



Vincotech

# UNRIVALLED IN MOTION CONTROL

Deepest integration,  
highest performance

EMPOWERING YOUR IDEAS

# EMBEDDED DESIGNS DRIVE TOMORROW'S SOLUTIONS

## Higher performance

Embedded drive solutions for motion control simplify integration, enhance performance and speed up time-to-market. Vincotech's power module lineup represents the best fit for highly reliable, low-cost motor controls that deliver higher performance in a smaller footprint.

### **Embedded drive solutions for Industrial motion control**

Discrete drives are standard solutions designed to control a wide range of motion applications. Nevertheless, higher integration and more complex sub-systems are some of the current trends in the industrial market. A growing number of companies provide embedded drive systems with different levels of customization.

Embedded drive systems integrate drives and electric motors to reduce the space occupancy thanks to their compact and hermetically sealed design. Since these designs are built for serving specific applications, design engineers can optimize them to reduce the size and cost of the final product and increase both the reliability and performance.

Discrete drives contain filters, connectors, and cables to be assembled and tested for UL and /or CE certifications. This increases the assembly time and the overall system cost.

On the other hand, the overall system's size, cost, and time to market of embedded drives can be reduced by considerably increasing the level of integration. Mass-produced embedded drive systems benefit to a large extent from economies of scale.

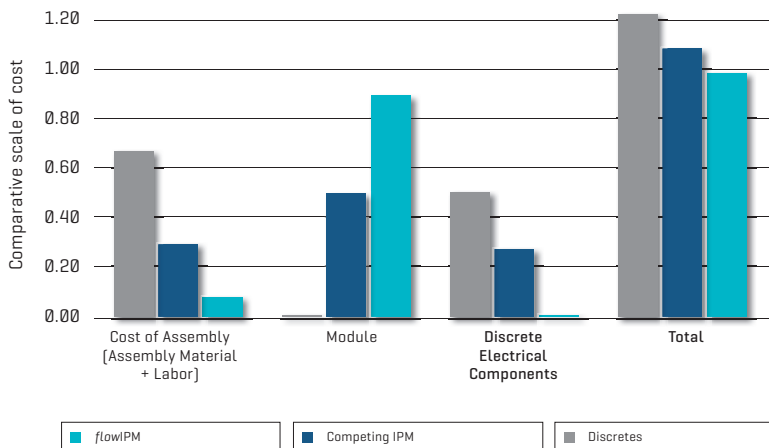
## Product portfolio for embedded drives

Space is tight in embedded drive systems, and their compact, hermetical design makes it difficult to dissipate the heat generated by so many electronic components.

Vincotech's power module portfolio for embedded drives features 600 V and 1200 V intelligent power modules (IPMs) as well as power integrated modules integrating PFC circuit (PIM+PFC). It achieves the highest level of integration of any power module available on the market, representing the best solution for such space-constrained mechanical environments.

The overall system's size, cost, and time to market can be lowered by integrating all of a motor drive's functional blocks, apart from the input filter, DC capacitor and microcontroller [see Figure 1].

VINCOTECH  
POWER MODULES  
FOR EMBEDDED DRIVES  
ACHIEVE THE HIGHEST  
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**Figure 1:** Cost analysis – flowIPM vs. discrete and competing IPM

Protection circuitry is tuned to match the power device's capability and factory-tested to improve the system's reliability.

A lot of space is saved with highly integrated components and bare power chips to achieve a much smaller footprint than that of discrete designs.

Motor drive assembly is streamlined and simplified with fewer external components and smart isolation techniques.

The ceramic sheet used in thick-film technology improves the module's thermal performance by providing the best possible direct cooling for power components.

Vincotech's power modules for embedded drives come into very compact housings equipped with Press-fit pins (see Figure 2).

Press-fit technology reduces PCB assembly time and effort considerably by eliminating the need for soldering. This cuts process time and costs, and boosts production output.



**Figure 2:** Press-fit pins for solder-less mounting

The module's creepage and clearance distances fulfill the applicable industrial standards. There are no special requirements regarding the shape of the heat sink.

