FERROMATIK MILACRON
India

Technology for Productivity

HYDRON SERVO

Hydraulic Injection Moulding Machine
100 to 450 Ton



High Performance Hydraulic Machine



- High Productivity
- Precision & Consistancy
- Energy Efficiency
- Robust Construction

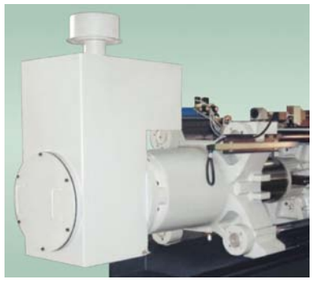
One Dream... GO green

HYDRON SERVO

Hydraulic Injection Moulding Machine

High Performance Hydraulic Machine

FERROMATIK MILACRON India



1 Advanced Clamp Design

- Separate Prefill Tank
- Fast Tonnage Build-up
- Special Hydraulics for Fast Clamp Movements

3 Generous Mould Space

- Accommodates Large Moulds

6 Closed Loop PID Temperature Control

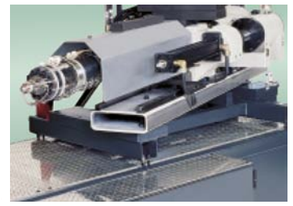
- Provides precise Temperature Control
- Excellent Process Control & Stability

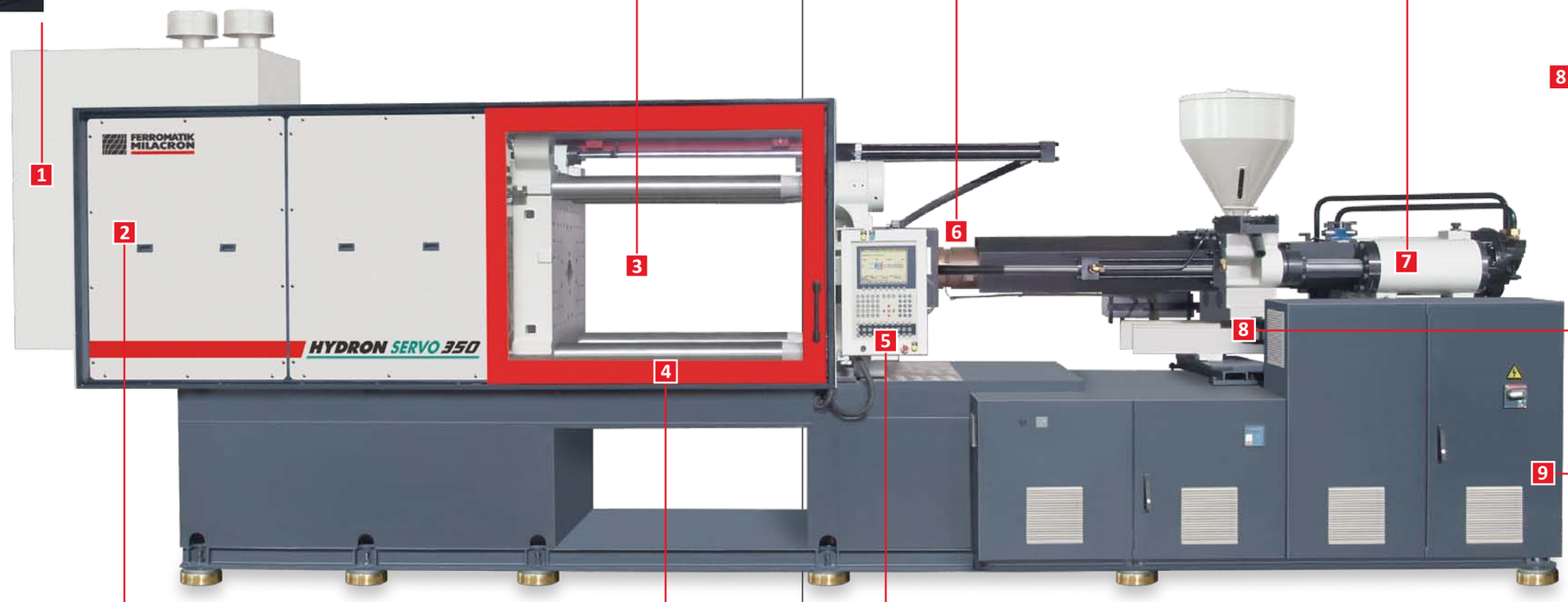
7 Twin Cylinder Injection Unit

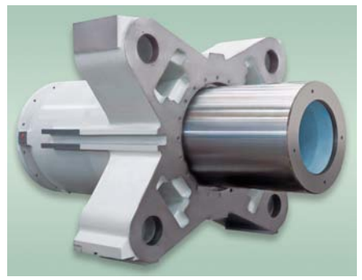
- Uniform Load Distribution across Screw Centerline

8 Precise Linear Guideways

- Frictionless Linear Bearing Guideways improve the Injection Power & Cylinder Alignment







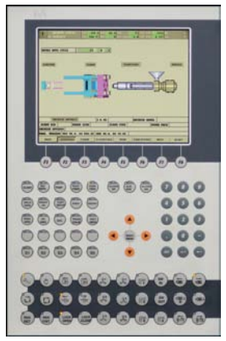
2 Large Ram Diameter

- Provides Uniform Force Distribution across Platen
- Provides Excellent Mould Squareness & Parallelism
- Reduces Mould Wear



