

SINAMICS G120X Push-Through kit

Why are push-through kits important?

In a typical application, a VFD produces most of the heat inside the cabinet and this heat is dissipated through the heatsink. Therefore, additional fans are required to remove this heat from the cabinet while maintaining an ambient temperature within the operating limits of the installed components. As shown in figure 1, these fans and associated wiring take up extra space in the cabinet and increase the associated overall cost of the equipment.

The push-through kit is one of the major design improvements and user-friendly offerings of SINAMICS G120X. These optional kits offer **great benefits** to customers and machine/system/panel builders.

- Efficient heat removal from the cabinet:** In figure 2, a push-through kit gives great flexibility in panel building by allowing the option to push the heatsink out of the main section of the enclosed panel, thereby enabling the dissipation of the drive’s heat through a separate section/channel and without affecting the other components in the main section. Based upon application/customer requirements, and by using the appropriate cabinet design and rating, the desired NEMA or UL Type 1/12/3R rating can be obtained by properly enclosing the push-through heatsink portion.

Overall, the UL open type/IP20 rating of G120X with push-through kit enables maximum utilization of the drive design and ratings due to effective heat dissipation. Therefore, it is necessary to cover the push-through heatsink portion (i.e., the backside of the drive) sufficiently with a metallic cover or a separate metallic air duct or a similar construction that meets the overall desired NEMA/UL cabinet type rating based upon application requirements.

- Reduced cabinet space and product cost:** Ultimately, the use of a push-through kit, in figure 3, reduces or eliminates the requirement of a door fan and the associated additional components and wiring. This means less space is now required and a smaller cabinet can be used, which ultimately reduces the cost of the end product.
- These push-through kits now permit cost-efficient designs of enclosed drive solutions for indoor, as well as outdoor applications, using the appropriate cabinet type such as NEMA or UL Type 1/12/3R rating, etc.

Highlights and advantages of push-through kits

SINAMICS G120X push-through kits can result in **significant cost- and space-savings**

- Using push-through kit:**
- Drive is mounted through the cabinet back or side-wall with heat sink pushed-out
 - Major heat dissipation occurs outside cabinet’s main section
 - Overall UL open type/IP20 rating with push-through kit
 - Enables maximum utilization of the drive design and ratings
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Cabinet cooling fans, associated components and wiring **can be reduced or completely eliminated**

Creates more space in the cabinet, or allows the use of a smaller cabinet

Reduces overall panel cost

Figure 1: Enclosed SINAMICS G120X **without push-through kit**

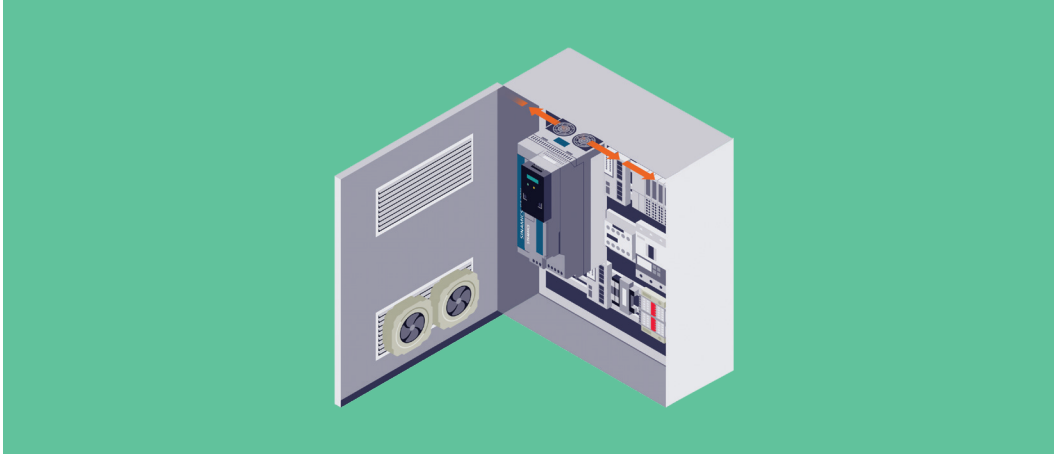


Figure 2: SINAMICS G120X in a cabinet **with push-through kit** showing efficient heat removal and reduced material (fan as well as associated parts and wiring)

