

## Technical News Bulletin

September 2018

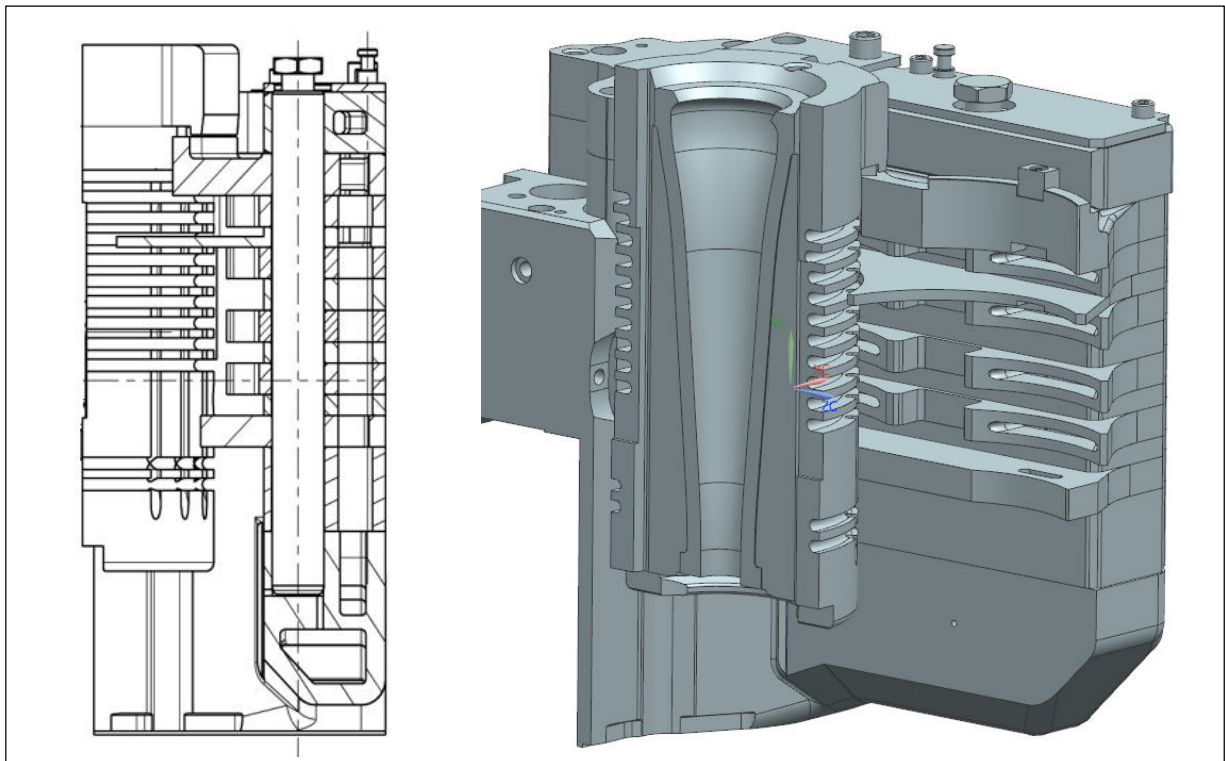
### Mold transition IS 5 ½” DG to AIS 6 ¼” DG – Travelling Radial Cooling

#### Introduction

A specific development of a cooling system option, called **Travelling Radial Cooling (TRC)**, makes possible to use existing IS Stack-Cooled Blank molds on the AIS Double Gob machine by bringing cooling air radially to the Blank molds.

In particular, molds from the **IS 5 ½” DG** machine (No2 Blank mold holder; assembly references #21, #22, #23 and #24) can be directly re-used without any major modification.

Although the TRC system does not replace the standard AIS Blank side cooling systems (VertiFlow and InVertiFlow), it allows the glass plant to make a smooth and affordable transition from the IS 5 ½” DG machine to the AIS forming machine technology. This gives full flexibility in term of ware range, in particular keeping doors open for the TG operation (not available on an IS 5 ½” DG machine), without making a huge investment in new molds.



