Bulgarisch - Deutsche Gesellschaft

SPESIMA® GmbH

Management System ISO 9001:

TÜVRheinland CERTIFIED

www.tuv.com ID 9105073698

Automation of Horizontal Die Casting Machines

MPS® SHCA® Systems for Hot Chamber Automation SCCA® Systems for Cold Chamber Automation

PART OF FRECH GROUP®

Bulgarisch - Deutsche Gesellschaft
SPESIMA®

Automation of Horizontal Die Casting Machines

*Based on the geometrical measurements of the DCM and manipulators. For more details, see the respective specifications.

Automation for DCM Range 50 to 380 t			
Description	**Type**	**DCM Range**	**DCM Type**
Rotational Ladle	FEEDMAT-3 (F3)	130 - 380 t	Cold Chamber
Linear Ladle	DM-1	130 - 380 t	Cold Chamber
Sprayer	SH-1P	50 - 80 t	Hot Chamber
Sprayer	SH	80 - 315 t	Cold / Hot Chamber
Sprayer	SC	130 - 380 t	Cold Chamber
3-Axis Extractor	EL	80 - 130 t	Cold / Hot Chamber
4-Axis Extractor	ELT	80 - 200 (315) t	Cold / Hot Chamber
3-Axis Extractor	GRIPMAT-1	80 - 380 t	Cold / Hot Chamber
3-Axis Extractor	EM-1	160 - 380 t	Cold Chamber

Automation for DCM Range 380 to 640 t			
Description	**Type**	**DCM Range**	**DCM Type**
Rotational Ladle	FEEDMAT-4 (F4)	380 - 640 t	Cold Chamber
Linear Ladle	DM-2	380 - 640 t	Cold Chamber
Sprayer	SM-2	380 - 640 t	Cold Chamber
3-Axis Extractor	EM-2	380 - 640 t	Cold Chamber
3-Axis Extractor	GRIPMAT-2	380 - 640 (830) t	Cold / Hot Chamber
6-Axis Extractor	EM-1K	380 - 550 t	Cold / Hot Chamber
6-Axis Extractor	EM-2K	500 - 640 t	Cold / Hot Chamber

Automation for DCM Range 640 to 1050 t			
Description	**Type**	**DCM Range**	**DCM Type**
Linear Ladle	DM-3	640 - 1050 t	Cold Chamber
Sprayer	SM-3	640 - 1050 t	Cold Chamber
6-Axis Extractor	EM-4K	640 - 1050 t	Cold / Hot chamber

Automation for DCM Range 1050 to 4100 t			
Description	**Type**	**DCM Range**	**DCM Type**
Linear Ladle	DM-4	1050 - 2500 (3500) t	Cold Chamber
Linear Ladle	FEEDMAT-5 (F5)	1050 - 2500 (3900) t	Cold Chamber
Sprayer	SM-4	1050 - 2500 t	Cold Chamber
6-Axis Extractor	EM-4K	830 - 1600 (1900) t	Cold / Hot Chamber

Bulgarisch - Deutsche Gesellschaft
SPESIMA®

LADLES

LADLE	Linear DM-1	Rotational F3	Rotational F4	Linear DM-2
Drive System	AC/Servo	AC/Servo	AC/Servo	AC/Servo
Horizontal motion [mm]	2000	2100	2200	2450
Vertical motion [mm]	1130	1300	1400	1350
Angle of casting	+50°	+180°	+135°	+50°
Rollback angle	- 60°	- 90°	- 90°	- 60°
Repeated Dosing accuracy	±2%	±2%	±1%	±1%
Horizontal velocity [m/s]	1,0 / 1,5	-	-	1,0 / 1,2
Vertical velocity [m/s]	0,6 / 0,8	-	-	0,4 / 0,6
Operation cycle [s]	15	16	20	20
Max weight of dosed metal [kg]	3,5	4,5	10	8
Mounting	Fixed plate	Ground mounting	Ground mounting	Fixed plate
Locking Force [t] **	130 - 380	130 - 380	380 - 640	380 - 640
DCM Type	Cold Chamber	Cold Chamber	Cold Chamber	Cold Chamber

