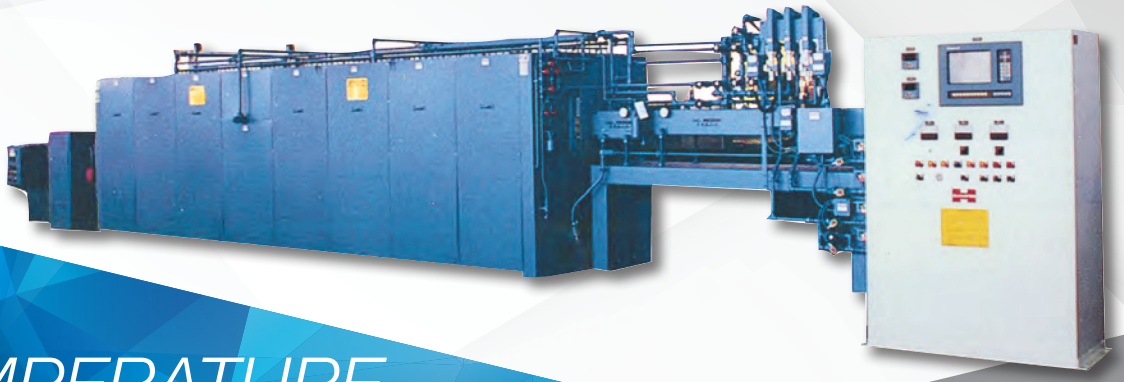
GASBARRE
THERMAL PROCESSING SYSTEMS



HIGH TEMPERATURE
PUSHER FURNACES

RELIABILITY, EXPERTISE, SERVICE & SELECTION

The C.I. Hayes Model MY "Moly" Pusher Furnace is designed for high temperature applications, including sintering of powder metal parts typically between 2100ºF - 3000ºC (1149ºF - 1650ºC). The benefits of liquid phase sintering, as well as producing metallurgical structures associated with the final stage of sintering, are realized. The sintered product gains improved mechanical and physical properties, such as ductility, impact, toughness and strength.

Parts, placed on saggers or in boats, are indexed through the furnace by a proven and reliable pusher mechanism positioned at the front of the furnace. The saggers or boats are typically pushed in train-like fashion through the various sections of the furnace including preheat, high heat and cooling sections. Often, a return conveyance system is provided to return parts to the loading end and/or to stage parts prior to processing.

DRIVE SYSTEM

The indexing drive system consists of a pusher mechanism and optional return conveyance system. The push rod of the indexing drive is extended by either a hydraulic cylinder or by a ball screw. The indexing length, time and speed of the push rod, as well as automation of doors opening/closing and the actions of the return system, are all managed by a logic controller.

PREHEAT/DELUBE SECTION

Saggers, or boats, are indexed through a preheat section that uniformly brings the parts to temperature. The section is generally rated at temperatures between 1600ºF - 1800ºF (871ºC - 982ºC). Metallic ribbon or wire type heating elements are positioned across the direction of travel, above and below the working area. A metallic muffle is typically provided in the preheat section to help direct the flow of atmosphere and lubricant vapors, removed from the parts during a delubrication process, out the front of the furnace.

HIGH HEAT/SINTER SECTION

The high heat section is isolated from the preheat section by an internal insulated throat area. It is heated with molybdenum rod elements that are positioned on either side of the work area. The elements extend beneath the elevated work hearth to provide an extremely uniform heating environment. Due to the elevated temperatures and dependent upon the working width, an arched high purity ceramic structure is provided for optimum strength designed to support the roof insulation.