The thermal interconnection between the power module and the heat sink is vastly improved by pre-applying phase-change material (see Figure 3).

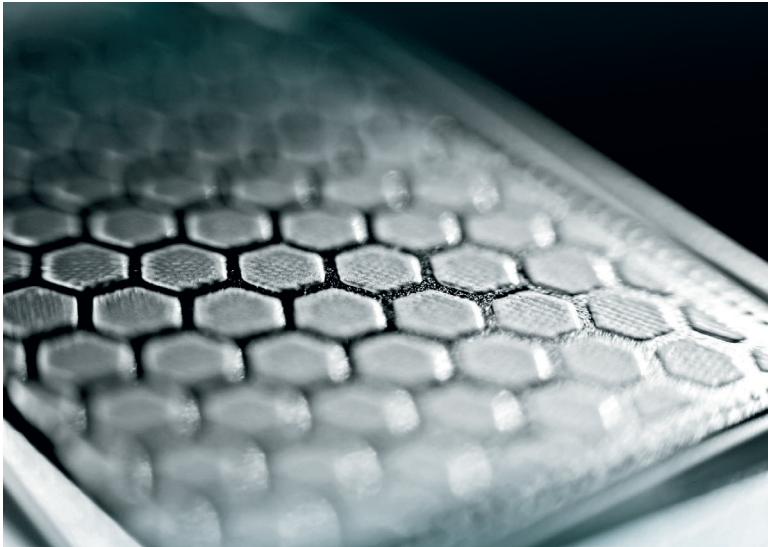
Vincotech's in-house screen-printing process deposits the material with great precision, achieving the proper thickness. The material can be optimized for maximum heat transfer capability.

## Think Integrated

Vincotech's product portfolio provides the functional integration and power density that engineers need to design embedded drive systems.

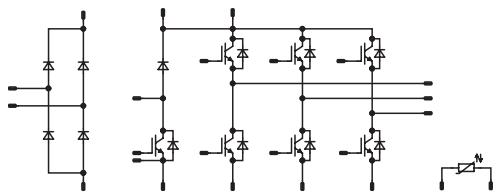
The outstanding level of integration achieved by Vincotech's intelligent power modules enables system engineers to come up with more compact designs and to take advantage of a proven combination of power components and gate drive circuits, which happen to be the most critical elements in the inverter's design.

This mitigates the risk associated with circuit design, speeds up development, and dramatically reduces time to market.



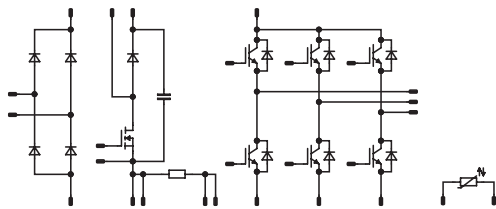
**Figure 3:** Phase-change material

# Product Portfolio



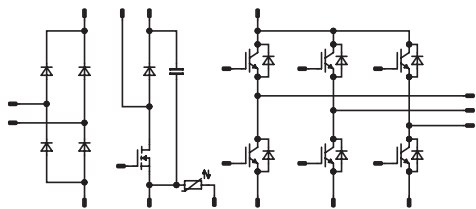
PIM+PFC (CIP) TOPOLOGY / flowPIM 0B + PFC

Product family	Volt	A	Technology	Housing	Height
10-0B06PPA004RC-L022A09	600	4	IGBT RC	flow 0B	17
10-0B06PPA006RC-L023A09	600	6	IGBT RC	flow 0B	17
10-0B06PPA010RC-L025A09	600	10	IGBT RC	flow 0B	17
10-0B06PPA010RC01-L025A19	600	10	IGBT RC	flow 0B	17



