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BORCHE



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Wechat

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BM Multi-shot Series

Leading • Diversity

BORCHE BM

BORCHE BM



PIONEERING IN CHINA, LEADING IN IMM INDUSTRY

Thanks to many years' technical foundation, we are honored with 13 awards related to Multi-Shot IMM techniques as follows: the first Chinese ultra-large rotary platen, the first Chinese large size two-platen three-shot IMM, the first Chinese five-shot IMM, the first Chinese electrical "one unit-dual mold" system, first Chinese sandwich-injection molding system, etc.

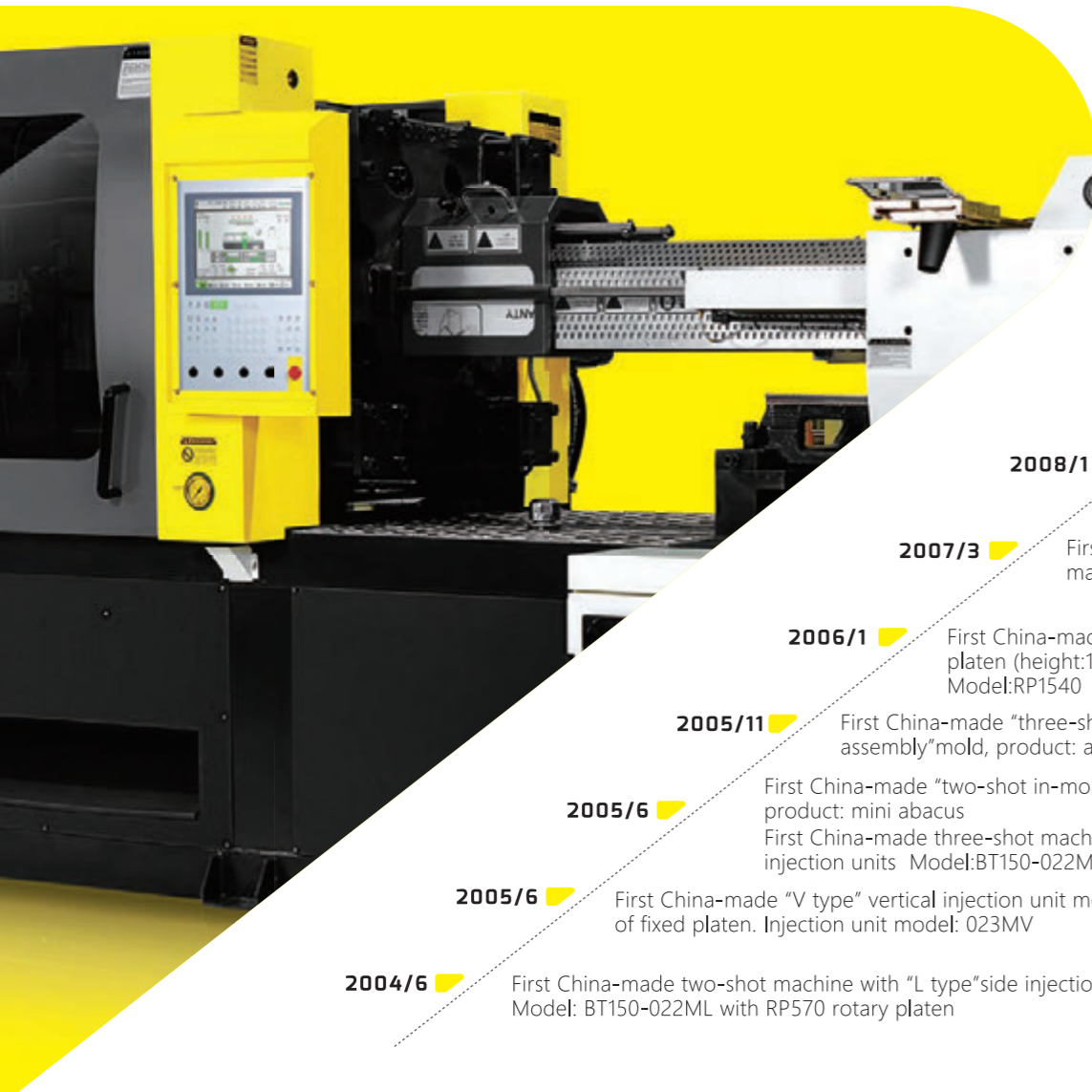
DIVERSE SERIES, DESIRABLE QUALITY

Five models of multi-shot BM series includes MT、ML、MV、MP、MK, meet the requirement from two-shot to five-shot injection molding. Borche BM Multi-shot series have the widest range in regarding of machine structure and machine models in IMM industry.

Improving for Further Excellency

Borch Machinery Co.,Ltd, focused on technology innovation and self-developed advanced multi-shot injection technology, can provide versatile multi-shot machines, including ML,MV,MK,MP and MT types. Clamping force ranges from 1200KN to 22000KN. Several different position of injection unit can be flexibly combined to realize up to four-shot solution. Modular designed RP rotary platen and TP indexing platen are freely collocated to suit different multi-shot application.

Borche BM series is widely applied in fields of automobile, electrical appliance, sanitary wares, food package, and has been well recognized as highly-productive machine with good price-quality ratio.



2004/6 First China-made two-shot machine with "L type" side injection unit
Model: BT150-022ML with RP570 rotary platen

2005/6 First China-made "V type" vertical injection unit mounted on the top of fixed platen. Injection unit model: 023MV

2005/6 First China-made "two-shot in-mold assembly" mold, product: mini abacus
First China-made three-shot machine with three axes injection units Model:BT150-022ML-023MV

2005/11 First China-made "three-shot in-mold assembly" mold, product: abacus

2006/1 First China-made large rotary platen (height:1820mm weight:3.5 ton)
Model:RP1540

2007/3 First China-made four-shot machine Model:BT260-4C

2008/1 First China-made sandwich injection molding system
Model: BT260-4C

2009/3 First China-made Electro Tandem Mold System

2011/5 First China-made "In-mold automatic assembly" four-shot

2012/4 First China-made five-shot machine Model:BM260-5C

2012/12 First China-made two platen three-shot Model:BM1500-3C

2015/9 First China-made ultra-large rotary platen (height:2780mm weight:8 ton)
Model:RP2340

2015/9 Two-shot machine BU2200-320ML with ultra-large rotary platen RP2340 (height:2780mm weight:8 ton) exported to the U.K.

