Powerful Three Stage Injection

Motor Pump Side View

PLC Control Panel

Electric Control Panel

Auto Ladle

Auto Plunger Lubricator

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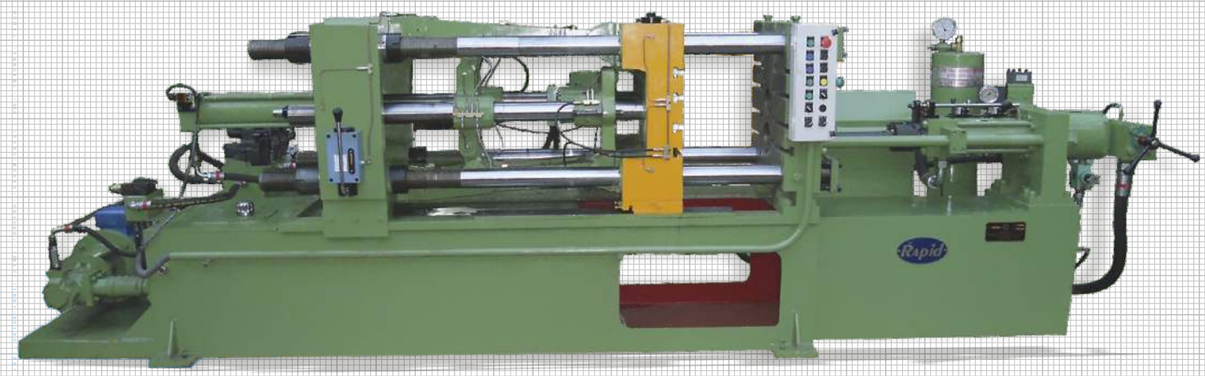

Horizontal Cold Chamber Pressure Die-casting Machine

80-250 TON CAPACITY

FEATURES OF RAPID PRESSURE DIE CASTING MACHINES

- Three Stage Injection System (for best efficiency). (First stage for slow alloy transfer, second stage for injection of material & finally third stage for squeezing of metal in the mould in semi solidification condition).
- The Rapid Machines are built with a very unique design. It has got a piston type accumulator, which is very durable and efficient system. It requires rare recharging of nitrogen & negligible breakdowns on account of gas charging in comparison to bladder type and other accumulators.
- The floating piston in Rapid Pressure Die Casting Machines act as a barrier between nitrogen and oil chamber. This floating piston works as a damper and due to additional gravitational force, it enhances the injection force which ultimately improves the job quality.
- Only the Rapid machines are designed on low working pressure with larger piston areas which improves the tonnage capacity and reduces the strain and ultimately enhances the life of seals, pipelines and joints, therefore the chances of leakage of oil is minimized.
- All pistons rods, tie rods are duly ground and hard chrome plated and are made with larger diameter to provide the robustness to Rapid machines.
- The use of high pressure and low pressure tandem pump helps in reducing the horse power of the motor. The running cost of the machine is reduced drastically. A lower connected load serves the purpose.
- Automatic unloading system to reduce the power consumption during idling, again a saving of energy resulting higher profits by using Rapid machines.
- All the hydraulic seals used are standard high quality PU grade (foreign make) having very good service life.
- All pipeline joints where replacement of parts is anticipated are provided with ferrule type fittings so that the breakdown period is minimised and replacement of worn out parts becomes very convenient during maintenance.
- The castings of platens are duly seasoned before machining to avoid deformations during machining at manufacturing end and under usage at customers end.
- The casting of platens are made from special & tested graded alloy steel in extra ordinary thickness to give a deflection free long lasting service life.
- The moving platen is provided on a set of phosphorus bronze foot pads with an adjustable double taper slide which maintains the alignment at the tie rods, ultimately giving smooth long working life of tie bar rods & guide bushes.
- The alignment of the injection cylinder is maintained within 0.2 mm for enhansed sleeve & plunger life which ultimately gives higher profits.
- Parallelism between the platens is maintained within 0.2 mm for long life of the mould and negligible flashing of alloy during casting operation.
- All toggle pins used are hardened ground and toggle bores are roller burnished for long life working with maximum accuracy.
- Robust Bell housing is provided between motor & tandem pump to give best alignment at the coupling for maintenance free running of motor & pump.
- Provision for core pulling arrangement is provided.
- Highly reputed centralised lubrication system with strudy fitting is provided for smooth running of major moving parts.
- The maintenance of machine (very rarely required) is very convenient because the opening of different assemblies is very independent.

