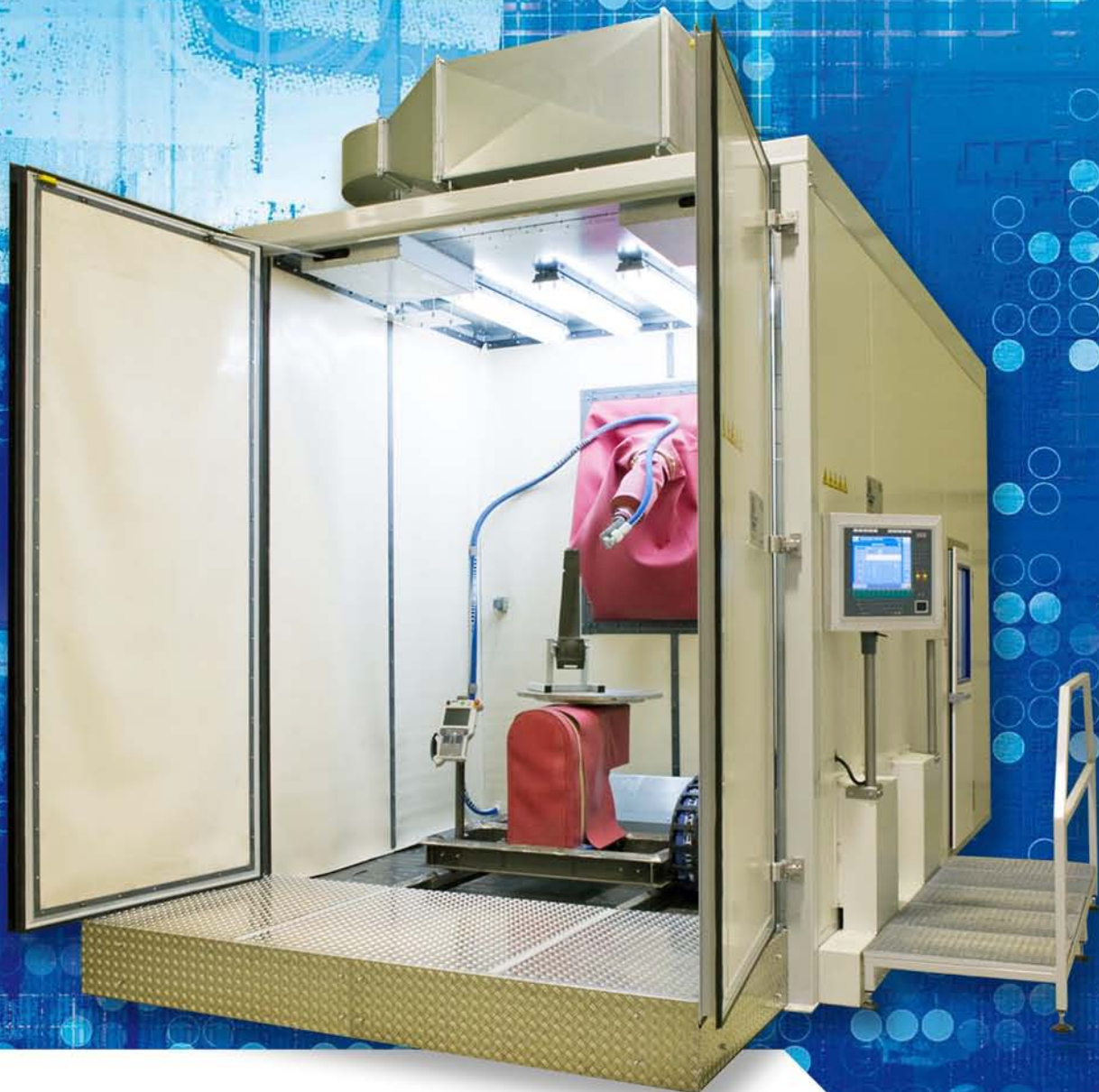


THE VERY LATEST TECHNOLOGY IN SURFACE TREATMENT



Straaltechniek International
Shotpeening Technology



Straaltechniek Group



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ISO Certified

For years Straaltechniek International aims at improving the quality of their products, managing systems and communication. In February 2007 this expertise has been rewarded with the ISO 9001:2000 certification. This precision of operating within many levels of the company is practised to maintain the certification and is now rewarded with the ISO 9001:2008 certification.



Member of NAG

Straaltechniek International is a member of the Netherlands Aerospace Group (NAG). The NAG is the national trade association encompassing aerospace companies and organisations engaged in education, R&D, engineering, manufacturing and Maintenance Repair and Overhaul of civil and military systems and equipment.



