

SLIP RECOVERY TYPE INDUCTION MOTOR DRIVES/SOFT STARTER

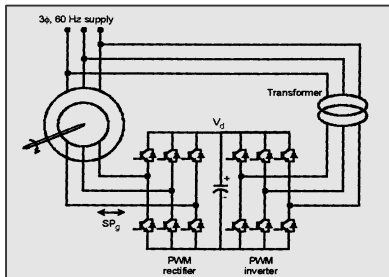
MRSS-Series

Introduction:

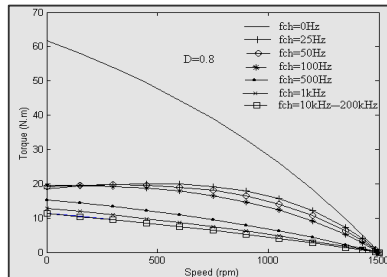
MRSS series of high power, energy efficient drives are available in (3.0 to 5000 h.p.), more than 50 different models working in constant power/torque mode virtually offering reliable solutions to speed/torque control applications in , generation traction, telecom, airlines, railways, electrical utilities, modern building automation, rural transportation, irrigation, blower/pumping, wind energy, tidal energy, petrochemical industry, organic/inorganic chemical, heavy electrical/mechanical industries, machine tools, non-conventional energy and many uncountable defense/nuclear applications. Updated design topology ensures better controllability and efficiency with additional integrated power/voltage and frequency control/protection. Company offers tailor made solution to custom requirement.

Operating Principle:

Slip recovery drives are force-commutated high frequency I.G.B.T./MOSFET controlled converters working in feedback cascade mode. slip energy is controlled by synchronous feedback PWM control technique and may be set to any voltage constrained by adjustable internal current limit, with consistent regulation over wide load range and without any hunting with fail proof protection against either over/under voltage. These compact slip recovery drives may be operated in parallel along with facility of parallel port/serial port to enable it to interface with computer to achieve any real time voltage /current profile.



Schematic of slip recovery drive



Torque speed characteristic at differ frequency

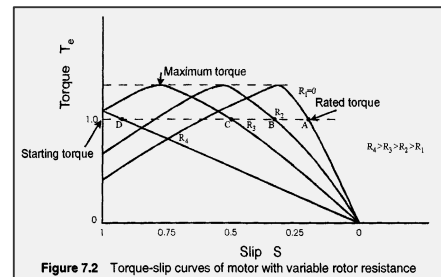


Figure 7.2 Torque-slip curves of motor with variable rotor resistance

Electrical/mechanical specifications of High Frequency Slip recovery drives

Power < 1000,000 kilo watt.

Model	Watts	Volts 1/3 phase	current	Switchng frequency k.hz	cooling	Model	Watts	Volts	Current	Switching frequency k.hz	Cooling
MRSS-003050	03000	220	05.0	05-50	Air	MRSS-04800050	04800.000	11,000	050.0	05-50	Air
MRSS-006010	06000	220	010.0	05-50	Air	MRSS-01000100	01000.000	11,000	0100.0	05-50	Air
MRSS-012020	012000	220	020.0	05-50	Air	MRSS-02000200	02000.000	11,000	0200.0	05-50	Air
MRSS-024020	024000	220	040.0	05-50	Air	MRSS-05000400	05000.000	11,000	0400.0	05-50	Air
MRSS-060100	060000	220	0100.0	05-50	Air	MRSS-08000800	08000.000	11,000	0800.0	05-50	Air
MRSS-120200	0120000	220	0200.0	05-50	Air	MRSS-10000900	01000.000	11,000	0900.0	05-50	Air
MRSS-240280	0240000	440	0280.0	05-50	Air	MRSS-20001900	02000.000	11,000	01900.0	05-50	Air

High Frequency Slip recovery drives Specification:

Operating voltage 220 volt/1/3 phase 50Hz
 Output current/voltage 0-400 volts/1000 amps 0-50 Hz (max) (slip voltage)
 Switching frequency of control: 5.0-200 K.Hz
 Voltage/current control accuracy 99.9% of set point
 Resolution 0.1 volts/amps D.C.
 Current/Voltage Ripple 10.0 volts/amps to 100 micro volts/amps
 Response time 0.5-1.1 mill-seconds
 Interface Signal 0.0-12.0 volts D.C./4.0-20.0 milli amps
 Voltage control range 0.0-400 volts
 Power factor/harmonics 0.95(lagging)/ less than 3% of principal harmonics
 Control ; PWM based cascade feedback control With soft start and adjustable current limit.

