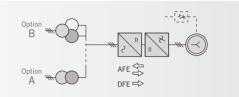
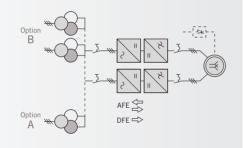
## **Topologies and Configurations**

INGEDRIVE™ can be applied to different sectors and custom made to specific requirements. It can control motors with one or several windings and cater to the needs of redundant, single - motor and multi - motor solutions. Parallel connection of several inverters to the same motor is feasible allowing higher converter output. It is also possible connect several AFE rectifiers in parallel so that more power can be handled.

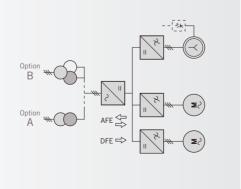
· Single-drive solution: a standard application consisting of one motor with a winding fed through a DFE or AFE converter.



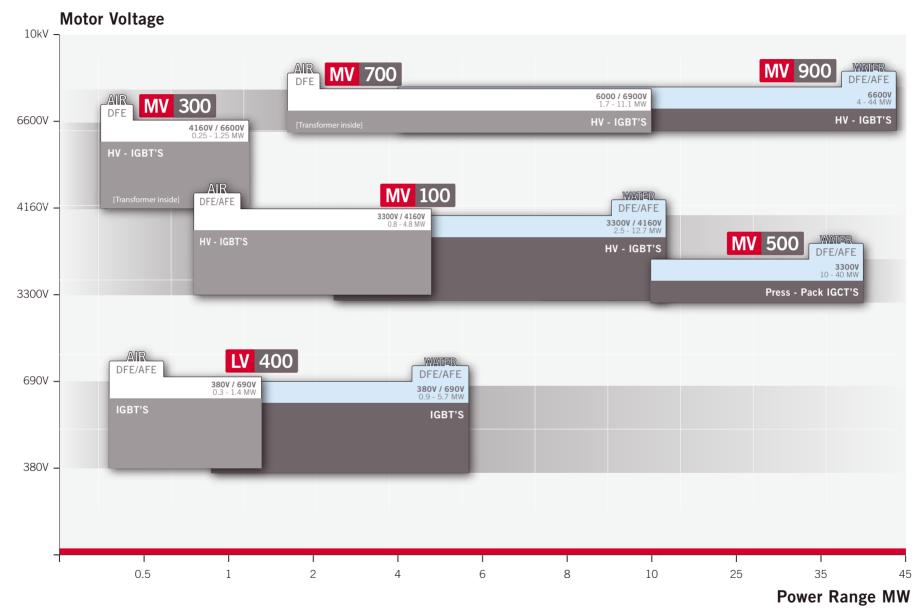
· Redundant single-drive solution: an application consisting of a motor with two windings fed by two inverters. The rectifier side can be DFE or AFE.



· Multi-drive solution: Multi - drive application in which several inverters are connected to one single DC bus. While some motors can be braking, others can be motoring, thus transferring energy between themselves through the DC bus (i.e. tension reels on reversing cold mills in the metal industry and test bench applications).







Low & medium voltage

				8
Technical characteristics	LV 400	MV 100	MV 300	<b>MV</b> 700
Variable speed drives	300 kW - 1.4 MW	BOO KW - 4.8 MW	250 kW - 1.25 MW	1.7 MW - 11.1 MW
	2 Level, DFE 2 Level, AFE	3 Level, DFE A STEEL STE	3 Level, DFE	y 5 Level NPC, H Chopper
Power Range Input Section Output Section Converter Cooling Type of Motor	300 kW - 1.4 MW DFE (6 or 12 pulse) or AFE (IGBTs) 2 level inverter (IGBTs) Air Induction, Synchronous or permanent magnet	800 kW - 4.8 MW DFE (12 or 24 pulse) or AFE (HV-IGBTs) NPC 3 level inverter (HV-IGBTs) Air Induction, Synchronous or permanent magnet	250 kW - 1.25 MW DFE (24 pulse) NPC 3 level inverter (HV-IGBTs) Air Induction, Synchronous or permanent magnet	1.7 MW - 11.1 MW DFE (24 pulse) 5 level inverter (HV-IGBTs) - H chopper Air Induction, Synchronous or permanent magnet
Supply Voltage	380 to 480 V AC 500 to 690 V AC	2 x 1850 / 2 x 2350 V AC (12P DFE) 4 x 1850 / 4 x 2350 V AC (24P DFE) 3300 / 4160 V AC (AFE)	0 - 11 kV AC (24P DFE) Transformer Included	0 - 11 kV AC (24P DFE)
Supply Voltage Tolerance Output Voltage	± 10% 0 V AC up to supply voltage	± 10% 0 to 3150 / 0 to 4160 V AC	± 10% 0 to 4160 V AC* / 0 to 6600 V AC	± 10% 0 to 6600 V AC
Supply Frequency Output Frequency	50/60 Hz (±5%) 0 to 120 Hz	50/60 Hz (±5%) 0 to 100 Hz / 0 to 70 Hz	50/60 Hz (±5%) 0 to 70 Hz	50/60 Hz (±5%) 0 to 100 Hz
Cos Phi Efficiency at 100% at Rated Load	0.93 to 0.97 (DFE), 1 (AFE) 0.97 to 0.98 (Depending on the topology)	0.93 to 0.97 (DFE), 1 (AFE) 0.97 to 0.98 (Depending on the topology)	0.93 to 0.97 (DFE) 0.96 to 0.97 (Depending on the topology)	0.93 to 0.97 (DFE) 0.96 to 0.97 (Depending on the topology)
Main Options	Dynamic bracking chopper, different communication modules, dv/dt filter, sinusoidal filter, input/output isolation switch, marine customization and other.	Dynamic bracking chopper, different communication modules, dv/dt filter, sinusoidal filter, input/output isolation switch, marine customization and other.	Dynamic bracking chopper, different communication modules, dv/dt filter, sinusoidal filter, input/output isolation switch, marine customization and other.	Dynamic bracking chopper, different communication modules, dv/dt filter, sinusoidal filter, input/output isolation switch, marine customization and other.
		(Úľ)	available for 4160 V AC	



