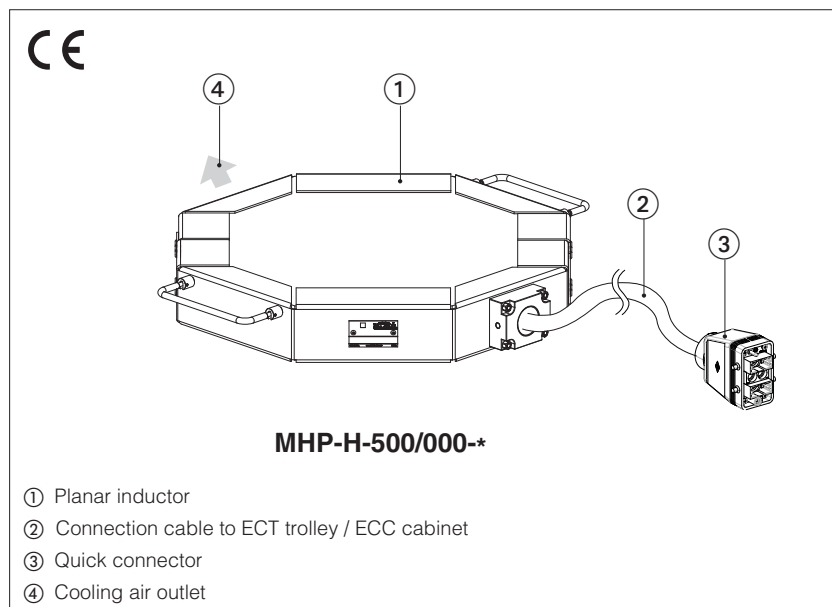


Inductive heating plates

pre-heating of molds for metal and rubber presses



MHP

Inductive plates with rugged design, made with high-strength elements to operate in harsh environments.

MHP plates are managed by ECT trolleys or ECC cabinet, using the principle of magnetic induction to heat ferromagnetic material in contact with.

Inductive plates provides substantial benefits over the pre-heating by ovens or open flames:

- Fast heating up to 350°C
- Elimination of the risks related to hot molds handling or combustible gases in production facilities
- Easy to use, simply place the plate in contact with the mold
- Automatic process control, without need of the operator supervision

MHP plates are available in different combinations of diameters to fit various shapes and dimensions.

1 MODEL CODE

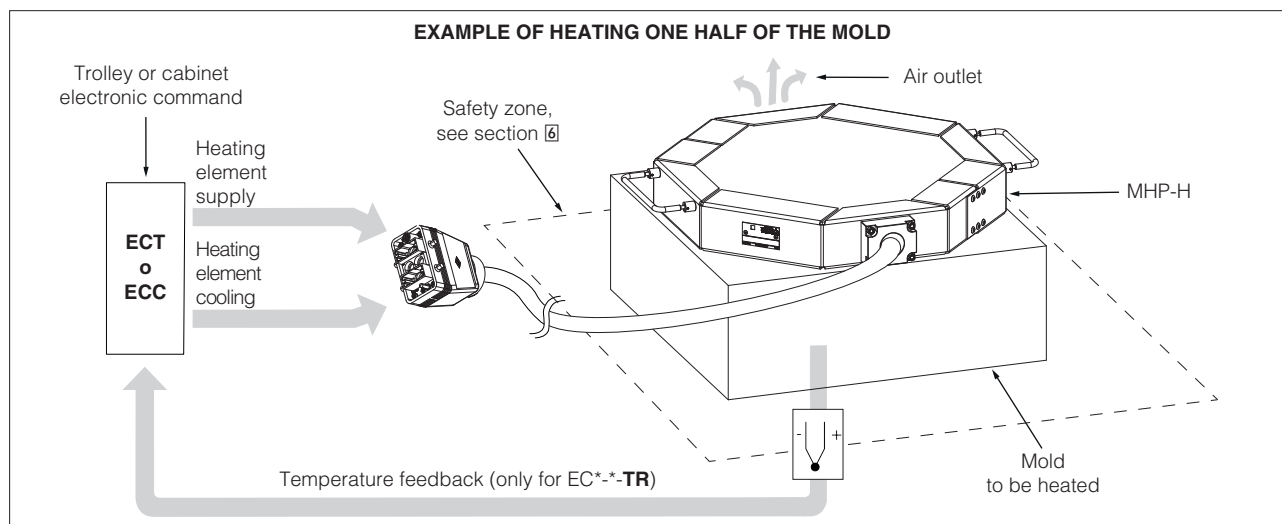
MHP	-	H	-	500	/	150	-	05	*
inductive heating plate								Series number	
Size								Length of connection cable	
H = for connection with trolley ECT or ECC cabinet								05 = 5 m 10 = 10 m	
External dimension (1)								Internal diameter (2)	
*** = From 400 mm to 800 mm with step 50 mm								000 = without hole	
								*** = from 100 mm to 400 mm with step 50 mm	