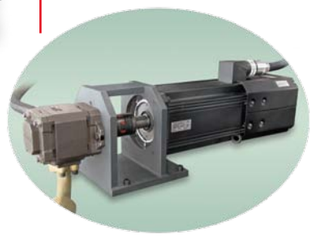
4 Wide Skates for Platen Supports

- Reduced Platen Deflection
- Enhanced Life of Tie-bars
- Higher Mould Carrying Capacity



5 Endura-II - Advanced User Friendly Control

- Ergonomic Layout
- High Speed Microprocessor
- Direct Access Menu Keys
- Graphical Presentation of Machine Features
- Self Diagnostic & Fault Finding Capability
- Parameter Entry in Absolute Value
- Central Monitoring System
- Statistical Process Control (SPC)



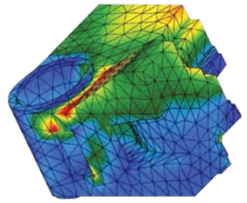
9 Servo Motor

- Outstanding Energy Saving
- Faster Response towards Hydraulic System
- Excellent Shot Weight Consistency
- Reduced Noise Level

HYDRON SERVO

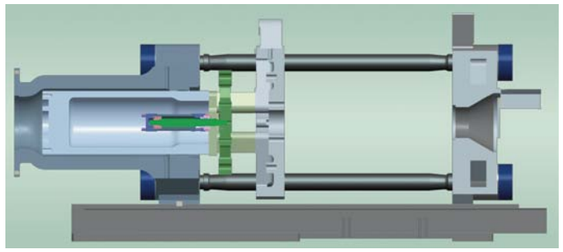
Hydraulic Injection Moulding Machine

The HYDRON Servo Series is Fully Hydraulic Direct Locking Ram Type Machine.



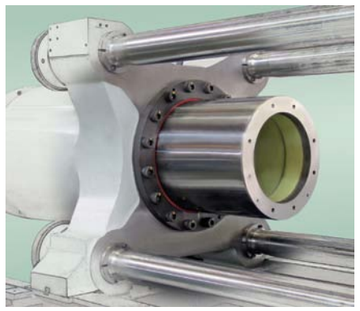
Finite Element Analysis (FEA) for Machine Components

- Provides Maximum Strength to Weight Ratio



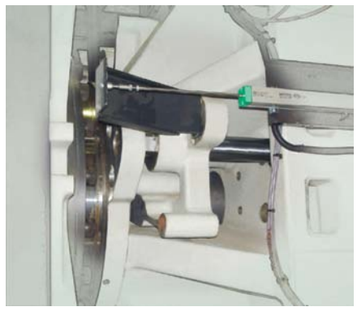
Hollow Headless Ram

- Minimized Friction - Faster Clamp Movement



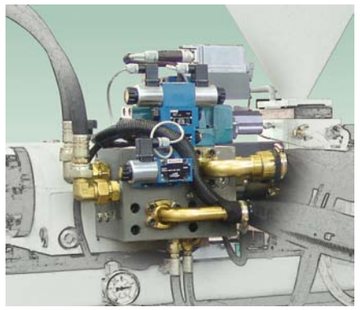
Mono Seal & No Piston Rings

- Long Life of Sealing System
- Ease of Maintenance



Fully Guided Knock Out Bar

- Provides Multi Point Ejection & Even Ejection Force



Hydraulic Valves Mounted Close to Actuators

- Fast Response From Actuator to Control Unit

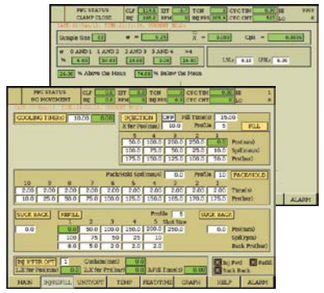
More Use of Hoses

- Quieter Machine Operation



Cartridge Valves

- Smooth Operations
- Low Energy Dissipation



Additional Control Features

- Parameter Entry in Absolute Values
- User Customized Menu
- On Board I/O Diagnosis
- Mould Data Storage - 80 Nos.

CAN Bus System with Servo System

- Significant effect on overall Machine Performance as Servo System is Faster double than DFE System
- Better Energy Efficiency as compare to DFE + VFD

FERROMATIK MILACRON India

Servo Motor
The New Edge Technology

Energy Saving Upto 50%

Replacement of Standard Induction Motor with Servo Motor

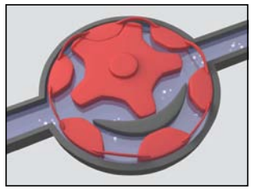
Reduced Heat Generation

- Only delivers hydraulic oil as it is needed
- Reduces heat generation in hydraulic oil
- Results in longer life for hydraulic components & enhanced oil life
- Heat load on factory & cooling water consumption is reduced
- Influence of oil temperature on machine repeatability is reduced
- Improves cycle precision & repeatability