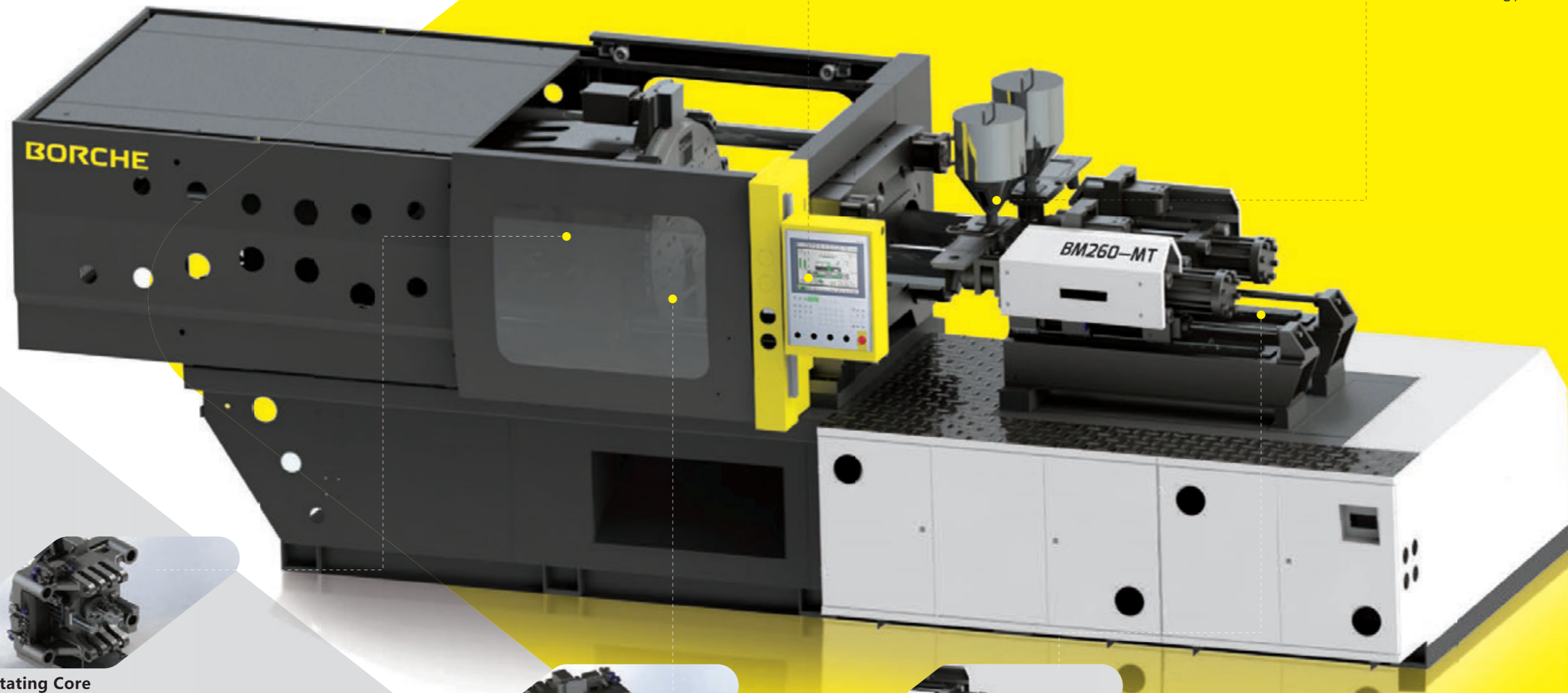


BORCHE BM

MT Series

MT Series is a newly-developed two-shot machine series with wider platen and parallel injection units. Two injection units can be freely selected from injection unit of MT series.

BORCHE BM



Automatic Control
Austria made KEBA controller
model 2880



Movable Hopper Support
Machines up to 600T featured with
movable hopper support ($\geq 700T$
featured with feeding platform) .



Rotating Core

Rotary platen and indexing unit can be compatibly transferred from each other with little parts replaced.



Rotary Platen

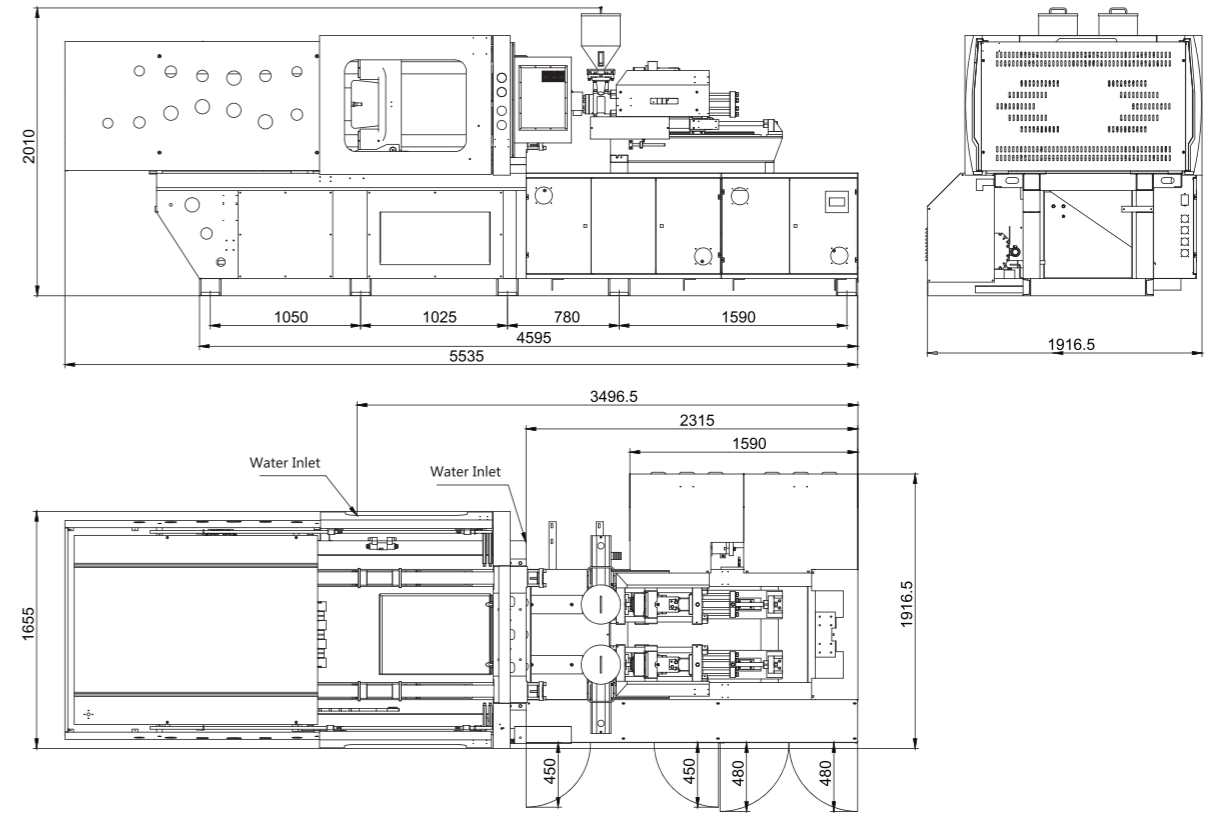


Linear Guide Rail

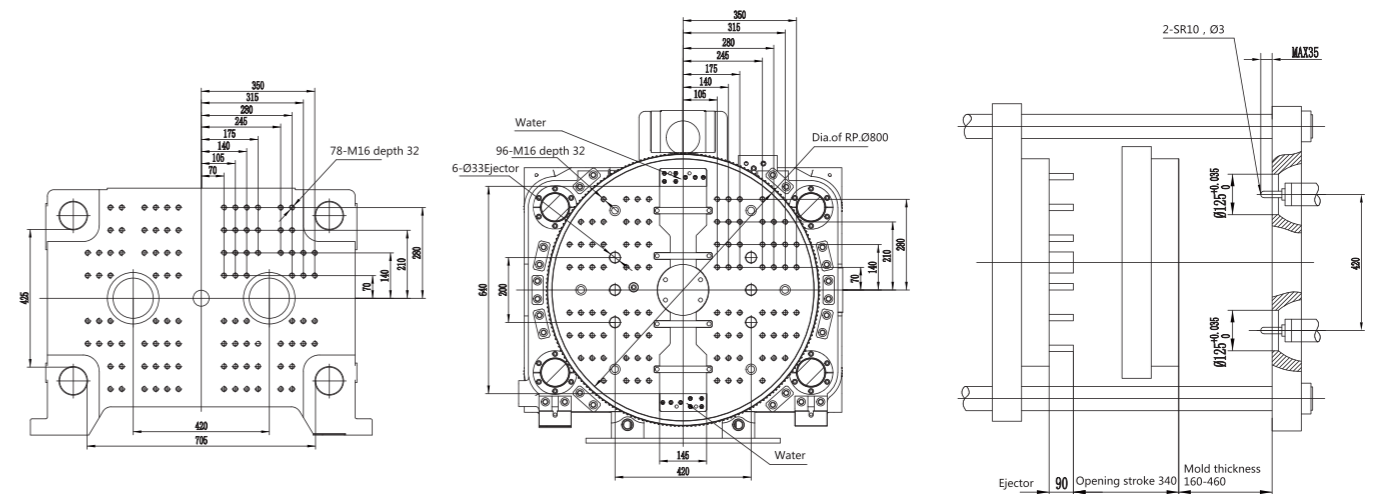
Linear guide rail adopted injection unit and built in carriage cylinder realize fast speed and stable movement.