Besides the Netherlands Aerospace Group, Straaltechniek International is also associated with FME-CWM. The Association FME-CWM is the employers' organisation and trade association for the technological-industrial sector.



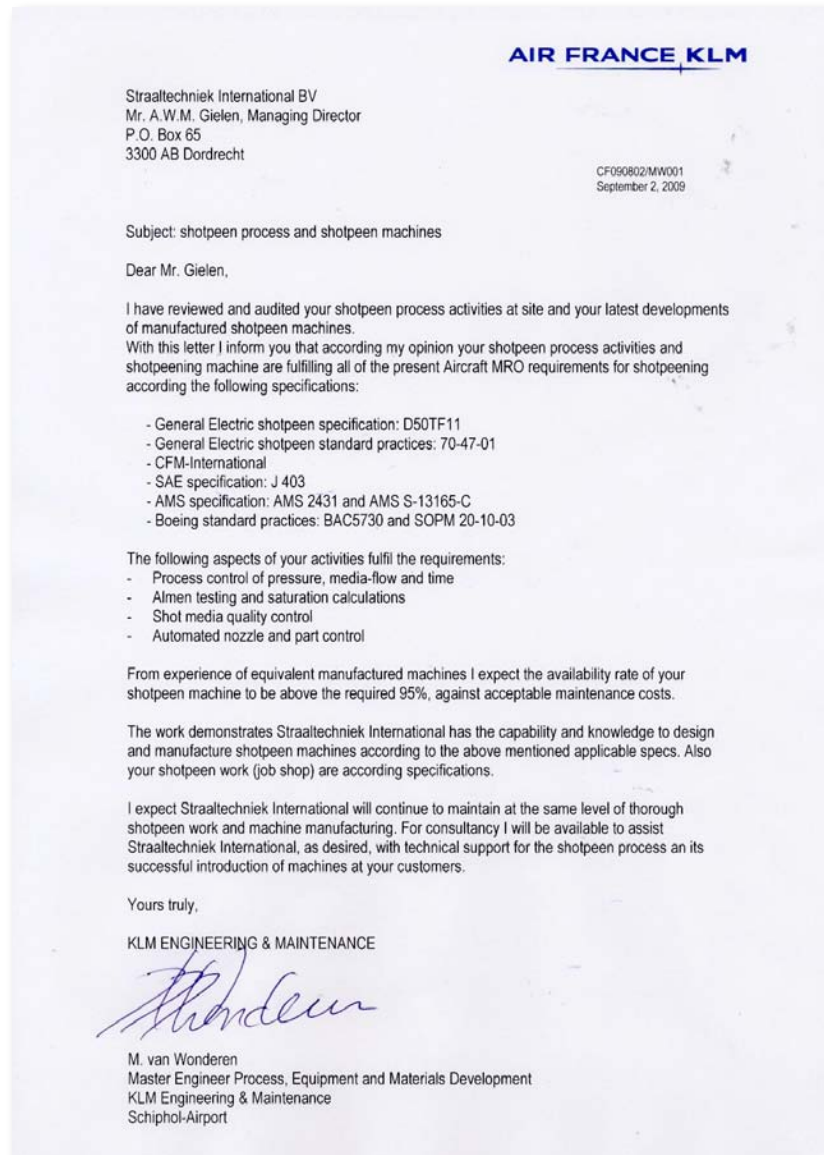
Quality assurance



Recommendations

Many companies experience the benefits of the controlled Shotpeening Process of Straaltechniek International. These companies are willing to give their recommendation because of the more than sufficient performance of shotpeen work and machine manufacturing.

Air France KLM is one of the companies to recommend Straaltechniek International for their capability and knowledge to design and manufacture shotpeen machines.





Newsletter | Full automatic blasting installation for Norwegian Defense



Combustion Chamber on automatic in/out lorry

In the meantime more than one decade back Straaltechniek International delivered his so called multi purpose shotpeen installation to our own Royal Netherlands Air force.

This installation is still in full process witness the fact that people from Norway visiting the plant and saw our installation in operation. As Norwegian defense people also remain close contacts to the KLM-Air France maintenance department we were invited to come with a solution for one of the jobs carried out by Norwegian defense.

The machine they were looking for was a combination of what they had seen at Royal Netherlands Air force and KLM-Air France.



General view on machine with controlbox



Internal- External blasting nozzle on robotic arm

At the time, the job was carried out manually in their shop in Oslo. Due to the strict conditions for the employee, the manual blasting installation was to be replaced by an installation which should improve working conditions like reducing the dust to a minimum. Besides that, the sound level had to be reduced to an acceptable value.

In 2007 Norwegian defense in Oslo received a budget to improve their facility and sent out the tender to several companies in Europe. Straaltechniek International received the official tender, gained the order, and installed the new machine late 2007.