Display Voltage/current/RPM/kilowatt in 3½ red glow LED display

Protection over voltage/short ckt & inline surge protection.

Quasi resonant /Pulse mode A.C./D.C. slip recovery drives are also available.

High Frequency Slip recovery drives Specification:

MRSS-006050	08X06X06	MRSS-048150	14X12X12
MRSS-012050	10X06X06	MRSS-048200	16X14X14
MRSS-012100	12X08X08	MRSS-096025	18X16X16
MRSS-024025	12X10X10	MRSS-096050	20X18X18
MRSS-024050	12X10X10	MRSS-096100	20X18X18
MRSS-024100	12X10X10	MRSS-096150	20X18X18
MRSS-024200	08X06X06	MRSS-096200	14X12X12
MRSS-048050	10X06X06	MRSS-096400	16X14X14
MRSS-048100	18X16X14	MRSS-192100	18X16X16

Three numerals x 100 after MRSS indicates voltage of drive/starter & last three-digit Indicates current.last numeral 01-drive/02-starter. All dimensions are in inches.

Company undertake design/installation slip recovery drives/soft starter of other specifications not covered under our regular model.



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SLIP RECOVERY TYPE INDUCTION MOTOR DRIVES/SOFT STARTER

MRSS-Series

Electrical/mechanical specifications of High Frequency Slip recovery soft starter

Power < 5000,000 kilo watt

Model	Watts	Volts 1/3 phase	current	cooling	Model	Watts	Volts 1/3 phase	Current	Cooling
MRSS-003050	03000	220	05.0	Air	MRSS-04800050	04800,000	11,000	050.0	Air
MRSS-006010	06000	220	010.0	Air	MRSS-01000100	01000,000	11,000	0100.0	Air
MRSS-012020	012000	220	020.0	Air	MRSS-02000200	02000,000	11,000	0200.0	Air
MRSS-024020	024000	220	040.0	Air	MRSS-05000400	05000,000	11,000	0400.0	Air
MRSS-060100	060000	220	0100.0	Air	MRSS-08000800	08000,000	11,000	0800.0	Air
MRSS-120200	0120000	220	0200.0	Air	MRSS-10000900	01000,000	11,000	0900.0	Air
MRSS-240280	0240000	440	0280.0	Air	MRSS-20001900	02000,000	11,000	01900.0	Air

Three numerals x 100 after MRSS indicates voltage of drive/starter and last three-digit Indicates current. All dimensions are in inches. Last numeral 01-drive/02-starter. Company undertake design/installation slip recovery drives/soft starter of other specifications not covered under our regular model.

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PASSIVE TYPE SLIP RING INDUCTION MOTOR SOFT STARTER

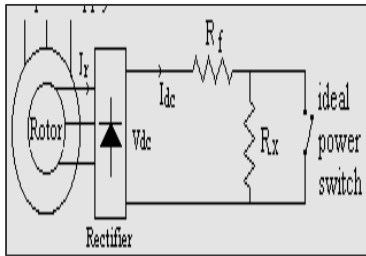
MPSS-Series

Introduction:

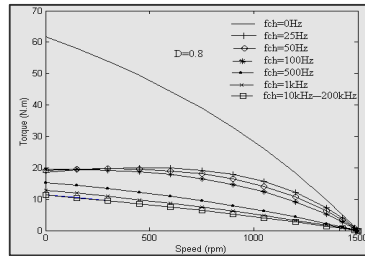
MPSS series of high power, energy efficient type passive starter are available in (3.0 to 5000 h.p.), more than 10 different models working in current limiting mode virtually offering reliable solutions to reliable soft safe starting applications in , generation traction, telecom, airlines, railways, electrical utilities, modern building automation, rural transportation, irrigation, blower/pumping, wind energy, tidal energy, petrochemical industry, organic/inorganic chemical, heavy electrical/mechanical industries, machine tools, non-conventional energy and many uncountable defense/nuclear applications. Updated design topology ensures better controllability and efficiency with additional integrated power/voltage and frequency control/protection. Company offers tailor made solution to custom requirement.