Appearance and Installation Dimensions

DESCRIPTION	Unit	BM180-MT											
		Main injection unit						Side injection unit					
INJECTION UNIT													
Screw Diameter	mm	26	28	30	30	35	40	26	28	30	30	35	40
Short Volume	cm ³	72.7	84.4	96.8	141.4	192.4	251.3	72.7	84.4	96.8	141.4	192.4	251.3
Shot Weight(PS)	g	66.2	76.8	88.1	128.6	175.1	228.7	66.2	76.8	88.1	128.6	175.1	228.7
Shot Weight(PS)	OZ	2.3	2.7	3.1	4.5	6.1	8	2.3	2.7	3.1	4.5	6.1	8
Injection Pressure	Mpa	285	246	214	304	223	171	285	246	214	304	223	171
Screw L/D Ratio	L/D	23	21.5	20	24	20.5	18	23	21.5	20	24	20.5	18
Injection Stroke	mm	137			200			137			200		
Screw Rotary Speed max	r/min	220			200			220			200		
Barrel Center Distance	mm	420											
CLAMPING UNIT													
Clamping Force	KN	1800											
Opening Stroke	mm	340											
Space btw. Tie Bars	mmxmm	705x425											
Opening Stroke	mm	800											
Mold Thickness(min-max)	mm	160-460											
Ejector Force	KN	20X2											
Ejection Stroke	mm	100											
RP Diameter	mm	750											
No.of Molds		2											
POWER UNIT													
System Pressure	Mpa	17.5			17.5			17.5			17.5		
Pump Motor	KW	11			18.5			11			18.5		
Pump Motor	L/min	69			92			69			92		
Heating Capacity	KW	4.75			6.5			4.75			6.5		
No.of Heater Zones	unit	4			4			4			4		
GENERAL UNIT													
Oil Tank Capacity	L	260											
Machine Dimensions	mxm	5.8x2x2.1											
Machine Weight (Without RP)	KG	10000											



Mold Platen Drawing



BORCHE BM

BORCHE BM

ML Series

BM-ML two component machine is upgraded based on BS standard injection machine.

Taking BM150-022ML for example, the main and side injection units are equipped with $\phi 40$ and $\phi 25$ screws respectively. Mold thickness is increased from 500mm to 550mm while the clamping specification of the BS150-III remains unchanged. Different injection unit size can be changed as per customer's requirement.

Basic Model

BM120-022ML
BM150-022ML
BM200-022ML
BM260-080ML
.....
BM2200-320ML



Automatic control
Austria made KEBA controller
model 2880

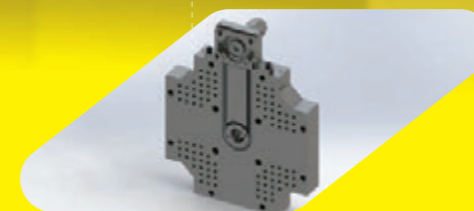


Movable Hopper Support
Machines up to 600T featured with
movable hopper support ($\geq 700T$
featured with feeding platform) .

- Separate control of two injection units allows different injection sequences
- Separated rotary platen can be changed to TP indexing unit while needed



Rotary platen

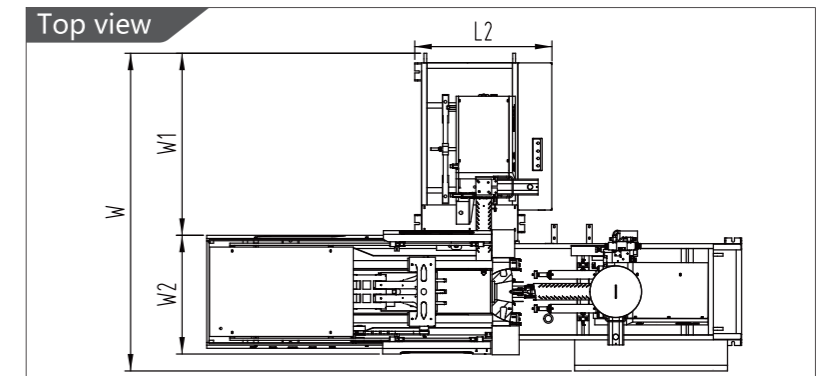
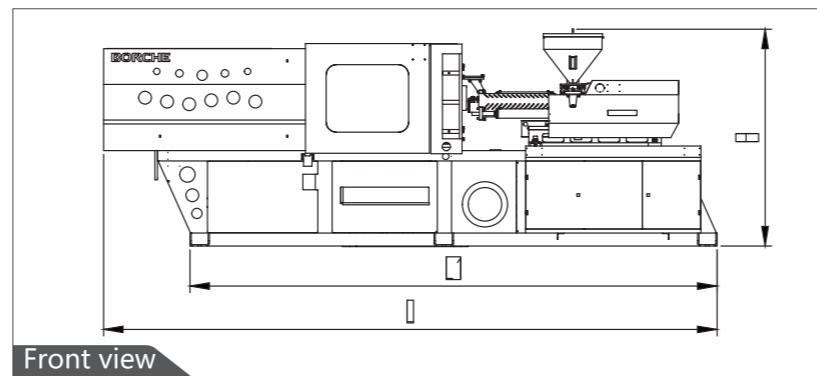


TP indexing unit

DESCRIPTION	UNIT	BM120-060ML			BM150-060ML			BM200-060ML			BM260-080ML			BM320-080ML			BM400-20ML																				
INJECTION UNIT		Main Injection Unit		Side Injection Unit	Main Injection Unit		Side Injection Unit	Main Injection Unit		Side Injection Unit	Main Injection Unit		Side Injection Unit	Main Injection Unit		Side Injection Unit	Main Injection Unit		Side Injection Unit																		
Screw Diameter	mm	30	35	40	25	28	40	45	50	25	28	45	50	60	30	35	40	60	70	80	30	35	40	70	80	90	35	40	45								
Shot Volume	cm ³	120	163	213	68	86	270	341	422	68	86	389	481	692	68	86	589	848	1154	120	163	212	989	1346	1759	120	163	212	1539	2010	2544	182	238	302			
Shot Weight(PS)	g	113	153	199	60	78	254	321	397	60	78	365	452	650	60	78	552	800	1085	113	153	199	928	1266	1652	113	153	199	1446	1890	2366	171	225	283			
Shot Weight(PS)	oz	4	5.4	7	2.1	2.8	9	11.3	14	2.1	2.8	12.9	16	23	2.1	2.8	19.5	28.3	38.3	4	5.4	7	32.8	44.7	58.4	4	5.4	7	51.1	66.8	82.5	6	8	10			
Injection Pressure	Mpa	209	154	118	223	178	235	185	150	223	178	218	176	123	223	178	232	161	118	209	154	118	226	166	127	209	154	118	212	162	128	212	162	128			
Screw L/D Ratio	L/D	24	20.5	18	22	22	23	20.5	18.5	22	22	23	21	17	22	22	25	21	18	24	20.5	18	24.5	21	18.5	24	20.5	18	24	21	19	23.5	20.5	18			
Injection Stroke	mm	170		140	215		140	245		140	300		170	350		170	400		190																		
Screw Rotary Speed max	rpm	175		280	206		280	149		280	155		178	159		178	119		184																		
Nozzle Contact Force	KN	30		30	30		30	30		30	40		20	70		20	80		30																		
Nozzle Stroke	mm	250		250	250		250	280		250	350		250	360		250	395		250																		
CLAMPING UNIT																																					
Clamping Force	KN	1200			1500			2000			2600			3200			4000																				
Opening Stroke	mm	340			410			465			520			580			655																				
Platen Size	mmxmm	590X590			670X670			750X750			835X835			950X950			1060X1030																				
Space btw. Tie Bars	mmxmm	410X410			460X460			510X510			575X575			670X670			730X700																				
Daylight max	mm	840			960			1110			1320			1480			1655																				
Mold Thickness(min-max)	mm	300-500			300-550			350-650			400-800			450-900			500-1000																				
Ejection Stroke	mm	100			130			150			180			180			205																				
Ejector Force	KN	34.4			41.6			49.5			77.3			77			111.3																				
Ejector Pin		4+1			4+1			4+1			12+1			8+1			12+1																				
Rotary Platen Model		RP570			RP570			RP700			RP700			RP920			RP1050																				
RP Diameter	mm	500			500			600			600			800			900																				
POWER UNIT																																					
System Pressure	MPa	17.5			14.5			17.5			14.5			17.5			14			17.5			17.5														
Pump Motor	KW	11			8.6			15			8.6			21			11			30			11			37			11								
Heating Capacity	KW	8.86			4.8			9.655			4.8			10.435			4.8			16.2			6.5			18.3			6.5			24.48			8.86		
No. of Heater Zones	unit	4			4			5			4			5			4			6			4			6			4			6			4		
GENERAL UNIT																																					
Oil Tank Capacity	L	200			290			340			550			785			1200																				
Machine Dimensions	mxm	4.7X2.4X1.5			5.1X2.5X1.6			5.7X2.7X1.7			6.7X2.8X1.9			7.3X2.8X1.9			8.3X2.7X2.0																				
Machine Weight (Without RP)	Kg	4500			5000			6500			12000			15000			19000																				