(1) The external dimension of the plate should be selected according to the mold surface; for example, in case of a rectangular mould, select the external dimension of the plate which is smaller than or equal to the length of the short side of the mould. See section 8 for available dimensions combinations.

(2) The internal diameter allows the plate to be positioned even in the presence of central dimensions of the mould, for example centering axes. The internal diameter must be selected to be as close as possible to the dimensions of the central encumbrance. If the mold has no internal constraints, select code 000 which does not include the central hole.

Note: for diameters not included in the standard dimensions shown above, contact the Atos Induction technical office.

2 FUNCTIONAL EXAMPLE



3 FUNCTIONAL DESCRIPTION

The preheating of the molds can be done quickly and safely through indirect heat transmission, placing the plate on the surface to be heated. During the heating process, heat is generated directly inside the mold through the circulation of eddy currents, induced in the metal by suitably modulated magnetic fields. This allows you to reduce warm-up times and improve process efficiency. Furthermore, the use of combustible gases in production plants and the associated dangers are avoided.

4 BLANKET/MOLD COUPLING

The power transferred by the inductor depends on the magnetic coupling between the blanket and the mold. For example, particular mold geometries, presence of air gaps and irregular contacts between blanket and metal can result in poor magnetic coupling, reducing heating speed and uniformity.



The installation of MHB heating blankets is intended for metal and rubber molds. For applications on other types of metal parts, please contact the Atos Induction technical office.

5 MAIN CHARACTERISTICS

Power supply device	ECT trolley or ECC cabinet	
Max power	[kW]	15
Working frequency	[kHz]	4 ÷ 15
Max heating temperature of the mold	350°C on the surface of the mold, in contact with the plate	
IP protection degree [CEI EN 605229]	Not applicable, avoid contact between blankets and liquids	
Cable insulation class	Class H	
Electromagnetic emissions [EN UNI 12198]	The use of the blankets is comparable to a Class 1 source	

6 INSTALLATION PRESCRIPTIONS

The MHP plate must be connected to the electronic command systems through the quick connector, which include the connections for power supply of the inductor and the passage of compressed air for cooling, coming from the power supply device.

In the case of horizontal installation for two-stage heating, the upper half of the mold has to be placed in contact with the blanket, but suitably supported, through supports, to prevent its weight from damaging the heating element.

Due to the irregular surfaces and the roughness of the mold surfaces, the blankets are supplied with attached protective sheets to be placed in direct contact with the mold.



Always remove the MHP blanket from the hot mold at the end of the heating cycle



During blanket handling, is recommended use of personal protective equipment suitable for high temperature.

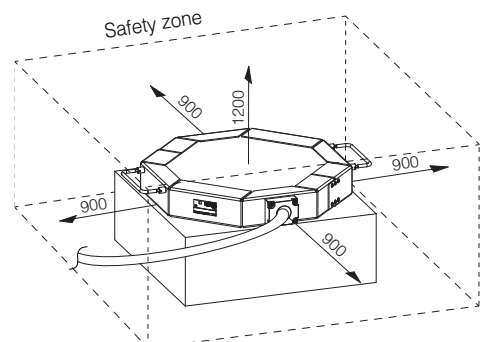
During the heating process the MHP inductor generates a high surface temperature and a surrounding electromagnetic field that could be dangerous for the health of the operators working in the immediate vicinity. For this reason, a "safety zone" around the blanket must be circumscribed and bounded by a proper barrier (not supplied with the blanket), placed at a distance of at least 900 mm from the heating blanket edge. This ensures the protection of operators against accidental contact with hot parts and against electromagnetic fields.

The ECT/ECC power device, must be positioned outside the safety barrier.

The safety distance of 1200 mm must also be guaranteed upwards.