With the TRC system, the cooling nozzles are at equal distance to the outer mold diameter for both DG cavities. The nozzles are also “travelling” together with the Blank molds during the open/close motions, so that an equal distance between the cooling nozzles and the molds is kept during the full 360° cycle: in comparison with the old IS Stack cooling system, this ensures an improved and homogenous heat extraction, for both inner and outer cavities.

The TRC system is very flexible as cooling nozzles are height adjustable in order to locate the nozzles at the right cooling spots, to suit the cooling requirements of each specific container. In addition, thanks to the individual mold cavity control available on the latest AIS blank mold supporting mechanism, the user has the unique possibility to control the cooling air nozzles independently for each cavity half: this feature brings great results when used together with a Blank mold temperature control system and/or a closed loops system.

Remark:

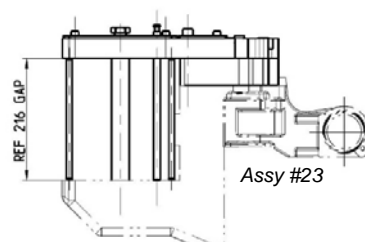
On the Blow side, existing DG 5 ½” Blow molds can directly be utilized on the AIS DG machine, as there is full mold compatibility between the two machines (same diameter, same clamping properties).

## Specification: accessories and variables:

The system components are listed below, as per main drawing reference **210-2132-00**.

Depending on the used stack DG 5 1/2" Blank mold setup, a specific group is specified based on the setup parameters: "H" dimension, "S" dimension, as well as upper and lower band diameters.

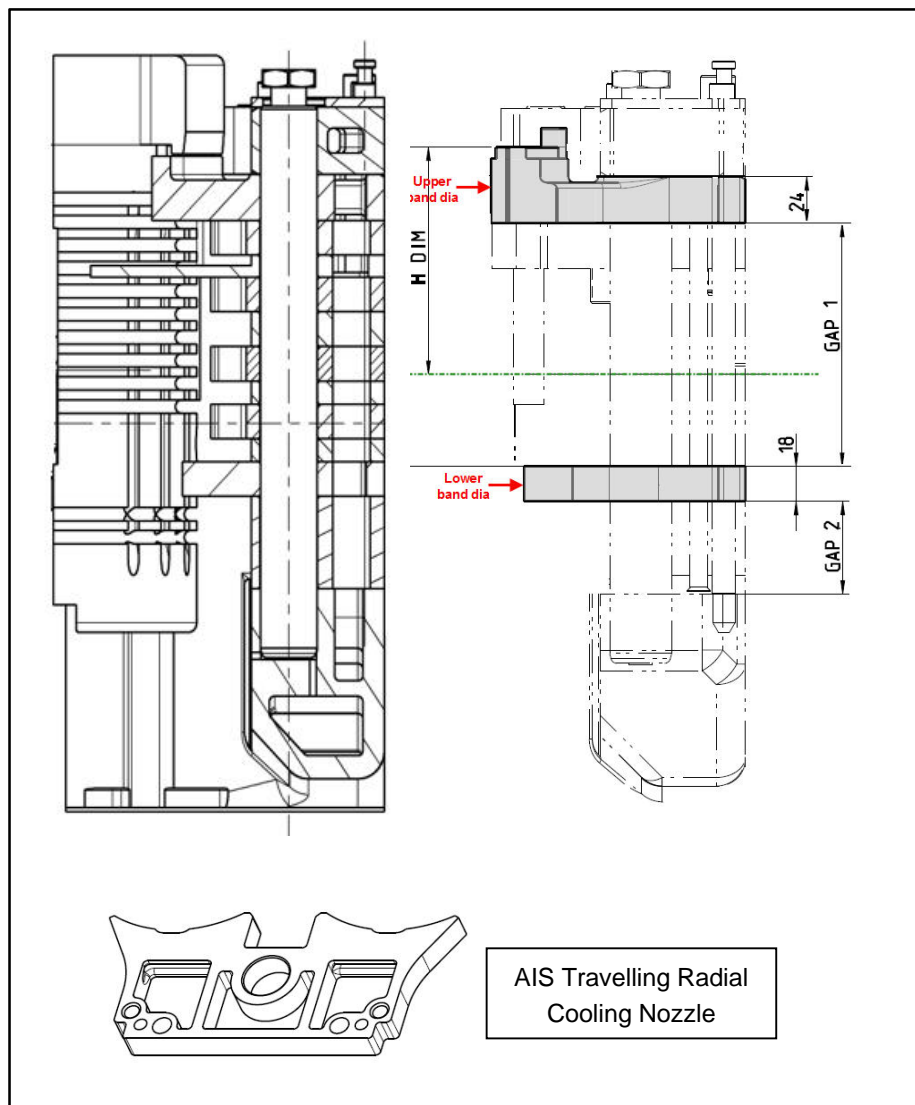
Ref. IS 5 1/2" DG Mounting Assembly	# 21	# 24	# 22	# 23	
"H" dim	69.9	69.9	117.5	117.5	
"W" dim	88.9	132	136.5	179.6	
"S" dim	74.6	117.7	122.2	165.3	
REFERENCE DRAWING -	210-2132-...				Description
- Group	1	4	2	3	
Height of the total gap	168	168	216	216	
"Gap 1"	78	78	126	126	(see next page)
"Gap 2"	48	48	48	48	(see next page)
Details					
210-2106-01	1	1	-	-	168mm top arm assembly
210-2106-02	-	-	1	1	216mm top arm assembly
210-467-01	x (1)	x (1)	x (1)	x (1)	Upper insert - 6" band dia (24mm)
210-467-02	x (1)	x (1)	x (1)	x (1)	Upper insert - 5 3/8" band dia (24mm)
210-2142-01	x (1)	x (1)	x (1)	x (1)	Lower insert - 6" band dia (18mm)
210-2142-02	x (1)	x (1)	x (1)	x (1)	Lower insert - 5 3/8" band dia (18mm)
210-12653	2	2	2	2	Separator plate (12mm)
210-489-2	8	8	8	8	Radial cooling nozzles (18mm)
210-12544	4	-	-	-	Spacer 6mm
210-12545	2	2	4	4	Spacer 12mm
210-12546	4	4	4	4	Spacer 18mm
210-12548	2	2	2	2	Spacer 30mm
210-12551	2	2	2	2	Spacer 48mm