The specification above is only for reference. No further notice of any change in specification resulting from technical upgrading.

Model	L	L1	L2	H	H1	W	W1	W2
BM120-060ML	4725	4060	1080	1520	1110	2355	1455	1100
BM150-060ML	5070	4435	1080	1645	1197	2490	1480	1100
BM200-060ML	5660	4970	1080	1715	1245	2740	1680	1150
BM260-080ML	6635	5830	1100	1860	1360	2790	1690	1250
BM320-080ML	7310	6230	1100	1855	1289	2750	1820	1450
BM400-120ML	8286	7121	1180	1930	1332	2663	1723	1700

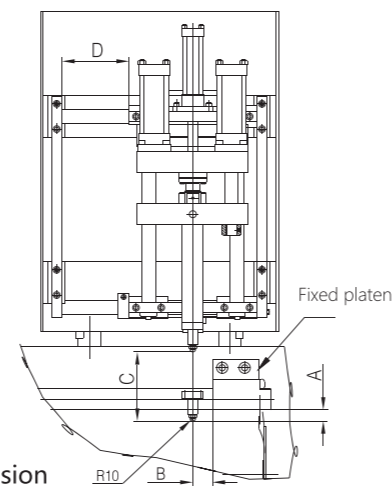


Appearance Dimension

DESCRIPTION	UNIT	BM500-120ML			BM600-120ML			BM700-120ML			BM800-120ML			BM1000-200ML			BM1200-200ML			BM1500-260ML			BM1800-260ML			M2200-260ML																													
INJECTION UNIT		Main Injection Unit			Side Injection Unit			Main Injection Unit			Side Injection Unit			Main Injection Unit			Side Injection Unit			Main Injection Unit			Side Injection Unit			Main Injection Unit			Side Injection Unit																										
Screw Diameter	mm	70	80	90	35	40	45	80	85	95	35	40	45	90	100	105	35	40	45	90	100	105	35	40	45	100	105	115	45	50	60	105	115	130	45	50	60	115	130	140	50	60	70	130	140	150	50	60	70	150	160	170	50	60	70
Shot Volume	cm ³	1539	2010	2544	182	238	302	2262	2554	3190	182	238	302	3181	3927	4329	182	238	302	3181	3927	4329	182	238	302	4123	4546	5453	389	481	692	5195	6232	7964	389	481	692	6751	8628	10006	589	848	1154	9291	10776	12370	589	848	1154	16611	18900	21336	589	848	1154
Shot Weight(PS)	g	1446	1890	2366	171	225	283	2058	2323	2902	171	225	283	2987	3687	4065	171	225	283	2987	3687	4065	171	225	283	3871	4268	5120	365	452	650	4727	5671	7247	365	452	650	5144	7851	9105	552	800	1085	8455	9806	11257	552	800	1085	15116	17198	19416	552	800	1085
Shot Weight(PS)	oz	51.1	66.8	82.5	6	8	10	72.6	81.9	102.4	6	8	10	105.5	130.3	143.6	6	8	10	105.5	130.3	143.6	6	8	10	136.8	150.8	181	12.9	16	23	167	200	256	12.9	16	23	216.7	246.9	321.2	19.5	28.3	38.3	298.2	345.9	397.1	19.5	28.3	38.3	533	607	685	19.5	28.3	38.3
Injection Pressure	Mpa	212	162	128	212	162	128	184	163	130	212	162	128	181	147	133	212	162	128	181	147	133	212	162	128	180	163	136	218	176	123	222	185	145	218	176	123	200	156	135	232	161	118	191	164	143	232	161	118	178	156	139	232	161	118
Screw L/D Ratio	L/D	24	21	19	23.5	20.5	18	22.3	21	19	23.5	20.5	18	24	22	20	23.5	20.5	18	24	22	20	23.5	20.5	18	23	22	20	23	21	17	24	22	19.5	23	21	17	25	22	20.4	25	21	18	24	22	20	25	21	18	23	21.5	20	25	21	18
Injection Stroke	mm	400			190			450			190			500			190			500			190			525			245			600			245			650			300			700			300			940			300		
Screw Rotary Speed max	rpm	119			184			128			184			100			184			100			184			91			141			90			141			90			155			80			155			71			155		
Nozzle Contact Force	KN	80			30			80			30			200			30			200			30			200			30			200			40			200			40			290			40								
Nozzle Stroke	mm	395			250			450			250			560			250			560			250			560			350			750			350			750			400			920			400			1065			400		
CLAMPING UNIT																																																							
Clamping Force	KN	5000			6000			7000			8000			10000			1200			16000			18000			22000																													
Opening Stroke	mm	1335			1450			1500			1600			1800			2000			2400			2500			2800																													
Platen Size	mmxmm	1130X1070			1210X1210			1410X1260			1360X1360			1740X1515			1720X1620			1950X1950			2170X2070			2420X2170																													
Space btw. Tie Bars	mmxmm	860X830			910X910			1060X910			1010X1010			1250X1025			1300X1200			1480X1480			1650X1550			1850X1600																													
Daylight max	mm	1900			2050			2150			2300			2600			2900			3400			3500			3900																													
Mold Thickness(min-max)	mm	565-1130			600-1170			650-1200			700-1300			800-1400			900-1500			1000-1700			1000-1800			1100-2000																													
Ejection Stroke	mm	250			280			300			300			350			380			380			380			450																													
Ejector Force	KN	111.3			137.4			210			210			210			300			300			300			390																													
Ejector Pin		4+8+4+1			8+8+4+1			8+8+4+1			8+8+4+1			8+8+1			8+8+8+1			8+8+8+1			8+8+8+1			8+8+8+1																													
Rotary Platen Model		RP1150			RP1360			RP1450			RP1540			RP1720			RP1720			RP2190			RP2190			RP2190																													
RP Diameter	mm	1050			1200			1300			1400			1580			1580			2000			2000			2000																													
POWER UNIT																																																							
System Pressure	MPa	17.5			17.5			17.5			17.5			17.5			17.5			17.5			17.5			17.5			117.5			17.5			17.5																				
Pump Motor	KW	37+15			11			30+30			11			37+30			11			45+45			18.5			37+37+37			18.5			45+37+37			22			45+45+45			22			45+45+45+30			22								
Heating Capacity	KW	25			8.86			32			8.86			40.9			8.86			40.9			8.86			49			10.4			59			10.4			64			16.2			79			16.2			97			16.2		
No.of Heater Zones	unit	6			4			6			4			8			4			8			4			8			5			8			5			8			6			8			6			9			6		
GENERAL UNIT																																																							
Oil Tank Capacity	L	900			1000			1400			1400			1500			2000			2000			2500			3000																													
Machine Dimensions	mxmxm	7.3X3.0X2.21			7.5X3.4X2.21			9X3.4X2.47			10.9X3.6X3.03			10.5X4.9X3.13			11.9X5.4X3.13			12.1X6.1X3.36			12.9X6.7X3.4			15.8X6.7X3.4																													
Machine Weight (Without RP)	Kg	25000			30000			38000			42000			51000			61000			75000			100000			100000																													

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Model	Dimensions			
	A	B	C	D
-022ML	40	70	250	235
-080ML	50	80	250	330
-120ML	50	80	250	400



Side Injection Unit Dimension

BORCHE BM

MV Series

MV two-shot machine is designed with vertical injection structure. The injection unit mounted vertically on the top of fixed platen, so machine covers the same footprint of standard machine.