Servo Motor

- Improved repeatability
  - Closed loop system
- Reduced energy consumption
  - Servo motor rpm can vary from 0 to 3000
- Increased accuracy & precision
  - Rotation can be controlled to a fraction of a degree
- High response
  - Reduced system inertia
- Noise reduction
  - Quiet gear pump
  - Variable speed operations when required

Internal Gear Pump



- Reduced sensitivity to contamination
- Increased reliability & lower maintenance costs
  - Only 2 moving parts
  - No internal wear parts
  - Lower cost spare parts
- Bidirectional pump for fast response in pressure control
- Pump is stopped intermittently during the cycle
- Constant & non-pulsating discharge regardless of pressure conditions
- Low operating noise



Servo Motor
(3 Phase Synchronous Motor with Permanent Magnets)



Standard Induction Motor
(3 Phase Asynchronous Motor)

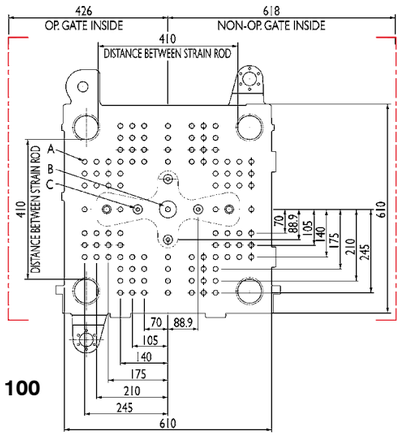
HYDRON SERVO

Hydraulic Injection Moulding Machine

Technical Specifications

MODEL		HYDRON SERVO 100					
INTERNATIONAL SIZE		1000 - 450			1000 - 630		
POWER PACK *		11.5 KW			11.5 KW		
INJECTION UNIT	UNIT	450			630		
		A'	A	B	A'	A	B
INJECTION CAPACITY MAX. (GPPS)	gm	165	215	272	239	303	374
THEORETICAL DISPLACEMENT	cc	173	226	286	251	318	393
INJECTION PRESSURE	bar	2443	1984	1568	2492	1969	1595
INJECTION RATE**	cc/sec	89	116	147	92	117	144
INJECTION SCREW STROKE	mm	180	180	180	200	200	200
SCREW DIAMETER	mm	35	40	45	40	45	50
SCREW L/D RATIO		25.7	22.5	20	25	22.2	20
SCREW SPEED	rpm	241	241	241	192	192	192
SCREW TORQUE @ 172 BAR	Nm	876	876	876	1080	1080	1080
PLASTICIZING RATE (GPPS)**	gm/sec	12	16	22	13	18	25
PLASTICIZING RATE (BARRIER SCREW)	gm/sec	15	19	27	16	22	29
NO. OF PYROMETER (BARREL+NOZZLE)		4+1			4+1		
TOTAL HEAT CAPACITY	kW	11.3			15.7		
CLAMP UNIT							
CLAMP FORCE	ton	100			100		
CLAMP STROKE	mm	560			560		
MAXIMUM DAYLIGHT	mm	760			760		
MINIMUM MOULD HEIGHT	mm	200			200		
PLATEN SIZE (H x V)	mm	610 x 610			610 x 610		
DISTANCE BETWEEN TIE ROD	mm	410 x 410			410 x 410		
TIE ROD DIAMETER	mm	70			70		
EJECTOR STROKE	mm	125			125		
EJECTOR FORCE	ton	4.5			4.5		
MOULD WEIGHT CAPACITY	kg	800			800		
GENERAL							
SERVO DRIVE *	kW	11.5			11.5		
OIL TANK CAPACITY - MAIN TANK	ltr	265			265		
OIL TANK CAPACITY - PREFILL TANK	ltr	140			140		
WATER REQUIREMENT (Inlet temp. 29°C)	lpm	50			50		
CONNECTED LOAD	kW	22.8			27.2		
MACHINE DIMENSION (L x W x H)	m	5.02 x 1.55 x 2.27			5.27 x 1.55 x 2.27		
MACHINE WEIGHT	kg	4800			5000		

** Under Specified Condition ** With Open Nozzle*



HYDRON SERVO 100

ALL DIMENSIONS ARE IN MM

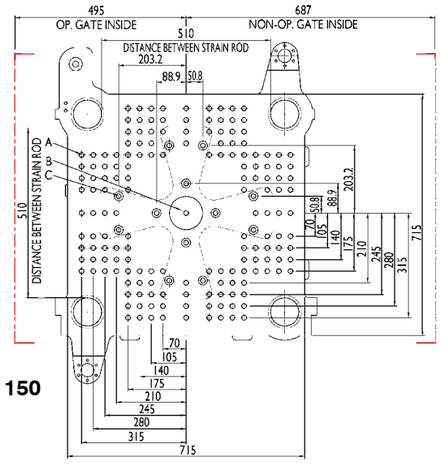
A M16x40 DEEP (104 HOLES ON MOVING PLATEN)
M16x40 DEEP (108 HOLES ON STATIONARY PLATEN)
B MOVING PLATEN : Ø50.0 THRU BORE K/O BAR
CENTER HOLE M16 THRU
STATIONARY PLATEN : Ø100.0 (+0.035/0.00) WITH LOCATING RING
Ø125.0 (+0.04/0.000) WITHOUT LOCATING RING
C Ø27.0 THRU, (4) HOLES & K/O BAR SIDE HOLES
M12, THRU (4 NOS)