LADLES

LADLE	Linear DM-3	Linear DM-4	Linear F5
Drive System	AC/Servo	AC/Servo	AC/Servo
Horizontal motion [mm]	2450	3600 (3900*)	3700 (4000*)
Vertical motion [mm]	1350	1350 (1800*)	1350 (1800*)
Angle of casting	+50°	+50°	+50°
Rollback angle	- 60°	- 60°	- 60°
Repeated Dosing accuracy	±0,5%	±0,5%	±0,5%
Horizontal velocity [m/s]	1,0 / 1,2	0,8 / 1,0	0,8 / 1,0
Vertical velocity [m/s]	0,4 / 0,6	0,4 / 0,6	0,4 / 0,6
Operation cycle [s]	25	40	40
Max weight of dosed metal [kg]	20	30	30
Mounting	Fixed plate	Fixed plate	Fixed plate
Locking Force [t] **	640 - 1050	1050 - 2500 (3500*)	1050 - 2500 (3900*)
DCM Type	Cold Chamber	Cold Chamber	Cold Chamber

Bulgarisch - Deutsche Gesellschaft
SPESIMA®

SPRAYERS

SPRAYER	SH-1P	SH	SC
Drive System	Pneumatic	Servo	Servo
Number of nozzles* – Standard ÷ max to	2 x 7	2 x 7 ÷ 2x9	2 x 9 ÷ 4 x 9
Blowing + Spraying circuits – Standard / Optional	1 + 1	1 + 2	2+2 / 2+6
Number of Axes	1-axis	1-axis	1-axis
Passive horizontal adjustment [mm]	190	360	360 / 460
Passive vertical adjustment [mm]	50	-	-
Horizontal stroke [mm]	-	-	-
Vertical stroke [mm]	650	800	900
Horizontal velocity [m/s]	-	-	-
Vertical velocity [m/s]	2	3	3
Air consumption at coating [l/min]	104	56	83
Air consumption at blowing [l/ min]	140	87	120
Liquid Tank [l]	25	150	150
Locking Force [t] **	50 - 80	80 - 315	130 - 380
DCM Type	Hot chamber	Cold / Hot chamber	Cold Chamber

SPRAYERS

SPRAYER	SM-2	SM-3	SM-4
Drive System	AC / Servo	AC / Servo	Servo
Number of nozzles* – Standard ÷ max to	2 x 8 ÷ 4 x 14	2 x 12 ÷ 4 x 18	2 x 15 ÷ 4 x 19
Blowing + Spraying circuits – Standard / Optional	1 + 2 / 2 + 6	2 + 6	2 + 6
Number of Axes	2-axis	2-axis	2-axis
Passive horizontal adjustment [mm]	-	-	-
Passive vertical adjustment [mm]	-	-	-
Horizontal stroke [mm]	1200	1200	1900
Vertical stroke [mm]	1300	1500	1900
Horizontal velocity [m/s]	1	1	0,7
Vertical velocity [m/s]	1	0,8	0,7
Air consumption at coating [l/min]	73,5	120	150
Air consumption at blowing [l/ min]	115	200	250
Liquid Tank [l]	150	150	150
Locking Force [t] **	380 - 640	640 - 1050	1050 - 2500
DCM Type	Cold/Hot Chamber	Cold Chamber	Cold Chamber

** Example for number of nozzle for Spray head:*
- Spray Head with 2 x 8 nozzles (2 lines, each with 8 nozzles) in one row
- Spray Head with 4 x 14 nozzles (2 lines, each with 14 nozzles) in two rows

NOZZLES AND SPRAYHEADS

- Standard swinging nozzle with an external mixing, with a standard hole for liquid Ø1.5 mm and optional – 0.6, 0.8, 1.25 mm.
- Option for adding a copper pipe extension for each nozzle.
- Turning on and off the liquid with a controlled air pressure directly in the set.
- Adjustable quantity of liquid by each nozzle.
- Each nozzle can be used also for blowing under high pressure.