Basic Model

BM120-060MV
BM150-060MV
BM200-060MV
BM260-060MV



Automatic control
Austria made KEBA controller
model 2880



Movable Hopper Support
Machines up to 600T featured with
movable hopper support ($\geq 700T$
featured with feeding platform)

- Separate control of two injection units allows different injection sequences
- Separated rotary platen can be changed to TP indexing unit while needed



Rotary Platen

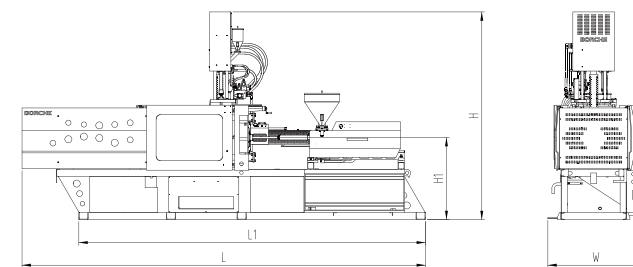


TP Indexing Unit

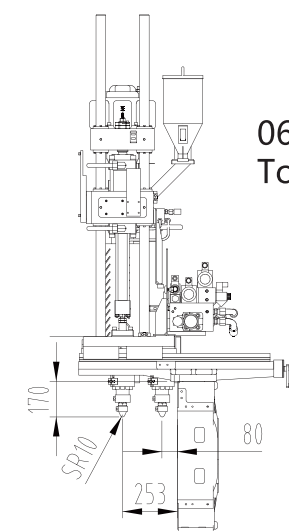
DESCRIPTION	UNIT	BM120-060MV				BM150-060MV				BM200-060MV				BM260-060MV							
INJECTION UNIT		Main injection unit		Side injection unit		Main injection unit		Side injection unit		Main injection unit		Side injection unit		Main injection unit		Side injection unit					
Screw Diameter	mm	30	35	40	25	28	40	45	50	25	28	45	50	60	25	28	50	60	70	25	28
Shot Volume	cm ³	120	163	213	68	86	270	341	422	68	86	389	481	692	68	86	589	848	1154	68	86
Shot Weight(PS)	g	113	153	199	60	78	254	321	397	60	78	365	452	650	60	78	552	800	1085	60	78
Shot Weight(PS)	OZ	4	5.4	7	2.1	2.8	9	11.3	14	2.1	2.8	12.9	16	23	2.1	2.8	19.5	28.3	38.3	2.1	2.8
Injection Pressure	Mpa	209	154	118	223	178	235	185	150	223	178	218	176	123	223	178	232	161	118	223	178
Screw L/D Ratio	L/D	24	20.5	18	22	22	23	20.5	18.5	22	22	23	21	17	22	22	25	21	18	22	22
Injection Stroke	mm	170		140		215		140		245		140		300		140		300		140	
Screw Rotary Speed max	rpm	175		280		206		280		149		280		155		280		155		280	
Nozzle Contact Force	KN	30		30		30		30		30		30		30		30		40		30	
Nozzle Stroke	mm	250		200		250		200		280		200		350		200		350		200	
CLAMPING UNIT																					
Clamping ForceA	KN	1200				1500				2000				2600							
Opening Stroke	mm	340				410				465				520							
Platen Size	mmxmm	590X590				670X670				750X750				835X835							
Space btw. Tie Bars	mmxmm	410X410				460X460				510X510				575X575							
Opening Stroke	mm	840				960				1110				1320							
Mold Thickness(min-max)	mm	300-500				300-550				350-650				400-800							
Ejection Stroke	mm	100				130				150				180							
Ejector Force	KN	34.4				41.6				49.5				77.3							
Ejector Pin		4+1				4+1				4+1				12+1							
Rotary Platen Model		RP570				RP570				RP700				RP700							
RP Diameter	mm	500				500				600				600							
POWER UNIT																					
System Pressure	Mpa	17.5		14.5		17.5		14.5		17.5		14.5		17.5		14.5		17.5		14.5	
Pump Motor	KW	11		8.6		15		8.6		18.5		8.6		21		8.6		21		8.6	
Heating Capacity	KW	8.86		4.8		9.655		4.8		10.435		4.8		16.2		4.8		16.2		4.8	
No.of Heater Zones	unit	4		4		5		4		5		4		6		4		6		4	
GENERAL UNIT																					
Oil Tank Capacity	L	200				290				340				550							
Machine Dimensions	mxmxm	4.7X2.4X2.9				5.1X2.5X3.3				5.7X2.7X3.6				6.7X2.8X3.8							
Machine Weight (Without RP)	KG	4500				5000				6500				12000							

The specification above is only for reference. No further notice of any change in specification resulting from technical upgrading.

Model	Dimensions				
	L	L1	H	H1	W
BM120-060MV	4725	4060	2900	1110	950
BM150-060MV	5070	4435	3300	1197	1070
BM200-060MV	5660	4970	3600	1245	1120
BM260-060MV	6635	5830	3800	1360	1220



Appearance Dimension



060mv
Top Injection Unit Dimension

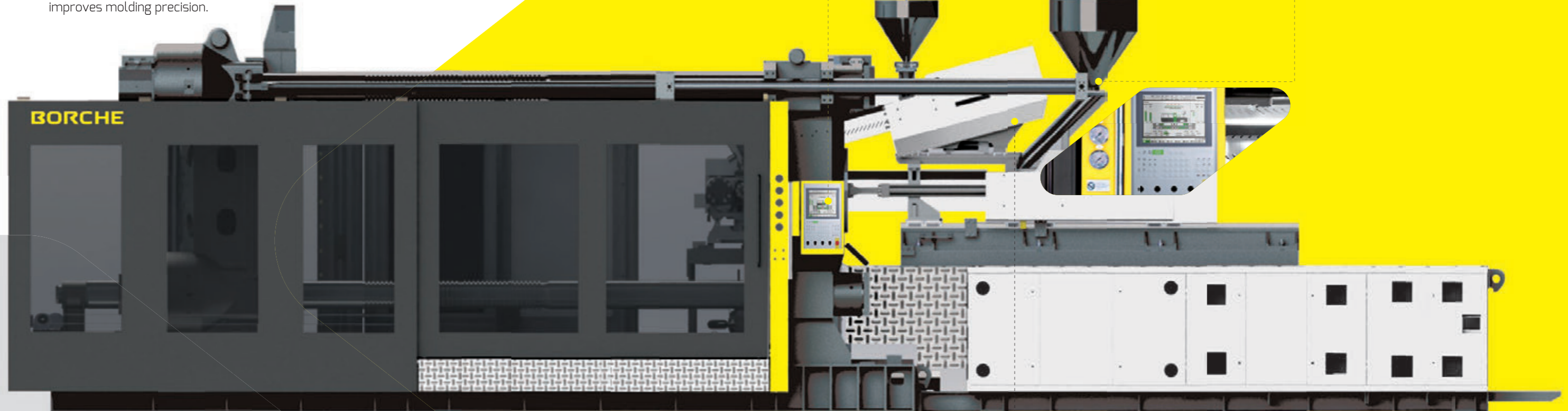
BORCHE BM

MK Series

▣ Piggyback K Type Injection Unit

As the gap between two nozzles gets narrower, the space among four tie bars can be fully used, which facilitates to reduce mold size.

