The ABB G1 Internal Charge is a high efficiency rotary atomizer designed for today’s demanding automotive production. Its intended application is for car body exterior coating with solventborne paint. The high voltage charge is applied to the paint on the bell cup before atomization.

**High efficiency process**
The G1 Internal Charge main feature is the ability to paint a car body with a minimum amount of paint. The G1 Internal Charge combines some unique features to attain such a high result. The paint TE (Transfer Efficiency) is high on static spraying and remains high when moving at speeds above 1000 mm/sec (3f feet/sec). The spray pattern is adjustable, it offers a large working range of width from 200 mm (8 inches) to 550 mm (21 inches) this allows for paint saving when painting narrow areas and body pillars. Additional paint savings from the fast built in trigger valve. The G1 Internal Charge can be used similar to a spray gun by turning the trigger on and off when required.

**Metabell Metallic effect with high TE**
The metabell function combines the high TE (transfer Efficiency) of a rotary atomizer with the metallic effect of a conventional spray gun. This new unique feature allows for second coat base coat solventborne application of metallic paint. It also opens the door to an innovative single coat base coat concept. Achieving the high quality metallic finishing is accomplished by controlling the particle colliding energy. Shaping air ring, bell cup and application parameters are the cornerstones of the Metabell application.

**Robot-Atomizer Process Partners**
Combining high performance atomizers with high performance robots makes for an impressive production tool. The high performance of the robot opens the door to new paint methods. The atomizer can move around on the body surface without any escaping point, the robot can keep or increase the speed when changing direction. The high performance atomizer will withstand the high acceleration forces generated by the robot.
TECHNICAL DATA, G1 INTERNAL CHARGE

### SPECIFICATIONS
- **Weight**: 4.7 kg (with Robot bracket 8.2 kg)
- **Bell cup diameter**: 70 mm Serrated
- **Shaping Air nozzle**: Metabell nozzle (with SA-Purge nozzle)
- **Weight**: 4.7 kgf (including rear holder)
- **High Voltage**: Max. –60 kV, max 800 µA
- **Paint flow rate**: Max 500 cc/min
- **Rotation Speed**: Max 35 000 rpm with fiber optic detection
- **Spray distance**: Approx. 200—220 mm
- **Spray pattern width**: Approx. 250—550 mm
- **Air consumption**:
  - SA Purge Air: 50—470 NL/min
  - Shaping Air: 150—500 NL/min
  - Air blower: 0—300 NL/min

### LOW CONTAMINATION
Atomized paint when charged at a negative potential is attracted to any grounded object. To avoid contamination original functions have been implemented in the G1 design. Hydrophobic coating on the atomizer’s external surfaces reduces the surface conductivity and adhesion of particles.

The Purge Air Function pressurizes the back of the bell cup to compensate for the negative pressure generated by the shaping air ring.

The partially charged shaping air ring repulses paint particles because it is charged at the same negative potential. Approximately –6 kV of high voltage is applied to the metallic part to generate the same electric field (negative) as paint particles to be repelled from the G1 Rain.

The air blower function creates an air cushion around the atomizer body to reduce particle deposition.

Flushing air and solvent supplied from the PIN at the rear of the G1 flushes the main circuit, returns back since the front trigger has been turned OFF, passes through the dump circuit, and is dumped out from POUT.

When the nose flush valve is turned ON, the flushing solvent supplied from NFTH at the rear of G1 passes through the outside of triple-structured feed tube, flows out from rubber valve attached at the tip of feed tube, goes into the bell cup to flush the back of the bell cup.

Flushing solvent supplied from FTH at the rear of G1 flushes the dump circuit, returns back since the dump valve has been turned OFF, and is dumped from POUT.

Flushing solvent supplied from FTH at the rear of G1 flushes the dump circuit, returns back since the dump valve has been turned OFF, and is dumped from POUT.

Bell Outside Cleaning (BOC) automatically flushes contamination of the back of the bell cup rim caused by painting and spray booth conditions by supplying flushing solvent from the back of the bell cup.

### PAINT AND FLUSHING INTERNAL CIRCUITS
When the front trigger valve is turned ON, the paint supplied from PIN at the rear of G1 passes through the main circuit, goes into the inside of the triple-structured feed tube, and is sprayed out from the bell cup.

Data and dimensions may be changed without notice.

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