MADE IN THE **USA**

310 State Street, St. Marys, PA 15857
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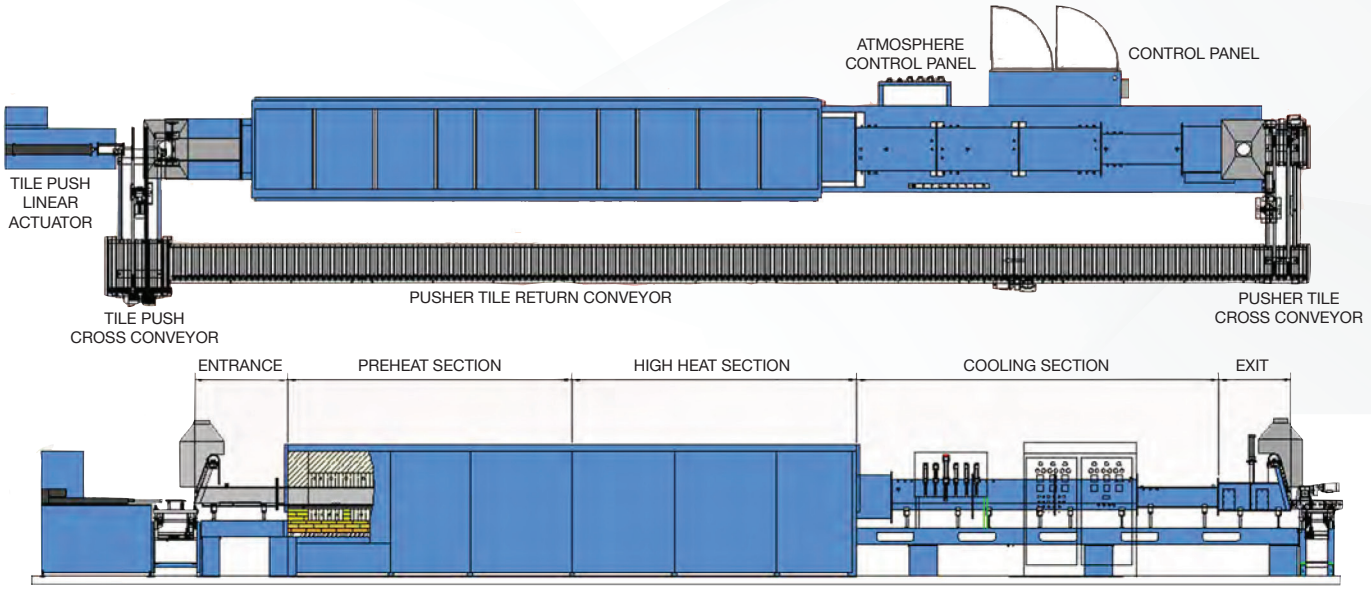
ATMOSPHERE SYSTEM

The “MY” pusher furnace is provided with protective atmospheres. Hydrogen, a reducing gas, is most typical. An inert gas is used for safety purging purposes although it may be used to supplement the hydrogen as a process gas. The purge system is automatic, and with the main control system, provides many safety interlocks when working with a combustible atmosphere.

CONTROL AND POWER SYSTEM

The sequencing of the furnace, and sometimes zone temperatures, are managed by a programmable logic controller. Temperature is also managed by single loop controllers. The temperature controllers send proportioning signals to silicon controlled rectifiers (SCR) that regulate voltage and power to elements. An HMY operator interface can be supplied for ease of setting furnace parameters as well as a means of acquiring important process data.



	WORKING DIMENSIONS				MAX OPERATING TEMP	FLOOR SPACE REQUIREMENTS			CONNECTED LOAD	
MODEL NO.	H	W	L(HH*)	L(PH**)		H	W	L	HH*	PH**
MY-040418	4”	4”	18”	-	3000ºF	65”	83”	264”	15 KW	-
MY-040824	4”	8”	24”	-	3000ºF	75”	50”	132”	25 KW	-
MY-030860-36PMH	3”	8”	60”	36”	3000ºF	65”	72”	312”	40 KW	18 KW
MY-041296-72PMH	4”	12”	96”	72”	3000ºF	72”	90”	480”	90 KW	45 KW
MY-0512120-96PMH	5”	12”	120”	96”	3000ºF	72”	95”	504”	90 KW	45 KW
MY-0512120-144PMH	5”	12”	120”	144”	3000ºF	72”	95”	588”	90 KW	60 KW

	WORKING DIMENSIONS				MAX OPERATING TEMP	FLOOR SPACE REQUIREMENTS			CONNECTED LOAD	
MODEL NO.	H	W	L(HH*)	L(PH**)		H	W	L	HH*	PH**
MY-040418	101mm	101mm	457mm	-	1650ºC	1651mm	2108mm	6705mm	15 KW	-
MY-040824	101mm	203mm	609mm	-	1650ºC	1905mm	1270mm	3352mm	25 KW	-
MY-030860-36PMH	76mm	203mm	1524mm	914mm	1650ºC	1651mm	1828mm	7924mm	40 KW	18 KW
MY-041296-72PMH	101mm	304mm	2438mm	1828mm	1650ºC	1828mm	2286mm	12912mm	90 KW	45 KW
MY-0512120-96PMH	127mm	304mm	3048mm	2438mm	1650ºC	1828mm	2413mm	12802mm	90 KW	45 KW
MY-0512120-144PMH	127mm	304mm	3048mm	3048mm	1650ºC	1828mm	2413mm	14935mm	90 KW	60 KW

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