Separate control of two injection units allows different injection sequences, improves molding precision.



Automatic control
Austria made KEBA controller
model 2880



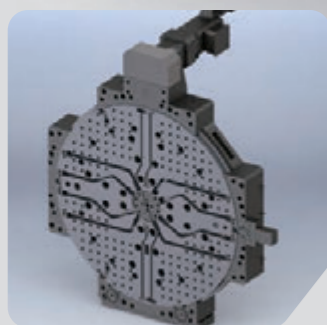
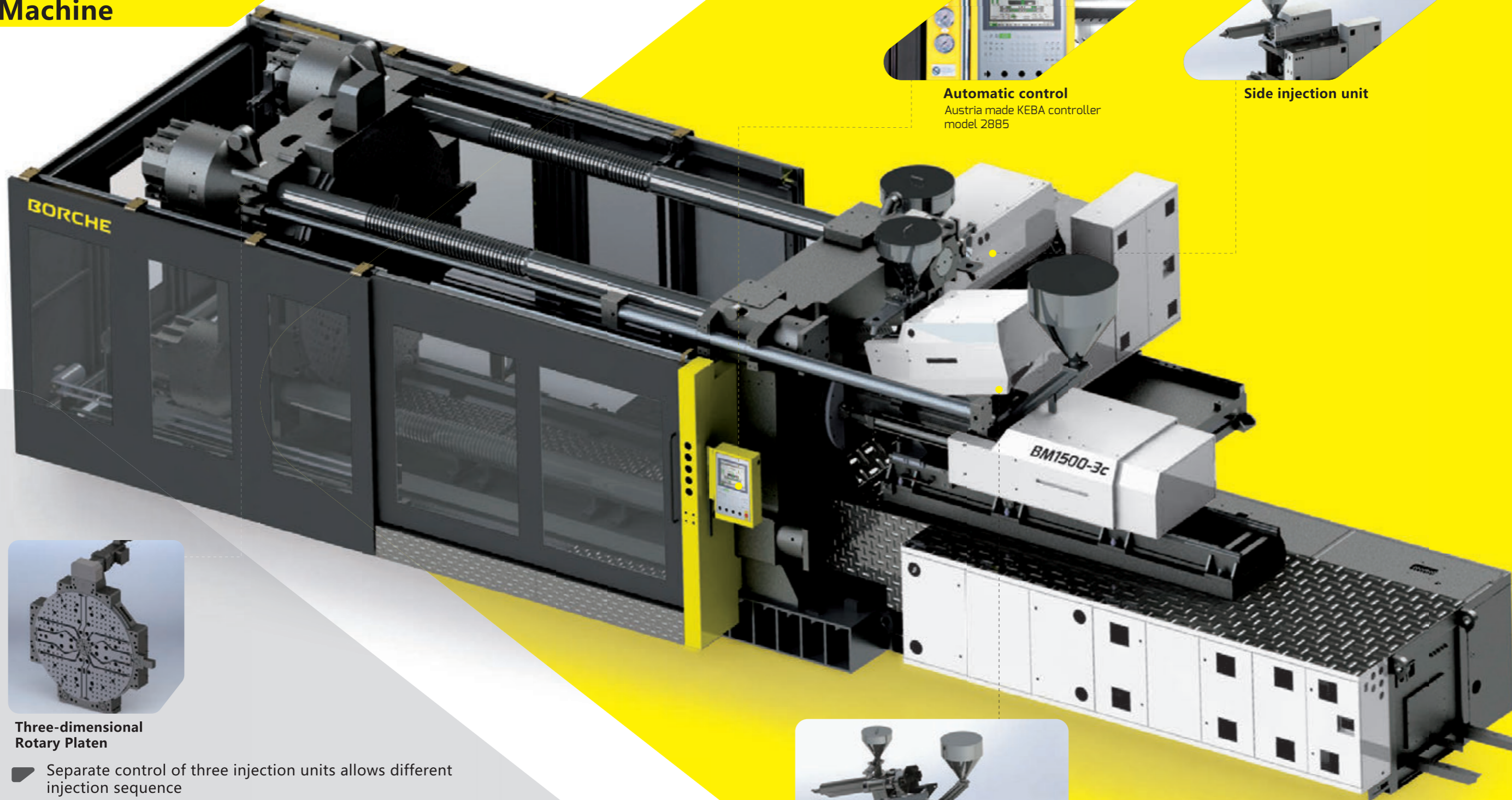
Movable Hopper Support
Machines up to 600T featured with
movable hopper support ($\geq 700T$
featured with feeding platform) .



Piggyback K type injection unit

BORCHE BM

Three-shot Machine



Three-dimensional Rotary Platen

- Separate control of three injection units allows different injection sequence
- Three-dimensional rotary platen driven by servo hydraulic motor
- Borche self-developed three-shot co-injection program
- Customized four-shot and five-shot machines are available



Automatic control
Austria made KEBA controller
model 2885



Side injection unit



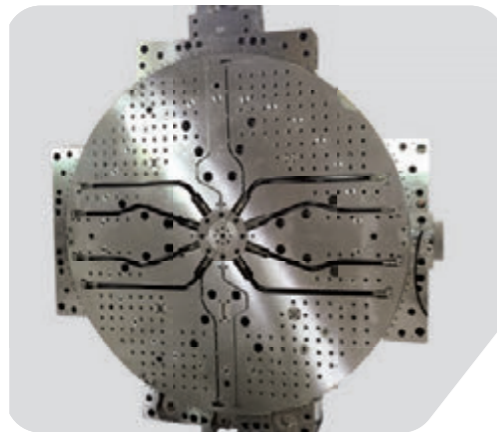
Piggyback K type injection molding unit

BORCHE BM

Rotary Platen

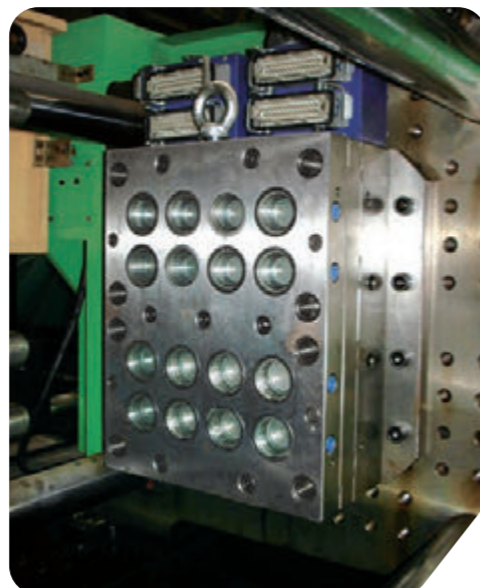
Side Injection Unit

1. Latest water-running axis is designed with low pressure loss. As the seal of central axis adopts TRELLE BORG ring, it features better performance and longer life.
2. Hydraulic motor is standard feature; servo drive is available as option.
3. Friction factor can be lowered, thanks to rotary plate made of special wear-resistant material and patented circular bearing.
4. Specific supporter offsets the gap between bearings to prevent the rotary plate from drooping
5. Before the rotating of rotary plate, the base doesn't need to be lifted by mechanical device to remove the "friction" .
6. Equipped with high-pulse rotary encoder, rotary plate rotates at the angle of $0^{\circ}\sim 180^{\circ}\sim 0^{\circ}$, $0^{\circ}\sim 120^{\circ}\sim 240^{\circ}\sim 0^{\circ}$, $0^{\circ}\sim 240^{\circ}\sim 120^{\circ}\sim 0^{\circ}$, which ensures its rotating accuracy. With pin positioning, its position accuracy is less than 0.02mm. The switch from "two-position" to "three-position" can be operated in computer.