Low & medium voltage

Technical characteristics	LV 400	MV 100	MV 500	MV 900
Variable speed drives				
	900 kW - 5.7 MW	2.5 MW - 12.7 MW	10 MW - 40 MW	4 MW - 44 MW
	2 Level, DFE 2 Level, AFE	3 Level, DFE 3 Level, AFE	3 Level, DFE 3 Level, AFE	3 Level, DFE
Power Range Input Section Output Section Converter Cooling Type of Motor	900 kW - 5.7 MW DFE (6,12, 18 or 24 pulse) or AFE (IGBTs) 2 level inverter (IGBTs) Water Induction, Synchronous or permanent magnet	2.5 MW - 12.7 MW  DFE (12 or 24 pulse) or AFE (HV-IGBTs)  NPC 3 level inverter (HV-IGBTs)  Water  Induction, Synchronous or permanent magnet	10 MW - 40 MW DFE (12 or 24 pulse) or AFE (IGCTs) NPC 3 level inverter (press-pack IGCTs) Water Induction, Synchronous or permanent magnet	4 MW - 44 MW DFE (24 pulse) or AFE (HV-IGBT) NPC 3 level inverter (HV-IGBT) Water Induction, Synchronous or permanent magnet
Supply Voltage	380 to 480 V AC 500 to 690 V AC	2 x 1850 / 2 x 2350 V AC (12P DFE) 4 x 1850 / 4 x 2350 V AC (24P DFE)	2 x 1850 V AC (12P DFE) 4 x 1850 V AC (24P DFE) 3300 V AC (AFE)	4 x 1800 V AC (24P DFE) 6600 V AC (AFE)
Supply Voltage Tolerance Output Voltage	± 10% 0 V AC up to supply voltage	3300 / 4160 V AC (AFE) ± 10% 0 to 3300 / 0 to 4160 V AC	± 10% 0 to 3300 V AC	± 10% 0 - 6600 V AC
Supply Frequency Output Frequency	50/60 Hz (±5%) 0 to 120 Hz	50/60 Hz (±5%) 0 to 100 Hz / 0 to 70 Hz	50/60 Hz (±5%) 0 to 70 Hz	50/60 Hz (±5%) 0 - 100 Hz / 0 - 70 Hz
Cos Phi Efficiency at 100% at Rated Load	0.93 to 0.97 (DFE), 1 (AFE) 0.96 to 0.98 (Depending on the topology)	0.96 (DFE), 1 (AFE) 0.97 to 0.98 (Depending on the topology)	0.96 (DFE), 1 (AFE) 0.97 to 0.98 (Depending on the topology)	0.96 (DFE), 1 (AFE) 0.97 - 0.98 (Depending on the topology)
Main Options	Dynamic bracking chopper, different communication modules, dv/dt filter, sinusoidal filter, input/output isolation switch, marine customization and other.	Dynamic bracking chopper, different communication modules, dv/dt filter, sinusoidal filter, input/output isolation switch, marine customization and other.	Dynamic bracking chopper, different communication modules, dv/dt filter, sinusoidal filter, input/output isolation switch, marine customization and other.	Dynamic bracking chopper, different communication modules, dv/dt filter, sinusoidal filter, input/output isolation switch, marine customization and other.