**Mold Design considerations: IS 5 ½” DG stack-cooled Blank molds on AIS DG**

Existing DG 5 ½” stack-cooled Blank molds can be mounted on the AIS DG machine using the 210-2132-00 Travelling Radial Cooling system. No major alteration to the existing Blank mold is required.

To achieve the right cooling effect on the existing IS Blank mold, the variable equipment made of cooling nozzles, spacers, and one separator plate is assembled together with the upper and lower plates. Important is to fill in the defined gaps (“gap 1” and “gap 2”), so that the total gap value for the specific setup is achieved (either 168mm or 216mm).



## Availability / Application

The Travelling Radial Cooling system is available as an option on all new AIS machines and existing AIS machines (after 2008), provided they are equipped with the latest Blank mold supporting mechanisms 210-2110 or 210-470: these mechanisms are compatible for the use of both Blank side VertiFlow and InVertiFlow cooling.

Since the TRC is designed for the re-use of DG 5 ½” stack-cooled Blank molds, it is considered as a transition solution, which enables glass plants to move from the IS to the AIS technology, without having huge costs on the mold equipment. However, on a long term, we strongly recommend switching from that transition solution to the AIS Blank mold cooling standard systems, VertiFlow or InVertiFlow, as they bring more advantages, such as better horizontal and vertical temperature control, than the Travelling Radial Cooling system (also Stack).

Bucher Emhart Glass recommends such a mold transition path to be part of a planned mold setup and mold cooling strategy.

Contact Bucher Emhart Glass for assistance and specific recommendations.

## Features / Benefits

Features	Benefits
Existing DG 5 ½” Stack cooled Blank molds can directly be utilized	Mold interchangeability – No mold transition costs
Move from arcuate DG 5 ½” to parallel DG 6 ¼” center distance	Potential for improved cooling thanks to increased center distance – DG 6 ¼” offers the conversion to TG 4 ¼” => Ware range FLEXIBILITY!
Compared to IS machines, AIS Travelling Radial Cooling gives uniform temperature distribution between cavities	Improved container quality