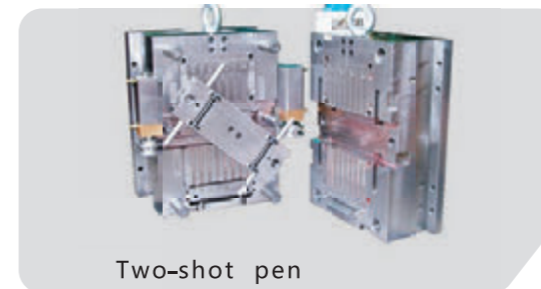
Models:

RP570 for BM 120 & BM150 machine
 RP700 for BM 200 & BM260 ton machine
 RP920 for BM320 machine
 RP1050 for BM400 machine
 RP1150 for BM500
 RP1360 for BM600
 RP1450 for BM700
 RP1540 for BM800
 RP1720 for BM1000 & BM200
 RP2190 for BM1500 & BM1800
 RP2340 for BM2200

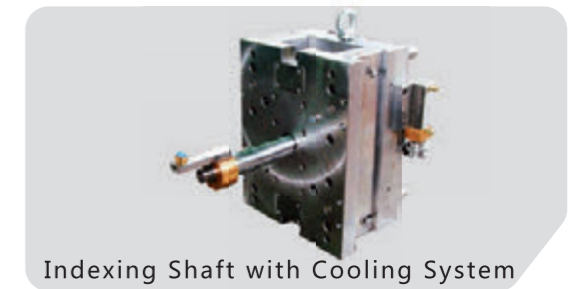


TP Indexing Unit

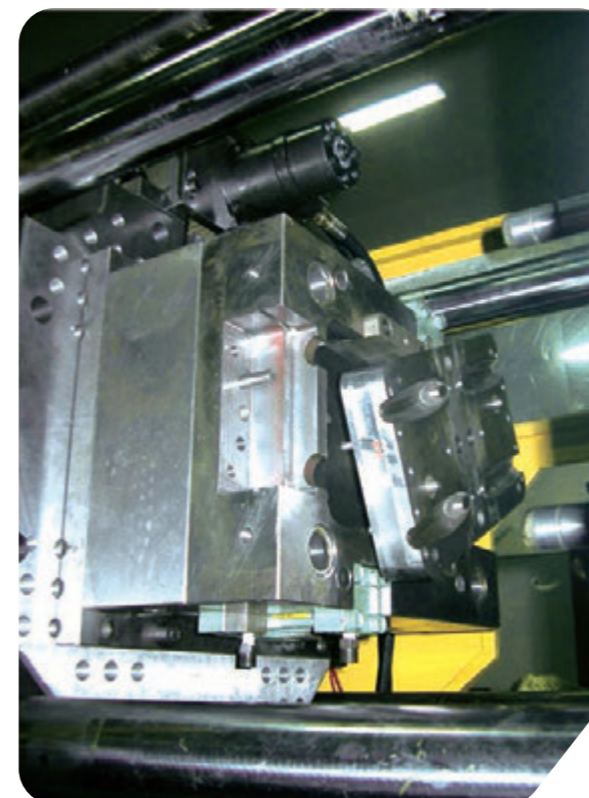
1. Central spindle connected to mold core enable mold core forward movement, and retract to original position after 180° rotation making ready for second shot.
2. Central spindle equips with two water channels providing cooling for mold core, its length can be modified according to customer's request.
3. Choice of three models compatible with injection molding machine from 120-320 tons, can be tailor-made in accordance with customer requirement.
4. AC servo motor system as an option can provide multi angle control at 90°, 120° and 180°



Two-shot pen



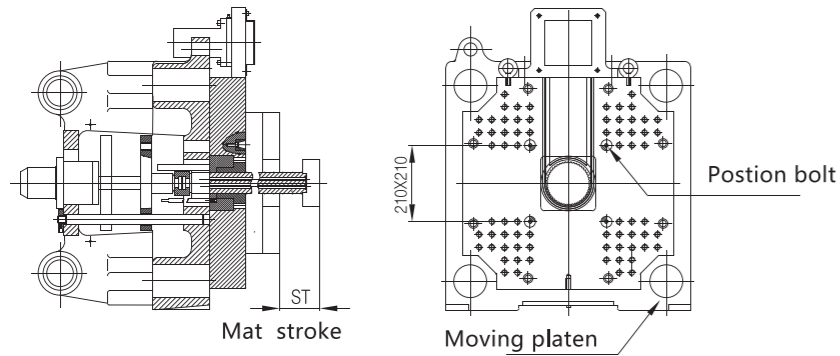
Indexing Shaft with Cooling System



Models:

TP580 for BM120 BM150
 TP700 for BM200 BM260
 TP900 for BM320

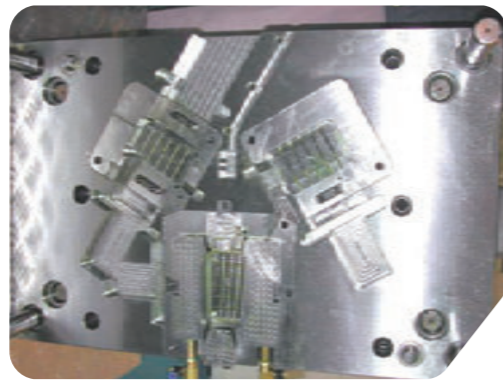
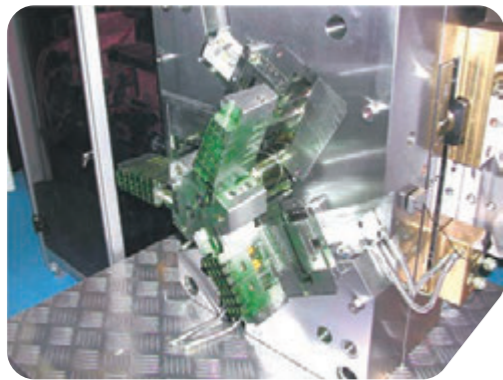
TP Indexing Unit



TP Indexing Unit Dimension

TP Mode		TP580		TP700	
Stroke	Model	BM120	BM150	BM200	BM260
ST		90	130	150	180

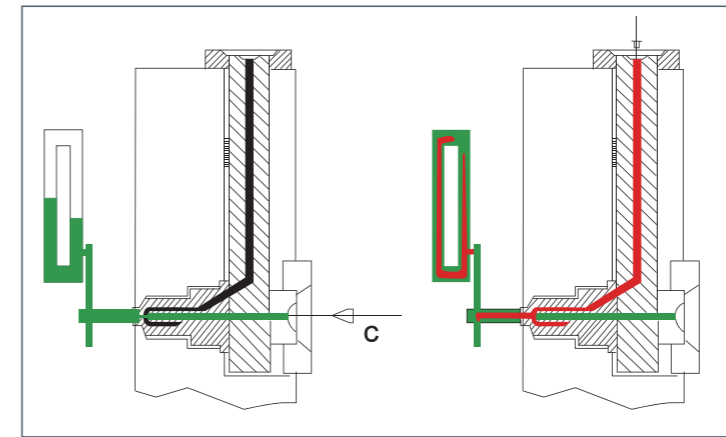
Three-shot machine with three shot indexing unit can realize parts moving and assembly inside the mold, which greatly improves quality and productivity.



TP Indexing Unit Sketch

The sandwich molding unit is mounted on the fixed platen of "L type" or "V type" two-shot machine. The mold with its conventional sprue system is installed in front of the unit. Sandwich and Color effects are created during interval injection molding by the flowing together of the two plastics.
Advantages: Recycle plastic or foaming plastic material can be used as core material to save cost.