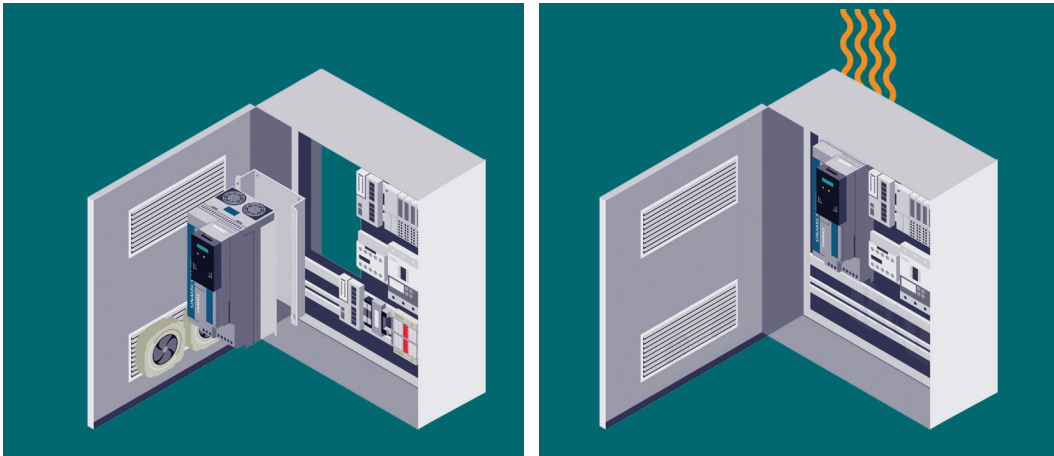
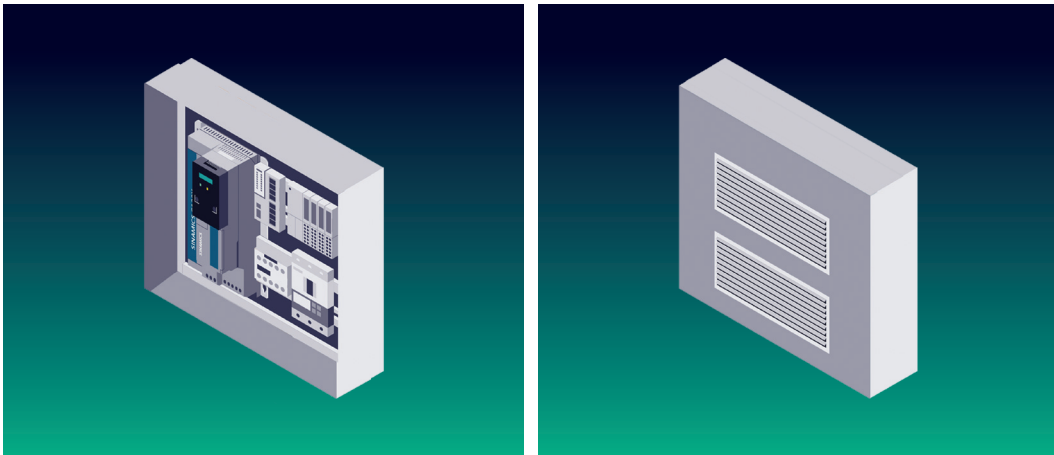


Figure 3: Reduce cabinet space and size using SINAMICS G120X **with push-through kit**



Industries and applications that can benefit from advanced enclosure designs created with PT kits

Industries

Water /wastewater Irrigation, agriculture Oil and gas HVAC Refrigeration Power generation /power plants

Irrigation pumps installed outdoor in a dirty/dusty environments

Used in agriculture, golf courses, commercial landscaping, and wells. Examples include: crop field irrigation, pivot point irrigation systems, booster pumps and submersible well pumps

Rotary lobe blowers when exposed to gases and moist environments

Popular method for pumping liquids, powders and gases in industry. Used in water /wastewater, pulp and paper, chemical, food, beverage, pharmaceutical and biotechnology.

Slurry pumps in outside and dirty/dusty environments

Slurry pumps are widely used in the transport of abrasive solids on different classifications in many industries such as construction, mining, dredging, steel and general industry—also found in flooded areas. Example: sump pumps

Rotary screw compressors when exposed to gases and moist environments

Gas compressor that uses positive displacement mechanism where large volumes of high-pressure air is needed in industry for high-power air tools or in construction for jackhammers or impact wrenches. This replaces piston compressors.

Scroll compressors when exposed to gases and moist environments

Also called a spiral compressor, it is used to compress refrigerant and commonly used in air conditioning equipment and refrigeration systems.

FD and ID boiler fans when found in dirty/dusty environments

These fans are typically found on boilers where the precise flow of air controls combustion of fuels, and the generation of hot gases. These hot gases are transported through boiler tubes and other equipment.