Technical Specifications

FERROMATIK MILACRON India

MODEL		HYDRON SERVO 150								
INTERNATIONAL SIZE		1500 - 450			1500 - 630			1500 - 970		
POWER PACK *		11.5 KW			11.5 KW			11.5 KW		
INJECTION UNIT	UNIT	450			630			970		
		A'	A	B	A'	A	B	A'	A	B
INJECTION CAPACITY MAX. (GPPS)	gm	165	215	272	239	303	374	363	448	646
THEORETICAL DISPLACEMENT	cc	173	226	286	251	318	393	382	471	679
INJECTION PRESSURE	bar	2443	1984	1568	2492	1969	1595	2249	2057	1428
INJECTION RATE**	cc/sec	103	134	170	107	135	167	105	129	186
INJECTION SCREW STROKE	mm	180	180	180	200	200	200	240	240	240
SCREW DIAMETER	mm	35	40	45	40	45	50	45	50	60
SCREW L/D RATIO		25.7	22.5	20	25	22.2	20	26.7	24	20
SCREW SPEED	rpm	279	279	279	222	222	222	188	188	188
SCREW TORQUE @ 172 BAR	Nm	876	876	876	1080	1080	1080	1305	1305	1305
PLASTICIZING RATE (GPPS)**	gm/sec	13	19	26	15	20	28	17	24	39
PLASTICIZING RATE (BARRIER SCREW)	gm/sec	17	23	31	18	25	33	21	28	43
NO. OF PYROMETER (BARREL+NOZZLE)		4+1			4+1			4+1		
TOTAL HEAT CAPACITY	kW	11.3			15.7			16.9		
CLAMP UNIT										
CLAMP FORCE	ton	150			150			150		
CLAMP STROKE	mm	625			625			625		
MAXIMUM DAYLIGHT	mm	825			825			825		
MINIMUM MOULD HEIGHT	mm	200			200			200		
PLATEN SIZE (H x V)	mm	715 x 715			715 x 715			715 x 715		
DISTANCE BETWEEN TIE ROD	mm	510 x 510			510 x 510			510 x 510		
TIE ROD DIAMETER	mm	85			85			85		
EJECTOR STROKE	mm	160			160			160		
EJECTOR FORCE	ton	4.5			4.5			4.5		
MOULD WEIGHT CAPACITY	kg	1500			1500			1500		
GENERAL										
SERVO DRIVE *	kW	11.5			11.5			11.5		
OIL TANK CAPACITY - MAIN TANK	ltr	415			415			415		
OIL TANK CAPACITY - PREFILL TANK	ltr	180			180			180		
WATER REQUIREMENT (Inlet temp. 29°C)	lpm	50			50			50		
CONNECTED LOAD	kW	22.8			27.2			28.4		
MACHINE DIMENSION (L x W x H)	m	5.55 x 1.71 x 2.43			5.55 x 1.71 x 2.43			5.79 x 1.71 x 2.43		
MACHINE WEIGHT	kg	7300			7600			7800		

** Under Specified Condition ** With Open Nozzle*



HYDRON SERVO 150

ALL DIMENSIONS ARE IN MM

A M16x40 DEEP (156 HOLES ON MOVING PLATEN)
M16x40 DEEP (176 HOLES ON STATIONARY PLATEN)
B MOVING PLATEN : Ø100.0 THRU BORE K/O BAR
CENTER HOLE M16x40 MM DEEP
STATIONARY PLATEN : Ø125.0 (+0.040/0.00) WITH LOCATING RING
Ø160.0 (+0.040/0.000) WITHOUT LOCATING RING
C Ø27.0 THRU, (12) HOLES & K/O BAR SIDE HOLES
M16x40 MM DEEP (12 NOS)