Newsletters



Dust Collector Pat Jet 7/21



Media size classifier

As a result Norwegian defense now reduced the blasting time for the combustion chamber from two days in only one hour!

Besides that fact Straaltechniek International also provided a much better working condition for the employees while applying the blasting job. In other words another satisfied user of a Straaltechniek International machine.



STRAALTECHNIEK
INTERNATIONAL

SHOT
PEENING
DIVISION

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Newsletter | Shotpeening installation for LAMC China

For many manufacturing industries it is of great importance that metal parts have a maximum resistance in metal fatigue. For the Chinese Liaoyuan Aero-Mech Corporation (LAMC), this was one of the reasons to look for a shot peening installation. LAMC's core business is the manufacturing of landing gears for Messier Dowty.



Front and side view of installation at LAMC

The first contact with Straaltechniek International was made during a visit of a representative of LAMC at Messier Dowty Singapore Pte. Ltd. This company is one of the world leaders in

manufacturing landing gear components and is a highly appreciated relation for Straaltechniek International for many years now. The LAMC representative was impressed by the installations delivered for workshops in Singapore and China and a tender procedure with the Chinese National Aero-Technology International Supply Corporation (CATIC) followed after which Straaltechniek International won the bid and after negotiations with LAMC the contract could be signed.



*Elevator with spiral separator on the left image
Medium size classifier on the right image*



Horizontal lance for deep hole peening

LAMC China needed shot peening for different types of landing gear components, made from aluminium and steel. Therefore the installation is provided with two different sizes of media, first media with sizes from 0,41 mm up to 0,58 mm for aluminium parts and second media with sizes from 0,58 mm up to 0,78 mm for the steel parts. A continuous peening process is realised by a full media transport system with two classification systems. Used media are being collected by scraper tracks, which transports the used media to an elevator. After being transported by the elevator and having passed the media cleaner for removal of dust and other contaminations, media with a perfect spherical shape are selected by a spiral separator.



Newsletter | Wuhan Hangda Aero Science & Technology Development Co. Ltd.

This order was granted by Wuhan Hangda to Straaltechniek International because of the reference of a similar delivered shotpeen installation in China. In China the aviation industry develops itself rapidly and growing fast, and Straaltechniek International is able to provide the needed knowledge and thus an important player in this area.

The fact that Straaltechniek is familiar with the Chinese National Aero Technology International Supply Corporation (CATIC) is of course an advantage, and was important during the negotiations between Wuhan Hangda Aero Science & Technology Development and Straaltechniek International.

This fact, together with the experience of Straaltechniek, was enough reason for Wuhan Hangda to have confidence in placing the order. The installation is capable to work with four different media sizes, which are controlled in size and shape by the advanced media recovery system applied.



View inside blast room



Operation panel



Side view of the installation



Deep hole lance



Various views of the technical installation



Shotpeening at Straaltechniek International | Machine overview



Robotic shotpeening machine with 10 NC-axis at Straaltechniek International, used as jobshotpeening in Holland

Highlights

- Inbuild size classifier
- PC operated control system
- Maximum part size ca.1,5 meter x 1,5 meter
- Double chamber peening machine with:
 - closed loop pressure controller
 - closed loop shotflow controllers
- Pneumatic media reclaim system with inbuild cyclone
- Robotic nozzle and part manipulation via 10 controlled axis
- ProcMon software package for real-time monitoring, controlling and recording of all critical peening process parameters

Skilled Engineering

Process

The shotpeening process is based on the effect of introducing compressive residual stresses in the surface of a metal part by controlled impinging with spherical particles. By this the resistance against fatigue will be increased and therefore also the lifetime of a part which is exposed to fluctuated loads.

In the space and aircraft-industries the advantages of shotpeening are already known: the increase of the fatigue-lifetime of critical parts without weight increase. The designers use shotpeening in applications where the effects of fatigue were caused by grinding, electrical discharge- and electrochemical-machining (EDM and ECM), electroplating, anodising, thermal spraying and welding. It also can help increase resistance to fretting, galling, cavitation erosion, stress-corrosion cracking, intergranular corrosion and hydrogen-embrittlement.

Parameters

To control the shotpeening process, one needs the precision of the following parameters:

- Shot size
- Shot material and shot shape
- Shot velocity and shot flowrate
- Aiming of the nozzles (distance and angle)
- Shot peening time

These parameters determine the intensity (indication for compressive residual stress) and the coverage (indication for effectively impinging the complete surface). Straaltechniek International shows its capability to precisely control, monitor and record those critical shot peening parameters.