Spray Head with 1 row

Spray Head with 3 rows

Bulgarisch - Deutsche Gesellschaft
SPESIMA®

EXTRACTORS

EXTRACTOR	EL	ELT	GRIPMAT-1	EM-1
Drive System	Servo Pneumatic	Servo Pneumatic	AC / Servo Pneumatic	Pneumatic
Number of Axes	3 axis	4 axis	3 axis	3 axis
Cycle time [s]	6,5	8	9 / 5,5	7,0
Extracting time [s]	2,6	2,2	5 / 3,2	3,2
Air consumption [l/min]	65	100	270	350
Max casting weight [kg]	1,5	1,5	5 (6)	3
Extracting stroke [mm]	1000 / 1300	1300	1785 / 1935	1430
Slide [mm]	100	100	100 / 125 / 150	150
Horizontal rotation	-	90^0	-	-
Adjustment Z [mm]	320	200	450	320
Adjustment X [mm]	130	200	100	180
Adjustment Y [mm]	-	-	320	110
Part control - IR sensors	4 / 6 / 8	4 / 6 / 8	4 / 6 / 8	4 / 6 / 8
Mounting	Ground mounting	Ground mounting	Ground mounting	Fixed plate
Locking Force [t] **	80 - 130	80 - 200 (315)	80 - 380	160 - 380
DCM Type	Cold / Hot Chamber	Cold / Hot Chamber	Cold / Hot Chamber	Cold Chamber

EXTRACTOR	EM-2	GRIPMAT-2	EM-1K	EM-2K	EM-4K
Drive System	AC / Servo Pneumatic	AC/Servo Pneumatic	Servo Pneumatic	Servo Pneumatic	Servo Pneumatic
Number of Axes	3 axis	3 axis	6 axis	6 axis	6 axis
Cycle time [s]	10 / 8	11 / 7	Depends on number of operations		
Extracting time [s]	7 / 6	7 / 5	4	5	6
Air consumption [l/min]	250	410	3	3,5	5
Max casting weight [kg]	8 (10)	10 (12)	7	15	50
Extracting stroke [mm]	2120	2335 / 2614 / 2825	Varies with layout		
Slide [mm]	200	200	-	-	-
Adjustment Z [mm]	320	380	-	-	-
Adjustment X [mm]	210	150	-	-	-
Adjustment Y [mm]	150	500	-	-	-
Part control - IR sensors	4 / 6 / 8	4 / 6 / 8	4 / 6 / 8	4 / 6 / 8	4 / 6 / 8
Mounting	Fixed plate	Ground mounting	Ground mounting	Ground mounting	Ground mounting
Locking Force [t] **	380 - 640	380 - 640 (830)	380 - 550	500 - 640	640 - 1600 (1900*)
DCM Type	Cold Chamber	Cold / Hot Chamber	Cold / Hot Chamber	Cold / Hot Chamber	Cold / Hot Chamber

CONTROL SYSTEMS

CONTROL SYSTEM	Control	Display	Display build-in on the Control Cabinet's door	Option: Movable Stand
Control System, type SCC	Siemens	4" Panel / 9" Touch	Yes	No / Yes
	RMC	7" / 15,6 " Touch		Yes
Control System, type BCC	Siemens	4" Panel / 9" Touch	Yes	No
	RMC	15,6 " Touch		Yes
Control System, type SICC	RMC	15,6 " Touch	Yes	Yes
Control System, type BICC				

Siemens – Siematic S7 1000; RMC – Remote Motion Control and PC based controller.

Bulgarisch - Deutsche Gesellschaft
SPESIMA GmbH

Address: 9, Asen Yordanov Blvd.
Sofia 1592, Bulgaria
Phone: +359 (2) 973 87 62
Fax: +359 (2) 979 09 45
E-mail: info@spesima.eu
Web: www.spesima.eu