Standard Accessories	
Sleeve, spacer for centre feeding, key for tie rod nuts & installation & maintenance manual.	
Electricals used	Telemecanique / BCH make.
Motor	ABB / Crompton make.
Hydraulics	Vickers, Yuken & Polyhydron make.
Accumulator	Floating Piston type Accumulator.
Oil Seals	Made from selected high grade of Polyurethane material.
Heat Exchanger	Standard make extra large for higher efficiency.
Oil Reservoir	400 Ltrs. for 80 & 120 Ton, 470 Ltrs. for 180 Ton & 550 Ltrs. for 250 Ton. (Bigger reservoir maintains low oil temperature therefore the efficiency is improved)

OPTIONAL ACCESSORIES

PLC in place of electric control panel.
Core pulling arrangement.
Automatic Centralized lubrication.

RAPID Cold Chamber Pressure Die-Casting Machines are manufactured under the guidance of qualified and highly experienced engineers. The Machines are built with best quality materials and components.

These are available in four models i.e. 80, 120, 180 & 250 ton capacity. The machine can be operated on manual as well as semi-automatic basis and suited for mass production of die-cast components (such as automobile, electrical, toys, measuring instruments & home appliances) for casting of aluminium, zinc and it's alloys.

MACHINE BASE : Machine base is extra strong structural construction, which supports the injection system on it's extension. Part of the base is attached with oil reservoir to accommodate a good quantity of hydraulic oil and is provided with oil gauge and digital thermometer.

DIE LOCKING MECHANISM : Die locking is effected by means of hydraulic and sturdy toggle mechanism exerting an evenly distributed force over the faces of the dies. The die space between the two die mounting plates is adjustable to suit any die thickness as mentioned in the table. The die locking mechanism is four hard chrome plated tie bars running on linear bushes for smooth movement of moveable die and water cooling arrangement for die plate & fixed platen is provided.

INJECTION : Injection plunger is hydraulically operated and powered with high-pressure accumulator to give fast sequence of shots. The provision of lower injection and central injection is provided.

EJECTION : A separate ejection cylinder for ejecting the casting from the die cavity has been provided.

HEAT EXCHANGER : A shell and tube type condenser is provided to prevent the overheating of oil and mould. It can be cleaned very easily after removing both the side covers.

HYDRAULIC SYSTEM : Hydraulic system consists of double vane pump, relief valve, flow controls valve, accumulator, unloading valve and solenoid operated direction control valves. All controls are fitted on single manifold to avoid complicated tubing.

ELECTRICAL SYSTEM : All electricals consists of standard makes switchgears, relays, contractors etc. are housed in a central metal cabinet. An operating control box (mounted on the fixed die plate) located at the operating position ensures full safety of operation. An emergency stop switch is also provided to ensure instantaneous stopping of all motion in case of need.

SPECIFICATION OF RAPID PRESSURE DIE CASTING MACHINES

S.I.			RAPID-80	RAPID-120	RAPID-180	RAPID-250
1.	Locking Force	Tones	80	120	180	250
2.	Size of Die Plates (HxV)	mm	520x520	650x650	700x690	850x800
3.	Dia of Tie Bars	mm	63	85	100	120
4.	Space between Tie Bars	mm	330x330	430x415	450x430	550x500
5.	Maximum & Minimum Die Thickness	mm	400x200	400x150	600x200	750x225
6.	Die Opening Strokes	mm	200	375	450	500
7.	Injection Force	Tones	10.3	17.5	22.5	37
8.	Injection Plunger Storks	mm	250	275	300	350
9.	Distance between Central injection Hole & Bottom Injection Hole	mm	85	120	150	150
10.	Ejection Force	Tones	5	9	10	15
11.	Ejection Stroke	mm	50	70	100	100
12.	Time of Minimum Dry Cycle	sec.	3	3.5	3.5	5.5
13.	Motor Input 400/440V 50 Cycle 1440 RPM	kw	5	7.5	11	15
14.	Oil Tank Capacity	litres	400	400	470	550
15.	Space Required	m	3.8x1.5	4.9x1.5	5x1.5	6x1.56
16.	Net weight (approximately)	Tones	3.5	4.5	5.5	10

PRODUCTION DATA		RAPID-80					RAPID-120					
Plunger Dia	mm	35	40	45	50	55	35	40	45	50	55	
Shot capacity for Alum.	Kgs	0.43	0.56	0.71	0.88	1.06	0.5	0.6	1.0	1.4	1.6	
Max. Injection pressure	Kg/cm^2	1200	920	730	590	490	1352	1035	662	460	400	
Normal casting areas at above injection pressure	cm^2	66	87	110	135	163	88	115	181	260	300	

PRODUCTION DATA		RAPID-180						RAPID-250							
Plunger Dia	mm	40	50	60	70	80	85	40	45	50	55	60	70	80	85
Shot capacity for Alum.	Kgs	0.7	1.1	1.6	2.1	2.7	3.0	0.8	1.0	1.2	1.5	1.8	2.4	3.2	3.6
Max. Injection pressure	Kg/cm^2	1790	1145	795	585	445	400	3025	2390	1935	1600	1345	985	755	670
Normal casting areas at above injection pressure	cm^2	100	157	226	307	405	450	82	104	129	156	185	253	331	373