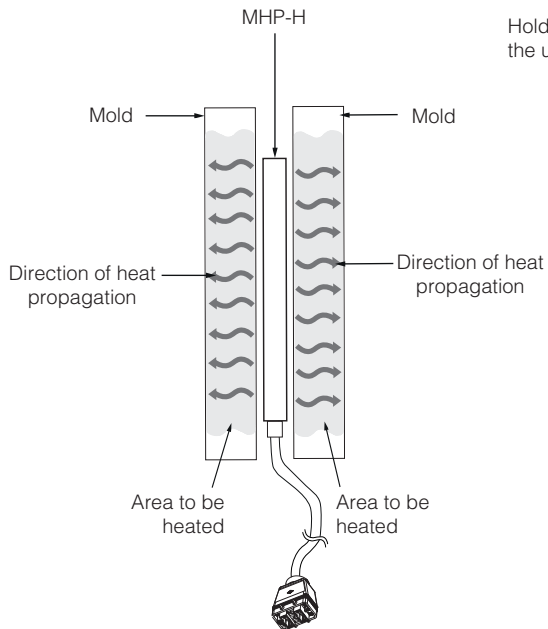


During the heating process, access to the safety zone is severely prohibited

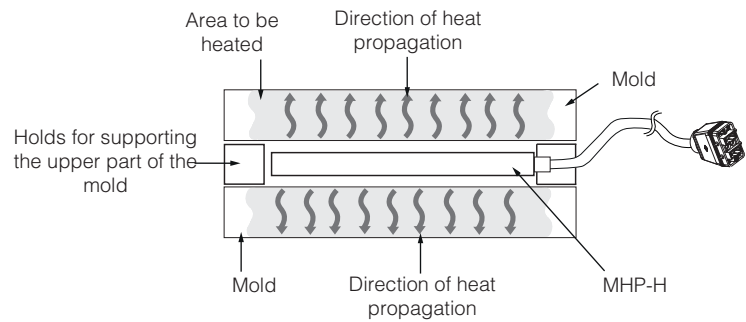


EXAMPLES OF MHP PLATE POSITIONING

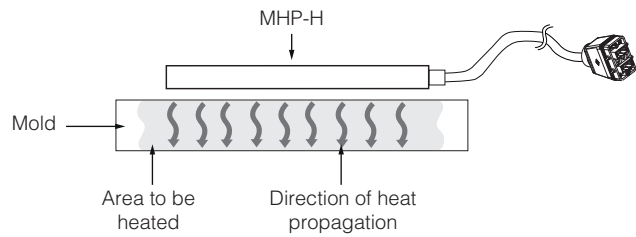
Vertical double stage application



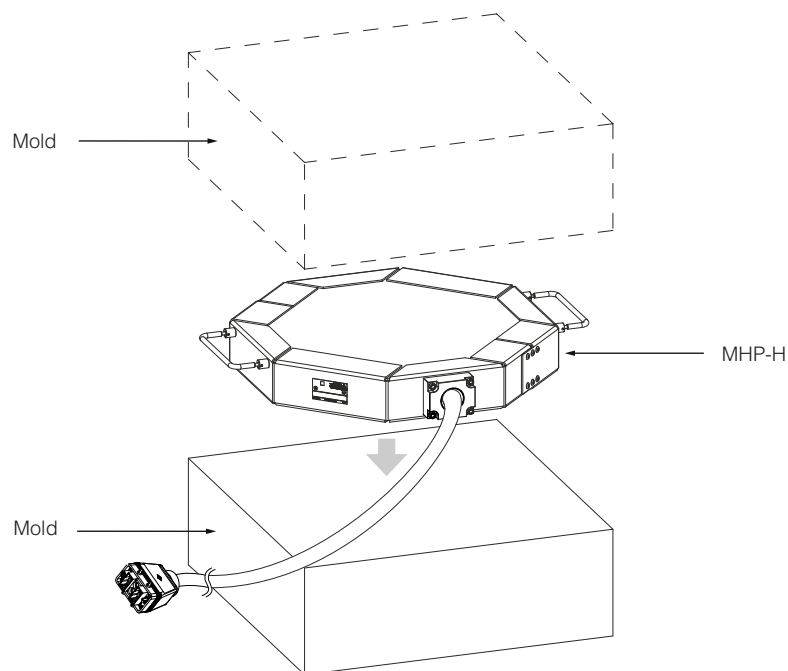
Horizontal double stage application



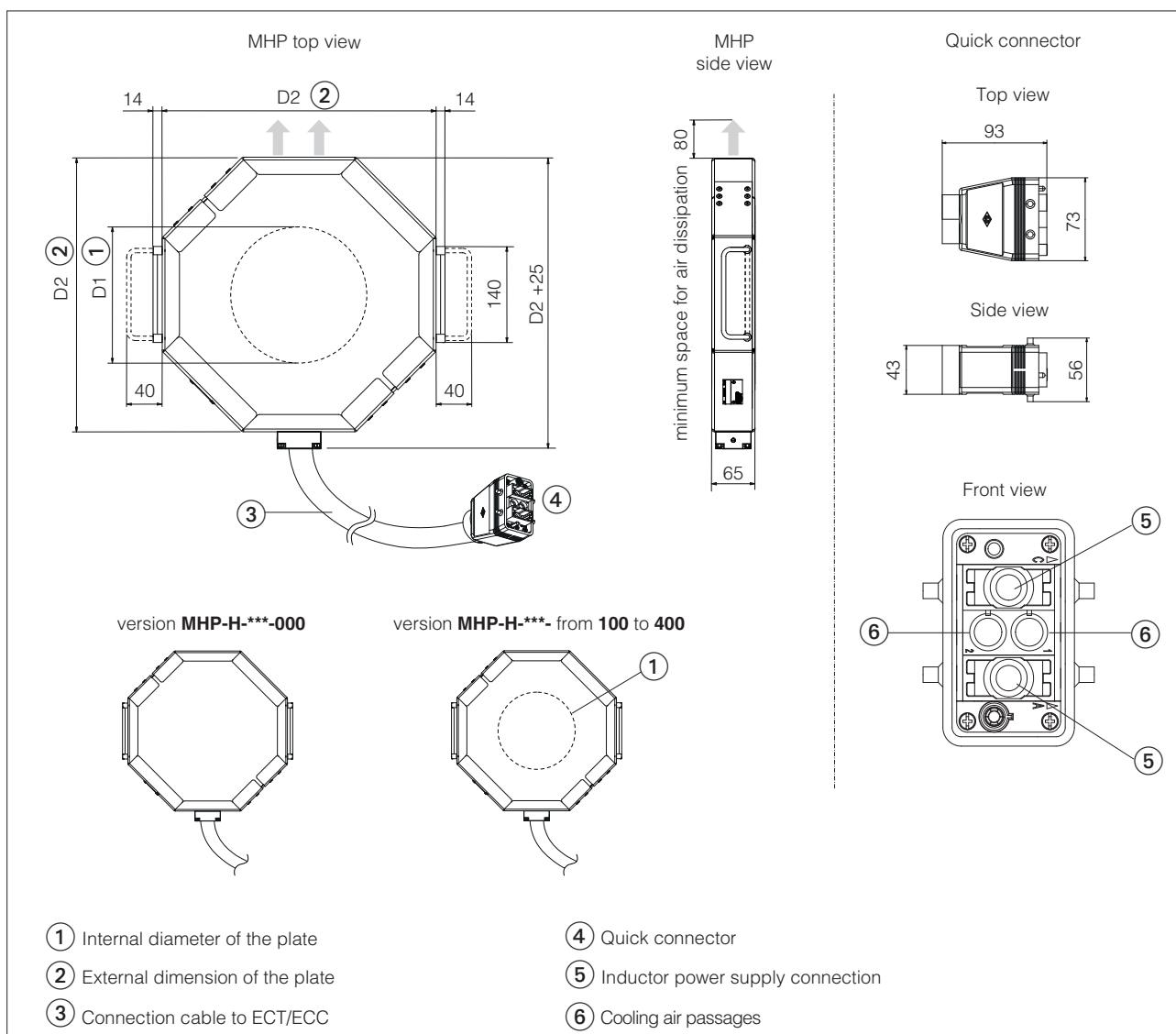
Single stage application



Double stage application example



7 DIMENSIONS [mm]



8 POSSIBLE COMBINATIONS OF AVAILABLE DIAMETERS

The table shows the possible combinations of external dimensions and internal diameters available for MHP plates.

= Available plates

= Plates available on request

		External dimension = D2 (mm)								
		400	450	500	550	600	650	700	750	800
000										
Internal diameter = D1 [mm]	100									
	150									
	200									
	250									
	300									
	350									
	400									

10 RELATED DOCUMENTATION

AI700 - Electrical control systems ECT and ECC