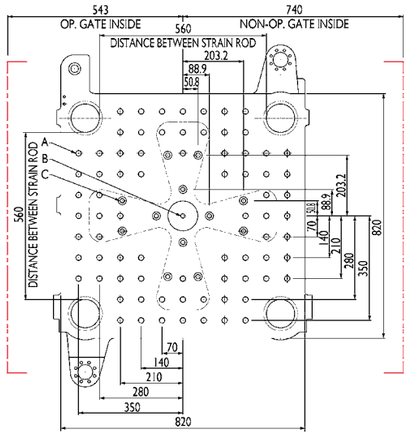
HYDRON SERVO

Hydraulic Injection Moulding Machine

Technical Specifications

MODEL		HYDRON SERVO 200								
INTERNATIONAL SIZE		2000 - 630			2000 - 970			2000 - 1540		
POWER PACK *		13.6 KW			13.6 KW			13.6 KW		
INJECTION UNIT	UNIT	630			970			1540		
		A'	A	B	A'	A	B	A'	A	B
INJECTION CAPACITY MAX. (GPPS)	gm	239	303	374	363	448	646	523	753	1025
THEORETICAL DISPLACEMENT	cc	251	318	393	382	471	679	550	792	1078
INJECTION PRESSURE	bar	2492	1969	1595	2249	2057	1428	2236	1941	1426
INJECTION RATE**	cc/sec	167	211	261	164	202	291	149	214	291
INJECTION SCREW STROKE	mm	200	200	200	240	240	240	280	280	280
SCREW DIAMETER	mm	40	45	50	45	50	60	50	60	70
SCREW L/D RATIO		25	22.2	20	26.7	24	20	28	23.3	20
SCREW SPEED	rpm	305	305	305	293	293	293	180	180	180
SCREW TORQUE @ 172 BAR	Nm	1080	1080	1080	1305	1305	1305	2126	2126	2126
PLASTICIZING RATE (GPPS)**	gm/sec	21	28	38	27	37	60	23	37	53
PLASTICIZING RATE (BARRIER SCREW)	gm/sec	25	34	46	33	44	68	27	42	66
NO. OF PYROMETER (BARREL+NOZZLE)		4+1			4+1			4+1		
TOTAL HEAT CAPACITY	kW	15.7			16.9			24.9		
CLAMP UNIT										
CLAMP FORCE	ton	200			200			200		
CLAMP STROKE	mm	750			750			750		
MAXIMUM DAYLIGHT	mm	950			950			950		
MINIMUM MOULD HEIGHT	mm	200			200			200		
PLATEN SIZE (H x V)	mm	820 x 820			820 x 820			820 x 820		
DISTANCE BETWEEN TIE ROD	mm	560 x 560			560 x 560			560 x 560		
TIE ROD DIAMETER	mm	95			95			95		
EJECTOR STROKE	mm	160			160			160		
EJECTOR FORCE	ton	7.5			7.5			7.5		
MOULD WEIGHT CAPACITY	kg	1906			1906			1906		
GENERAL										
SERVO DRIVE *	kW	13.6			13.6			13.6		
OIL TANK CAPACITY - MAIN TANK	ltr	525			525			525		
OIL TANK CAPACITY - PREFILL TANK	ltr	345			345			345		
WATER REQUIREMENT (Inlet temp. 29°C)	lpm	75			75			75		
CONNECTED LOAD	kW	29.3			30.5			38.5		
MACHINE DIMENSION (L x W x H)	m	6.43 x 1.76 x 2.57			6.64 x 1.76 x 2.57			7.03 x 1.76 x 2.57		
MACHINE WEIGHT	kg	10700			11000			11400		

** Under Specified Condition ** With Open Nozzle*



ALL DIMENSIONS ARE IN MM

A M20x50 DEEP (76 HOLES ON MOVING PLATEN)
M20x50 DEEP (84 HOLES ON STATIONARY PLATEN)
B MOVING PLATEN : Ø100.0 THRU BORE K/O BAR
CENTER HOLE M16x40 MM DEEP
STATIONARY PLATEN : Ø125.0 (+0.040/0.00) WITH LOCATING RING
Ø160.0 (+0.040/0.000) WITHOUT LOCATING RING
C Ø27.0 THRU, (12) HOLES & K/O BAR SIDE HOLES
M16x40 MM DEEP (12 NOS)

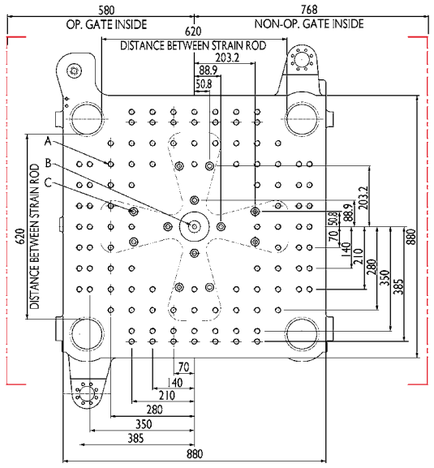
HYDRON SERVO 200

Technical Specifications

FERROMATIK MILACRON India

MODEL		HYDRON SERVO 250								
INTERNATIONAL SIZE		2500 - 970			2500 - 1540			2500 - 2290		
POWER PACK *		13.6 KW			13.6 KW			25.1 KW		
INJECTION UNIT	UNIT	970			1540			2290		
		A'	A	B	A'	A	B	A'	A	B
INJECTION CAPACITY MAX. (GPPS)	gm	363	448	646	523	753	1025	861	1172	1530
THEORETICAL DISPLACEMENT	cc	382	471	679	550	792	1078	905	1232	1608
INJECTION PRESSURE	bar	2249	2057	1428	2236	1941	1426	2238	1856	1421
INJECTION RATE**	cc/sec	164	202	291	149	214	291	229	312	407
INJECTION SCREW STROKE	mm	240	240	240	280	280	280	320	320	320
SCREW DIAMETER	mm	45	50	60	50	60	70	60	70	80
SCREW L/D RATIO		26.7	24	20	28	23.3	20	26.7	22.9	20
SCREW SPEED	rpm	293	293	293	180	180	180	159	159	159
SCREW TORQUE @ 172 BAR	Nm	1305	1305	1305	2126	2126	2126	3347	3347	3347
PLASTICIZING RATE (GPPS)**	gm/sec	27	37	60	23	37	53	33	47	65
PLASTICIZING RATE (BARRIER SCREW)	gm/sec	33	44	68	27	42	66	37	58	79
NO. OF PYROMETER (BARREL+NOZZLE)		4+1			4+1			4+1		
TOTAL HEAT CAPACITY	kW	16.9			24.9			39.6		
CLAMP UNIT										
CLAMP FORCE	ton	250			250			250		
CLAMP STROKE	mm	830			830			830		
MAXIMUM DAYLIGHT	mm	1080			1080			1080		
MINIMUM MOULD HEIGHT	mm	250			250			250		
PLATEN SIZE (H x V)	mm	880 x 880			880 x 880			880 x 880		
DISTANCE BETWEEN TIE ROD	mm	620 x 620			620 x 620			620 x 620		
TIE ROD DIAMETER	mm	100			100			100		
EJECTOR STROKE	mm	160			160			160		
EJECTOR FORCE	ton	7.5			7.5			7.5		
MOULD WEIGHT CAPACITY	kg	2650			2650			2650		
GENERAL										
SERVO DRIVE *	kW	13.6			13.6			25.1		
OIL TANK CAPACITY - MAIN TANK	ltr	615			615			615		
OIL TANK CAPACITY - PREFILL TANK	ltr	435			435			435		
WATER REQUIREMENT (Inlet temp. 29°C)	lpm	75			75			75		
CONNECTED LOAD	kW	30.5			38.5			64.7		
MACHINE DIMENSION (L x W x H)	m	6.86 x 1.87 x 2.66			7.24 x 1.87 x 2.66			7.75 x 1.95 x 2.70		
MACHINE WEIGHT	kg	13600			14000			15200		

