Input Chokes for Inverter Drives - When it is Essential

Small and Medium sized Drives without internal DC Chokes need a relatively soft supply, to keep the input Current within the design range. Use on a High Fault Level supply will have high rms and high harmonic Current.
The Solution is to fit 1%, 2% or 4% Input Chokes.

Medium to Large Drives with internal DC Chokes, need 1% minimum supply impedance, to complete protection of the front-end diodes/thyristors.
If this not available in the supply, the Solution is to fit 1% Input Chokes.

An Input Choke can reduce Voltage transients and other supply disturbances in a weaker supply, or Applications where a sliding busbar or brush-gear provides the incoming power supply.

Voltage Drop of 9.2V, 4.6V and 2.3V approximately will be present across 4%, 2% and 1% Chokes. Excessive Voltage Drop will cause reduced torque available at the motor. If there is an option to fit an external DC Choke, Voltage drop will be reduced.

References for 400V Drives: -
WEG CFW100 0.18kW to 1.5kW. 1% Minimum Supply Impedance. Page 16 (3.2.3.2).
WEG CFW300 0.37kW to 7.5kW. 1% Minimum Supply Impedance. Page 18 (3.2.3.2).
WEG CFW500 0.18kW to 22kW. 1% Minimum Supply Impedance. Page 19 (3.2.3.2).
WEG CFW501 0.18kW to 7.5kW. 1% Minimum Supply Impedance. Page 19 (3.2.3.1).
ABB ACS180 0.55kW to 22kW. 0.3% Minimum Supply Impedance. Page 120.
ABB ACS480 0.55kW to 22kW. ABB Listed chokes over 5kA and 10kA. Page 161 & 144.
Yaskawa GA500 0.55kW to 22kW Use a choke in supply over 600kVA. Page 96 (3.12).
Yaskawa GA700 0.75kW to 22kW Use a choke in supply over 600kVA. Page 125 (2.21).
Yaskawa GA700 30kW to 315kW Internal DC Choke included. Page 75 (2.11 *3).

This is intended as a general guide and the Manufacturers recommendations and requirements should always be followed. The Inverter Drive Supermarket Limited accepts no liability for any consequences resulting from inappropriate, negligent or incorrect installation.

https://inverterdrive.com/group/AC-Input-Choke-Output-Chokes/