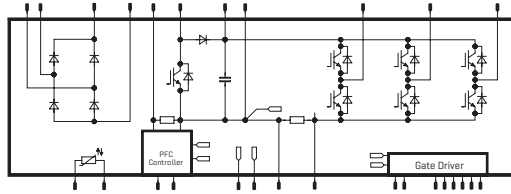
flowPIM® 0 + PFC

Product family	Volt	A	Technology	Housing	Height
10-F006PPA006SB-M682B	600	6	IGBT3 LL	flow 0	17
10-F006PPA010SB-M683B	600	10	IGBT3 LL	flow 0	17
10-F006PPA015SB-M684B	600	15	IGBT3 LL	flow 0	17
10-F006PPA020SB-M685B	600	20	IGBT3 LL	flow 0	17
10-F006PPA020SB01-M685B10	600	20	IGBT3 LL	flow 0	17
10-PC06PPA006SB-M682B06Y	600	6	IGBT3 LL	flow 0	12
10-PG06PPA030SJ-LJ02B08T	600	30	IGBT fast	flow 1	12
10-PG06PPA030SJ01-LH52E08T	600	30	IGBT fast	flow 1	12
10-PG06PPA030SJ02-LH92E08T	600	30	IGBT fast	flow 1	12
10-PG06PPA050SJ-LJ04B08T	600	50	IGBT fast	flow 1	12
10-PG06PPA050SJ01-LH54E08T	600	50	IGBT fast	flow 1	12
10-PG06PPA050SJ02-LH94E08T	600	50	IGBT fast	flow 1	12



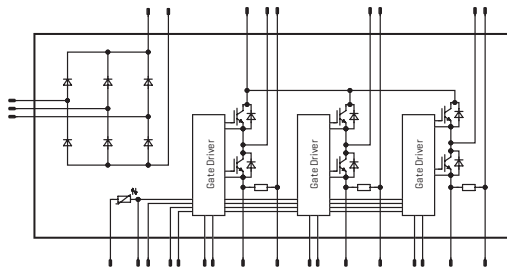
flow90PIM 1 + PFC

Product family	Volt	A	Technology	Housing	Height
10-R106PPA020SB01-M934A	600	20	IGBT3 LL	flow 90	10



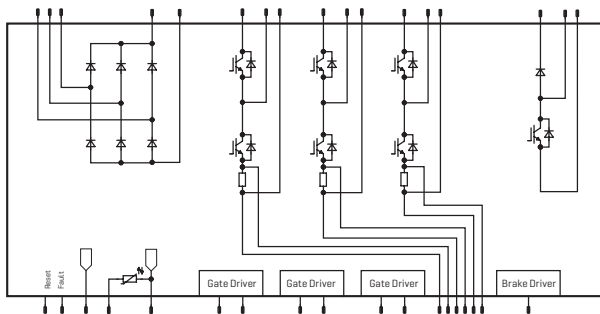
IPM [CIP/PIM+PFC] TOPOLOGY / flowIPM 1B [CIP]

Product family	Volt	A	Technology	Housing	Height
20-1B06IPB004RC-P952A40	600	4	IGBT RC	flow 1B	17
20-1B06IPB004RC01-P952A45	600	4	IGBT RC	flow 1B	17
20-1B06IPB010RC-P955A40	600	10	IGBT RC	flow 1B	17
20-1B06IPB010RC01-P955A45	600	10	IGBT RC	flow 1B	17
20-1B06IPB010RC03-P955A65	600	10	IGBT RC	flow 1B	17
20-1B06IPB006RC01-P953A45	600	6	IGBT RC	flow 1B	17
20-1B06IPB010RC02-L815A49	600	10	IGBT RC	flow 1B	17



IPM [CIB] TOPOLOGY / flowIPM 1B [CI]

Product family	Volt	A	Technology	Housing	Height
20-1B12IPA008SC-L239C09	1200	8	IGBT4	flow 1B	17
20-1B12IPA015SC-L579F09	1200	15	IGBT4	flow 1B	17
20-FB12IPA008SC-L239C08Y	1200	8	IGBT4	flow 1B	12



IPM [CIB] TOPOLOGY / flowIPM 1C [CIB]

Product family	Volt	A	Technology	Housing	Height
20-1C12IBA015SH-LB18A08	1200	15	IGBT4	flow 1C	12



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