** Under Specified Condition ** With Open Nozzle*



ALL DIMENSIONS ARE IN MM

A M20x50 DEEP (104 HOLES ON MOVING PLATEN)
M20x50 DEEP (112 HOLES ON STATIONARY PLATEN)
B MOVING PLATEN : Ø100.0 THRU BORE K/O BAR
CENTER HOLE M16x40 MM DEEP
STATIONARY PLATEN : Ø125.0 (+0.040/0.00) WITH LOCATING RING
Ø160.0 (+0.040/0.000) WITHOUT LOCATING RING
C 027.0 THRU (12) HOLES & K/O BAR SIDE HOLES
M16x40 MM DEEP (12 NOS)

HYDRON SERVO 250

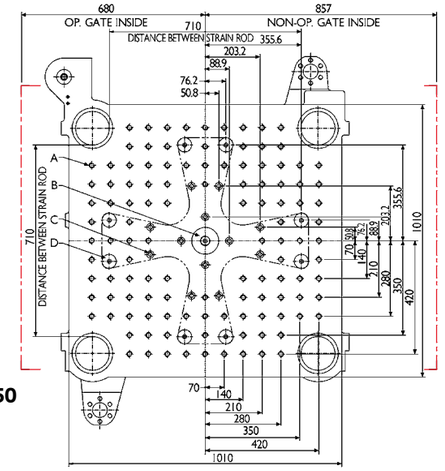
HYDRON SERVO

Hydraulic Injection Moulding Machine

Technical Specifications

MODEL		HYDRON SERVO 350								
INTERNATIONAL SIZE		3500 - 1540			3500 - 2290			3500 - 3470		
POWER PACK *		25.1 KW			25.1 KW			25.1 KW		
INJECTION UNIT	UNIT	1540			2290			3470		
		A'	A	B	A'	A	B	A'	A	B
INJECTION CAPACITY MAX. (GPPS)	gm	523	753	1025	861	1172	1530	1318	1722	2179
THEORETICAL DISPLACEMENT	cc	550	792	1078	905	1232	1608	1385	1810	2290
INJECTION PRESSURE	bar	2236	1941	1426	2238	1856	1421	2289	1917	1515
INJECTION RATE**	cc/sec	207	298	406	229	312	407	272	356	450
INJECTION SCREW STROKE	mm	280	280	280	320	320	320	360	360	360
SCREW DIAMETER	mm	50	60	70	60	70	80	70	80	90
SCREW L/D RATIO		28	23.3	20	26.7	22.9	20	25.7	22.5	20
SCREW SPEED	rpm	251	251	251	159	159	159	146	146	146
SCREW TORQUE @ 172 BAR	Nm	2126	2126	2126	3347	3347	3347	4291	4291	4291
PLASTICIZING RATE (GPPS)**	gm/sec	31	51	74	33	47	65	43	60	80
PLASTICIZING RATE (BARRIER SCREW)	gm/sec	38	58	92	37	58	79	53	72	96
NO. OF PYROMETER (BARREL+NOZZLE)		4+1			4+1			4+1		
TOTAL HEAT CAPACITY	kW	24.9			39.6			57.9		
CLAMP UNIT										
CLAMP FORCE	ton	350			350			350		
CLAMP STROKE	mm	1060			1060			1060		
MAXIMUM DAYLIGHT	mm	1360 / 1660#			1360 / 1660#			1360 / 1660#		
MINIMUM MOULD HEIGHT	mm	300 / 600#			300 / 600#			300 / 600#		
PLATEN SIZE (H x V)	mm	1010 x 1010			1010 x 1010			1010 x 1010		
DISTANCE BETWEEN TIE ROD	mm	710 x 710			710 x 710			710 x 710		
TIE ROD DIAMETER	mm	125			125			125		
EJECTOR STROKE	mm	200			200			200		
EJECTOR FORCE	ton	7.5			7.5			7.5		
MOULD WEIGHT CAPACITY	kg	3600			3600			3600		
GENERAL										
SERVO DRIVE *	kW	25.1			25.1			25.1		
OIL TANK CAPACITY - MAIN TANK	ltr	615			615			615		
OIL TANK CAPACITY - PREFILL TANK	ltr	680			680			680		
WATER REQUIREMENT (Inlet temp. 29°C)	lpm	100			100			100		
CONNECTED LOAD	kW	50			64.7			83		
MACHINE DIMENSION (L x W x H)	m	8.05 x 2.01 x 2.95			8.57 x 2.01 x 2.95			8.82 x 2.01 x 2.95		
MACHINE WEIGHT	kg	15000			16000			17000		

