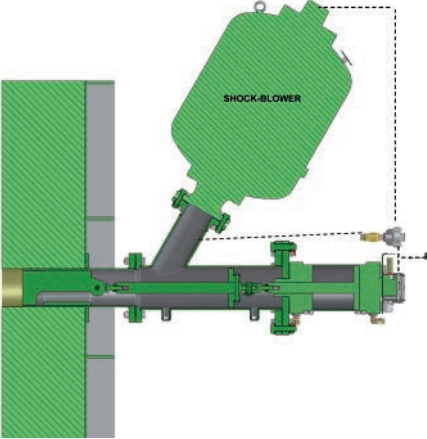


Application example



System structure

Nozzle retracted



Our comprehensive range of products offers individual solutions for all sectors in the bulk material industry:

- **SHOCK-BLOWER®** air-blast units remove material build-ups and keep bulk materials flowing.
- **VIBOSTAR®** vibrating cones for continuous delivery of bulk materials in the delivery area of silos.
- **ROTOSTAR®** travelling screws to empty silos with flat bottoms
- **TELESCOPER®** and Moduflex loading units are used for environment-friendly and dust free loading of bulk materials.
- **COMPONENTS** which serve to lock, distribute, produce and dispense bulk materials.

Our individual advice, high quality products and services go far beyond simple assembly of the installation and are essential factors for your success.

A sophisticated product range and the recognised know-how of AGRICHEMA give you the confidence that goes with making the right decision.