Continue research leads to higher performance

The Straaltechniek International Group is known throughout the World for Surface Treatment. Many production processes already have grit or shotblasting facilities integrated into their systems. The Aircraft Industry is one of Straaltechniek's major application areas, where metal parts are shotpeened in order to enhance their life.

Straaltechniek International design, develop and manufacture complete installations around Customer's requirements, guaranteeing a quality product, reliable delivery and first-class after sales service.



Shotpeen installation supplied to the Dutch Airforce is designed specially for all workshop repairs to cover a broad spectrum national requirements.





Wheelpeening

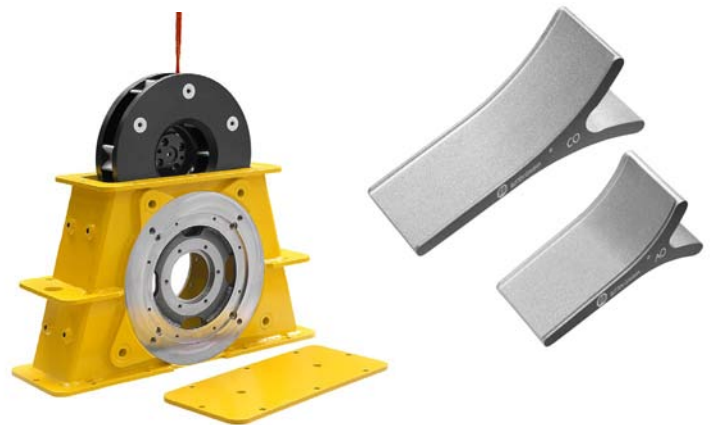
Besides the use of air powered peening, it is also possible to use a wheel powered technique. Straaltechnik International uses GAMMA® turbines, equipped with active two-sided blading, which makes it possible to attain useful service lives from 8 to 16 times in comparence of conventional turbines.



Wheelpeening machine in Singapore



Turbine at the outside of the wheelpeening machine (top) and a view of the turbine from the inside of the wheelpeening machine.



Use of an extra-strong alloy and blading-surface finish combined with drastic impact reduction, all contribute to a noticeable increase in projection efficiency. Energy economy is in the order of 10%.



Given a similar rotation speed and identical turbine diameter, Gamma® turbines provide a 25% higher abrasive projection speed. Thanks to this increased speed and the fluidity of the outflow, the quality and capacity are noticeably enhanced, from 10 to 25%, depending on the application.

Reference list



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AIR FRANCE KLM

STORK®
Fokker



Chromalloy Holland BV
Keeping your world in motion

LOCKHEED MARTIN



HYUNDAI MOTORS GROUP
WIA WIA CORPORATION



Hamilton Sundstrand
A United Technologies Company

THAI



Koninklijke Luchtmacht



Pratt & Whitney
A United Technologies Company



Messier-Bugatti
SAFRAN Group

SULZER

Hangda 武汉航达航空科技发展有限公司
WUHAN HANGDA AERO SCIENCE & TECHNOLOGY DEVELOPMENT CO., LTD



Messier-Dowty
SAFRAN Group

SEW
EURODRIVE

TURKISH AIRLINES
A STAR ALLIANCE MEMBER





"When the finish counts"



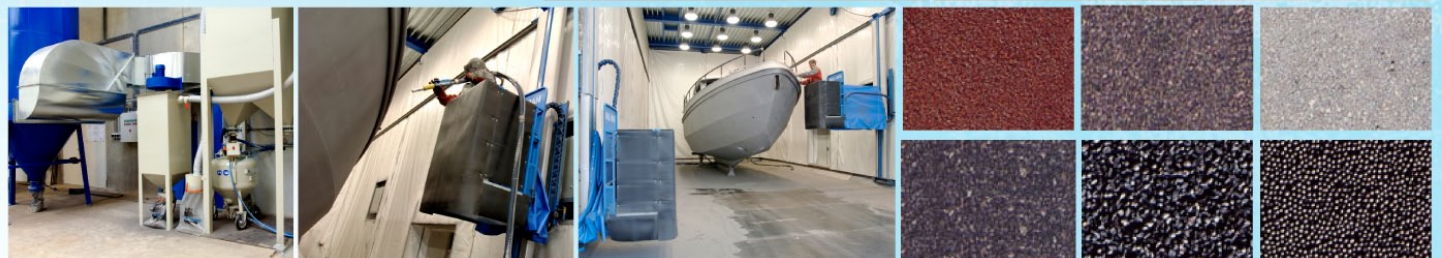
"Safety first"



"Perfect conditions"



"Complete installations"



General Program



"Parameter precision"

**SHOT
PEENING
DIVISION**



"Exceptional wear resistance"



"Perfectioning and automatisaton"





for more information please visit
www.straaltechniek.net