** Under Specified Condition ** With Open Nozzle # With Ram Spacer*



HYDRON SERVO 350

ALL DIMENSIONS ARE IN MM

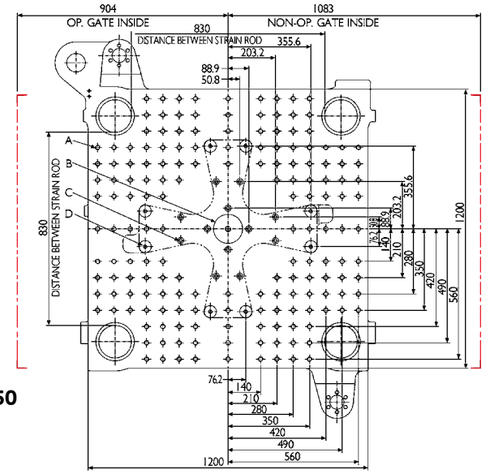
A M20x50 DEEP (116 HOLES ON MOVING PLATEN)
M20x50 DEEP (120 HOLES ON STATIONARY PLATEN)
B MOVING PLATEN : Ø100.0 THRU BORE K/O BAR
CENTER HOLE M16x40 DEEP
STATIONARY PLATEN :
Ø160.0 (+0.04/0.00) WITH LOCATING RING
Ø200.0 (+0.04/0.00) WITHOUT LOCATING RING
C Ø27.0 THRU (12) HOLES & K/O BAR HOLES
M16x40 DEEP (20 NOS)
D Ø52.40 THRU (8) HOLES

Technical Specifications

FERROMATIK MILACRON India

MODEL		HYDRON SERVO 450					
INTERNATIONAL SIZE		4500 - 2290			4500 - 3470		
POWER PACK *		25.1 KW			25.1 KW		
INJECTION UNIT	UNIT	2290			3470		
		A'	A	B	A'	A	B
INJECTION CAPACITY MAX. (GPPS)	gm	861	1172	1530	1318	1722	2179
THEORETICAL DISPLACEMENT	cc	905	1232	1608	1385	1810	2290
INJECTION PRESSURE	bar	2238	1856	1421	2289	1917	1515
INJECTION RATE**	cc/sec	270	367	480	272	356	450
INJECTION SCREW STROKE	mm	320	320	320	360	360	360
SCREW DIAMETER	mm	60	70	80	70	80	90
SCREW L/D RATIO		26.7	22.9	20	25.7	22.5	20
SCREW SPEED	rpm	187	187	187	146	146	146
SCREW TORQUE @ 172 BAR	Nm	3347	3347	3347	4291	4291	4291
PLASTICIZING RATE (GPPS)**	gm/sec	39	56	77	43	60	80
PLASTICIZING RATE (BARRIER SCREW)	gm/sec	43	69	93	53	72	96
NO. OF PYROMETER (BARREL+NOZZLE)		4+1			4+1		
TOTAL HEAT CAPACITY	kW	39.6			57.9		
CLAMP UNIT							
CLAMP FORCE	ton	450			450		
CLAMP STROKE	mm	1100			1100		
MAXIMUM DAYLIGHT	mm	1500			1500		
MINIMUM MOULD HEIGHT	mm	400 / 5500			400 / 5500		
PLATEN SIZE (H x V)	mm	1200 x 1200			1200 x 1200		
DISTANCE BETWEEN TIE ROD	mm	830 x 830			830 x 830		
TIE ROD DIAMETER	mm	140			140		
EJECTOR STROKE	mm	200			200		
EJECTOR FORCE	ton	11.5			11.5		
MOULD WEIGHT CAPACITY	kg	5500			5500		
GENERAL							
SERVO DRIVE *	kW	25.1			25.1		
OIL TANK CAPACITY - MAIN TANK	ltr	750			750		
OIL TANK CAPACITY - PREFILL TANK	ltr	640			640		
WATER REQUIREMENT (Inlet temp. 29°C)	lpm	100			100		
CONNECTED LOAD	kW	64.7			83		
MACHINE DIMENSION (L x W x H)	m	8.39 x 2.22 x 2.98			9.18 x 2.33 x 2.98		
MACHINE WEIGHT	kg	22000			23000		

** Under Specified Condition ** With Open Nozzle*



HYDRON SERVO 450

ALL DIMENSIONS ARE IN MM

A M20x50 DEEP (168 HOLES ON BOTH PLATEN)
B MOVING PLATEN : Ø125.0 THRU BORE
K/O BAR CENTER HOLE M24x40 MM DEEP,
STATIONARY PLATEN :
Ø160.0 (+0.040/–0.00) WITH LOCATING RING
Ø200.0 (+0.046/–0.00) WITHOUT LOCATING RING
C Ø27.0 THRU, (12) HOLES & K/O BAR HOLES
M16x40 DEEP, (20) NOS
D Ø52.4 THRU, (8) HOLES