Other applications for SINAMICS G120X, where special enclosure needs are present, include:

Centrifugal pumps

- Chilled water
- Heating hot water
- Cooling towers
- Positive displacement pumps
- Submersible pumps
- Reciprocating pumps
- Boiler feed pumps
- Pressure booster stations

Fans

- Fan walls
- Exhaust fans
- Tunnel and garage ventilation
- Air exhaust system of building
- Air handling Units (AHU) for supply and return

Compressors

- Air conditioning
- Refrigeration / industrial chillers

Pump and fan systems to support secondary industrial processes

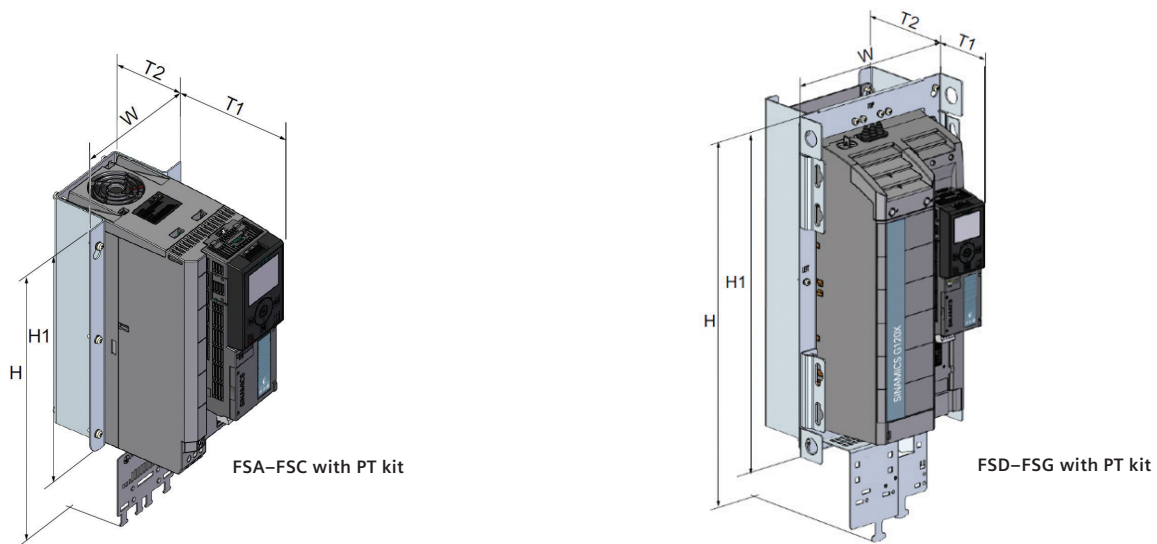
- Boiler feed water
- Ventilation
- Saltwater injection
- Dust collection
- Water transfer
- Fume control

How many push-through kits are available for SINAMICS G120X?

SINAMICS G120X push-through kits can be used as an add-on option for up to FSG or up to 250kW for all variants. There is only one push-through kit for each frame size. This means, there are seven push-through kits for seven frame sizes (FSA–FSG) and for any ratings within these frame sizes.

Users can purchase only one add-on push-through kit for a given frame size with a small price added and convert the existing IP20 G120X drive into an IP20 push-through design. Users can also create a space- and cost-efficient enclosed drive using an appropriate outer enclosure / cabinet with an appropriate rating—for example, NEMA or UL Type 1, 12, 3R and others.

Ordering information—SINAMICS G120X IP20 Push-Through kits



SINAMICS G120X	Push-Through kit (PT)	Overall dimensions of SINAMICS G120X with PT kit installed				
		Width mm (inch)	Height mm (inch)		Depth mm (inch)	
Frame size	Part number	W	H = with shield plate	H1= without shield plate	T1 = front of PT bracket	T2 = back of PT bracket
FSA	6SL3261-6GA00-0BA0	127 (5.0)	324 (12.8)	234 (9.2)	160 (6.3)	57 (2.2)
FSB	6SL3261-6GB00-0BA0	154 (6.1)	384 (15.1)	279 (11.0)	153 (6.0)	66 (2.6)
FSC	6SL3261-6GC00-0BA0	192 (7.6)	407 (16.0)	295 (11.6)	154 (6.1)	65 (2.6)
FSD	6SL3261-6GD00-0BA0	271 (10.7)	647 (25.5)	514 (20.2)	142 (5.6)	98 (3.9)
FSE	6SL3261-6GE00-0BA0	360 (14.2)	773 (30.4)	600 (23.6)	145 (5.7)	93 (3.7)
FSF	6SL3261-6GF00-0BA0	396 (15.6)	1003 (39.5)	749 (29.5)	185 (7.3)	185 (7.3)
FSG	6SL3261-6GG00-0BA0	384 (15.1)	1275 (50.2)	1026 (40.4)	184 (7.3)	188 (7.4)

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