



# Pressure and injector blast cabinets

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Symbol	Consequences	Probability
 <b>Danger</b>	Death or serious injury	Will result
 <b>Warning</b>	Death or serious injury	Could result
 <b>Caution</b>	Minor or moderate injury	May result
<b>Caution</b>	Property damage	May result

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## 0. General Advise

This owner manual is

- part of a product
- is keeping at the product during the durability
- hand over a follow user

Design and owner manual are developed based on a risk analysis. That means,

- machine / blast cabinet must not be changed
- operator has to be trained

All wearing parts are without guarantee

### 0.1 CE- Conformity

Refers to a complete blast cabinet consisting of cabinet, cyclone (option), hoses with couplings, filter with ventilator and the pneumatic and electrical control.

In case of component purchase, this CE-declaration of conformity only covers these components. To achieve complete conformity the following is needed:

- complete the unit with all other components, which are approved by us
- or a new risk analysis needs to be done

### 0.2 Applications and Restrictions

**Table 1: allowed applications**

Parameter	Value / demand
Transport temperature	-20°C to +70°C
Operating area	- only in closed rooms - not in aggressive or explosion risk areas/atmospheres.
Steadiness	- only to achieve on even solid ground - super structural parts (for sample silos) demand additional arrangements for enough steadiness
Grounding	Cabinet must be grounded otherwise danger of explosion or electrostatic shocks
Working conditions	Closed working room, temperature: 15°... 30°C, humidity: < 85%
Working pressure	2 ... 7bar. A pressure reducer and a safety valve have to be installed in the service pipe, if there is a higher pressure in the air supply
Matters	- dry air - dry and inert medias / abrasives which don't cause chemical reactions
Parts to be blasted	No parts where discharge unhealthy dust or matters, which cannot filtered.

**Table 2: allowed medias /abrasives**

Media / abrasives		Size (µm)	Notes
Metal-lic	Steel grit	30 ... 400 (40 mesh)	Suction hose from cabinet to cyclone 25mm less than standard hose
	Steel shot	30 ... 600	
Mineral	Sand or slags	70 ... 800	Not recommended by reason of less durability
	Aluminium oxide		Additional wear protection necessary
	Glass beads		Very dry air necessary
Organic	Plastic	100 ... 1600	

### 0.3 Stocking / limits

Components and parts, which are made from organic material (e.g. rubber products) do age depending on the following circumstances (refer Table 3 +4).

**Table 3**

<b>influence</b>	<b>Comments in respect of long term stocking</b>
<b>temperature</b>	Ideal between -10° und +15°C, no exposure to direct heat source.
<b>atmosphere</b>	- no ozone => no operation of E-Motors, welding units in stock area, as they produce ozone - no aggressive Chemicals,
<b>humidity</b>	- Humidity above 65% damages the material
<b>UV-light</b>	- avoid direct solar radiation and other ultraviolet sources

**Table 4: Components with restricted stocking / operation times**

	<b>Specified by</b>	<b>Total time of usage *1) stocking + operation *2)</b>	<b>Usage in blasting unit *2)</b>
<b>Blast hoses</b>	DIN 20066	max. 6 years	max. 6 years
<b>Remote control hoses</b>	DIN 20066	max. 6 years	max. 6 years
<b>Pop-Up Valve</b>	manufacturer	max. 10 years	max. 5 years
<b>O-Rings</b>	manufacturer	max. 10 years	max. 5 years
<b>Gaskets</b>	Clemco´s experi- ence	max. 10 years	max. 5 years

\*1) The time for usage can very much reduce in case of temperature above 25°C, exposure to sun light or other negative influence.

\*2) Mechanical wear due to operation is not considered

## 0.4 Noise level

It is depended of blast pressure, number of nozzles, nozzle diameter, geometry of the parts, the kind of media etc. Generally the noise level is between 80 and 120dB(A) without additional noise protection.

## 0.5 Dust exposure

- Dust exposure: < 1mg/m<sup>3</sup>

- This can be guaranteed only at a correct maintenance. Especially the following is to attend:

- Periodic check and change of the door gaskets.
- Empty the dust container in short periods
- Clean or change the cartridges periodically
- Blow off the parts at closed doors and wait after then minimum 10 seconds before door opening

## 0.6 Protection against accidental blasting

- Blast proces will interrupted by releasing the foot pedal and opening the door

- The air supply have to be interrupted and the complete equipment have to be depressurized before opening the door, if the foot pedal is jammed (blast process don't stops when the foot pedal is released)

## 0.7 Leakage of blast accelerated media from worn equipment

Blasting produces a high wear, which can be dangerous. That's why the demands of the paragraphs „maintenance" in the owner manual must be follow strictly.

## 0.8 Explosion protection

The operation in explosion risk areas / atmospheres is forbidden! Option: special explosion-protected cabinets

Dust explosion by itself

- blast dust can be explosive.
- cabinets are designed without ignition sources, so there is no danger of explosion.
- the electrostatic charging is prevented by:
  - grounding of all devices of the equipment
  - using of antistatic cartridges
- Prevent that all other ignition sources are not come into the cabinet, for instance
  - cigarettes
  - no grinding and welding inside the cabinet
  - don't use blast medias which produces chemical and thermal reactions

## 0.9 Valuation of residual risk

The following residual risks are existed

- **Noise:** > 80dB(A) → **Wear ear protection**
- Burst of blast equipment parts by reason of wear: **can be prevented or minimises only** by observation of the maintenance demands.

## 0.10 Air consumption of the blast nozzle

The air rate of the compressor should be minimum 50% higher, because the consumption will be increasing with the wear of the nozzle.

**Table 5:** Injection /suction blasting

Diameter [mm]		Nozzle N°.	Air consumption [m <sup>3</sup> /min.] at a pressure [bar] of		
Orifice	Blast nozzle		<u>3</u>	<u>5,5</u>	<u>7</u>
3,2	6,0	4	0,4	0,6	0,75
4,0	8,0	5	0,6	0,9	1,25
4,8	9,5	6	0,9	1,3	1,75
5,6	11,0	7	1,1	1,75	2,4

**Table 6:** pressure blast

Diameter [mm]		Nozzle N°.	Air consumption [m <sup>3</sup> /min.] at a pressure [bar] of		
Blast nozzle			<u>2,6</u>	<u>4,9</u>	<u>7</u>
3		2	0,3	0,4	0,6
4,5		3	0,6	0,9	1,3
6,0		4	1,2	1,7	2,3
8,0		5	1,8	2,8	3,7

## 0.11 Waste disposal

What kind of	Disposal
Media disposal	Depending of the blasted parts (what kind of material was removed)
Filter cartridges	Depending of the blasted parts (what kind of material was removed)
Scrapping at the end of life	Disassembling of electrical parts → separated disposal