HYDRON SERVO

Hydraulic Injection Moulding Machine

FERROMATIK MILACRON India

Design Advantages & Features

CLAMP

- Hollow Headless Ram with Mono Seal & No Piston Rings
- Large Prefill Designed for Fast Tonnage Build-up
- Rapid Traverse Cylinders
- Conical Strain Rod Nuts & Controlled Stress on Tie Rods
- Adjustable moving Platen Skates
- Rigid Cast Platens with FEA
- Adjustable Pressure setting of Closing & Opening Stage
- Proportional Speed Control with 5 Closing & 5 Opening Speed
- Adjustable 2 Stage Mould Safety Pressure & 1 Stage Speed
- Position Based Ramping for Accurate Position Switching - Precise Speed & Pressure Control
- Linear Position Transducer for Accurate Clamp Position Control
- Sensitive Mould Protection with Try Again Circuit
- Stage Wise Actual Time Display
- Insert Moulding Program
- Actual Tonnage Display on Screen

EJECTOR

- Knock-Out Bar
- 2 Stage Programmable Ejector Forward Profile with Soft Eject
- Ejector Speed & Pressure adustable on Screen
- Linear Transducer for Ejector Position
- Pulsating Ejector Strokes upto 9 Pulses
- Intermediate Retract Set Point
- Ejector Stay Forward & Forward Dwell Timer

INJECTION

- 6 Stage Injection Velocity & 15 Stage Injection Pressure Profile
- 5 Stage Screw Speed & 5 Stage Back Pressure Control (Setting) through Screen
- Digital setting of Extruder RPM & Digital Read out of Actual RPM
- Wide Choice of Injection Units with A'-A-B Screw/Barrel Combinations
- Easy Injection Unit Swivelling
- Switch Over from Fill to Pack based on Position or Time
- Linear Position Transducer for Accurate Injection Position Control
- Injection Decompression Before / After Refilling or Both
- Semi-Auto Purge, Cold Slug removal & Intrusion Moulding Programs
- Aluminum Chequered Plate below Purge Area
- Sprue Break with Timer
- Injection start, Suck-back & Melt Decompresion - Delay Timer
- Graphically Adjustable Alarm Bands for Injection Pressure
- Sliding Hopper

TEMPERATURE CONTROL

- Actual Current Display of Heating Zones
- Heater Failure & Thermocouple Failure Detection
- Accurate PID Temperature Control settable on Screen
- Feed Throat Temperature Indication
- Auto Heat Startup & Shutdown
- Heat Standby after set number of Cycles
- Soak Timer for Cold Start Protection
- High / Low Temperature Alarm
- Set & Actual Temperature Data with Bar Graph
- Insulated Heater Band

CONTROLS

- 22 Parameter Monitoring for last 1000 cycles with Graphics
- 10.4" TFT Color Display with Alpha - Numeric Keypad
- Actual Injection Speed & Pressure Graph Display
- 80 Mould Data Storage
- Configurable Multilevel Password with Operator's Name
- Graphically Presentation of Hourly Production
- Customized Setup Menu
- High / Low Limit Display for Each Adjustable Parameter
- I / 0 diagnosis - Analog & Digital
- Timer Precision in 0.01 Second
- Change Log Menu: logs last 100 Set Points Changes with Time & Date
- Statistical Process Control (SPC) with Graphics
- Process Mode: Functions with its Co-fuctions on a Single Key Press
- Note Pad & Maintenance Scheduling
- Freely Programmable Smart Outputs
- Over View Screen with Graphical Display of Machine Functions
- Soft Keys for Fast Access of Select Menus
- Auto shut down
- Visual & Audible Alarm
- 1000 Alarm History with Date & Time Log
- Printer Interface with USB Port

HYDRAULICS

- Servo Motor Driven Pump
- Ergonomic Hydraulic Layout for Easy Approach
- Valves Placed near Actuators for Rapid Response
- Pre-Heating Circuit for Hydraulic Oil
- Low Oil Level Audible Alarm & Motor Shut Down
- Continuous Oil Filtration with 10 Micron Filter
- Audible Alarm for Filter Clogging

AVAILABLE OPTIONS

- Air Ejection
- Hydraulic Core pull
- Feed Throat Temperature Control
- PID Oil Temperature Control
- Part Drop Detect for Single Cavity
- Water Battery with Temperature Indicator
- Water Manifolds
- Robot Interface (SPI / EUROMAP)
- Extra Heating Zones
- Nozzle Contact Force by Pressure Switch
- Jam Bar
- T-slot Platens
- Extended Daylight with Ram Spacer
- Eject Retract Limit Switch Verification
- Bimetallic Barrel & Hardened / Coated Screw
- Special Paint

All specifications reflect average values based on typical machine layouts. Actual figures will vary depending on final machine configuration. Performance specifications are based on theoretical data. Photograph may show attachments or accessories, which may not be part of the standard scope of supply. Due to continual improvements, specifications & some components are subject to change without notice.

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