Operating Principle:

Resistive/reactive type pasasive starter for slip ring motors are electromechanical/solid sate Based switching of resistive/reactive element in rotor circuits of motor in controlled Manner such that rotor/stator current does not exceed rated current and at the same time Motor deliver full load torque .Solid sate controller are normally IGBT based working in Sliding mode to ensure robust control. Starting time may be adjusted by controlling Controller parameter. Performances of these staer are immune to any load/supply variation without any hunting with fail proof protection against either over/under voltage. These compact slip recovery drives may be operated in parallel along with facility of parallel port/serial port to enable it to interface with computer to achieve any real time voltage /current profile.



schematic of passive soft starter



Torque/ speed behaviour of slip ring motor at different passive values/frequency

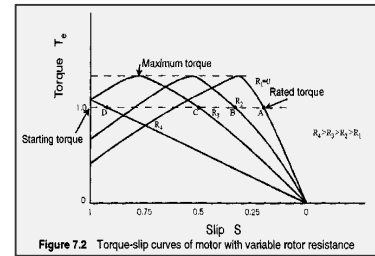


Figure 7.2 Torque-slip curves of motor with variable rotor resistance

Electrical/mechanical specifications of passive type slip ring motor starter

Power < 1000,000 kilo watt.

Model	Watts	Volts	current	cooling	Model	Watts	Volts	Current	Cooling
MPSS-003050	03000	220	05.0	Air	MPSS-04800050	04800,000	11,000	050.0	Air
MPSS-006010	06000	220	010.0	Air	MPSS-01000100	01000,000	11,000	0100.0	Air
MPSS-012020	012000	220	020.0	Air	MPSS-02000200	02000,000	11,000	0200.0	Air
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MPSS-060100	060000	220	0100.0	Air	MPSS-08000800	08000,000	11,000	0800.0	Air
MPSS-120200	0120000	220	0200.0	Air	MPSS-10000900	01000,000	11,000	0900.0	Air
MPSS-240280	0240000	440	0280.0	Air	MPSS-20001900	02000,000	11,000	01900.0	Air

Resistive/reactive type slip ring motor soft starter:

Operating voltage 220 volt/1/3 phase 50Hz
 Output current/voltage 0-400 volts/1000 amps 0-50 Hz (max) (slip voltage)
 Switching frequency of control: as decided by controller
 Voltage/current control accuracy 99.9% of set point
 Resolution 0.1 volts/amps D.C.
 Torque/speed contro range : 10-100% (both speed/torque0)
 Response time 0.5 –1.1 mill-seconds
 Interface Signal 0.0-12.0 volts D.C./4.0-20.0 mili amps
 Power factor/harmonics 0.95(lagging)/ less than 3% of principal harmonics
 Control Sliding mode controller and adjustable Torque limit.
 Display RPM/Torque /kilowatt in 3½ red glow LED display
 Protection over voltage/short ckt & inline surge protection.

Resistive/reactive type slip ring motor soft starter:

MPSS-006050	08X06X06	MPSS-048150	14X12X12
MPSS-012050	10X06X06	MPSS-048200	16X14X14
MPSS-012100	12X08X08	MPSS-096025	18X16X16
MPSS-024025	12X10X10	MPSS-096050	20X18X18
MPSS-024050	12X10X10	MPSS-096100	20X18X18
MPSS-024100	12X10X10	MPSS-096150	20X18X18
MPSS-024200	08X06X06	MPSS-096200	14X12X12
MPSS-048050	10X06X06	MPSS-096400	16X14X14
MPSS-048100	18X16X14	MPSS-192100	18X16X16



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