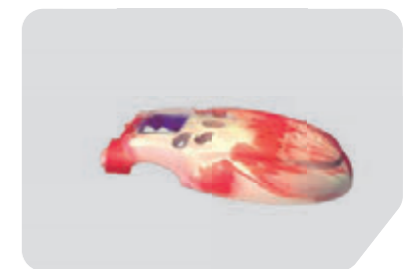
Sandwich Injection Theory Sketch



Models:

- SW-150N for 150T machine
- SW-200N for 200T machine
- SW-260N for 260T machine
- SW-320N for 320T machine

Machine tonnage > 320T can be tailor-made in accordance with mold requirement.



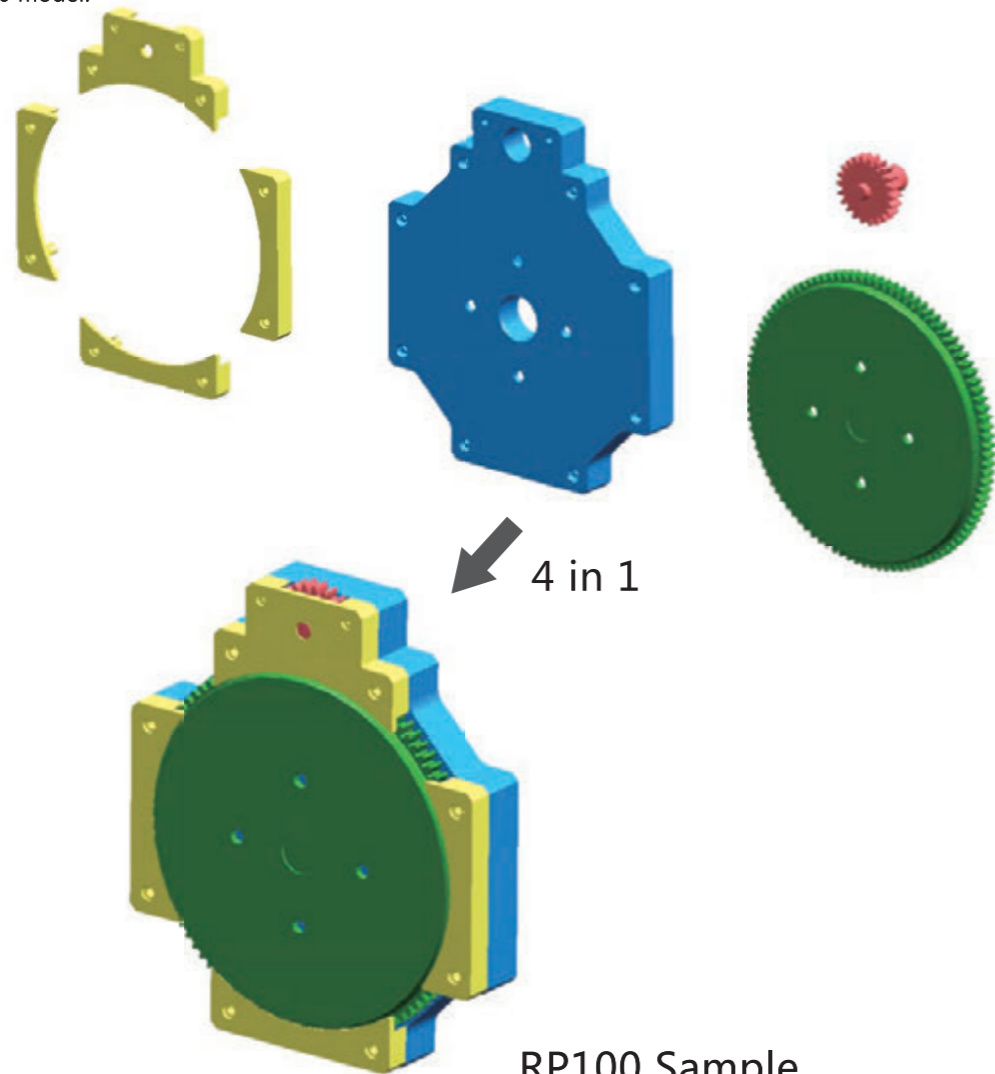
Multi-shot Injection + In-mold Automation

The prime requirement of "molding the future" is to process some of the secondary processing inside the mold. The implementation of the mold design, made plastic parts becomes the final product after leaving the cavity. This is not a traditional automation, but is the integration of modern injection molding machine and peripherals as well as advanced tooling, thus creates a modern intelligent plastic process.

The "innovative 4- shot Production Cell" includes "BM260-4C 4 color injection molding machine", a "4 color in-mold assembly mold". This system is to produce a "4 color PR100 rotary platen model" the turntable and the gear can rotate freely after taken out from mold.

This "multi-color injection + in-mold assembly process" is the first time operated in China. The "4 color in-mold assembly mold" itself is acted as a macro machine. Moving parts, hydraulic core pulling and position sensors are equipped inside the mold. The four-color injection molding machine supplies hydraulic power connects the sensor signals and controls the sequence action of the mold.

The four-color injection molding machine is starting injection respectively, molding seven pieces of parts in the mold cavities. These seven parts defined as the four stations, then carrying out a series of opening and closing of mold, plus core pulling activities. The four stations functioning in-mold assembly to complete 4 in 1 of the RP100 model.



Application

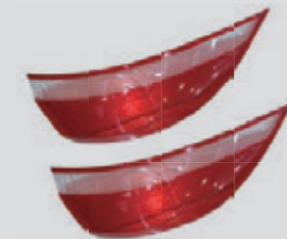
Personal care: Teeth brush

Model : BM260-080ML
Clamping force : 2600KN
Screw diameter : D50/D30
Number of cavity : 12+12
Material : PP+TPE
Production cycle : 50s



Automobile spare part: Taillight lampshade

Model : BM1500-260ML
Clamping force : 15000KN
Screw diameter : D80/D5
Number of cavity : 2+2
Material : PC+PC
Production cycle : 55s



Electric tool: Handle

Model : BM320-080ML
Clamping force : 3200KN
Screw diameter : D50/D30
Number of cavity : 2+2
Material : PA6+TPE
Production cycle : 53s



Electric outdoor fitness tool: Fitness handle

Model : BM260-080ML
Clamping force : 2600KN
Screw diameter : D50/D30
Number of cavity : 4+4
Material : PA66+TPE
Production cycle : 39s



Features Configuration

BORCHE

Standard Features

SAFETY UNIT		
1	New National Safety Standard (≥260T)	●
2	European technical standard totally enclosed cover(≥260T)	●
3	Double emergency button	●
4	Safety platform under mold area (≥800T)	●
5	Mechanical safety lock device(≤200T)	●

CLAMPING UNIT		
1	5 points-doubt toggle structure	●
2	Two platen clamping	●
3	Tie bar with high intensity chromeplate technics	●
4	Separate lock ring on fixed platenA	●
5	Extra-large space for ejection operation	●
6	Anti-abrasion strip	●
7	Centralized Lubrication system with end position pressure monitoring	●
8	Low pressure mold protection system	●
9	Automatic mold clamping force adjustment function	●
10	Mold adjustment gear ring driven by hydraulic motor	●
11	120-500T Hydraulic driving RP/TP (120-500T)	●
12	600-2200T Servo driving RP/TP(600-2200T)	●
13	Multi-hydraulic ejection device	●
14	Robot interface	●
15	Robot interface	●

INJECTION UNIT		
1	Double carriage structure-right angle	●
2	Double injection cylinder-right angle	●
3	Single injection cylinder- parallel	●
4	High abrasion resistance screw and barrel	●
5	Nozzle center adjust device	●
6	Barrel protection cover	●
7	Injection unit adopts linear guide rail	●
8	Movable hopper up to 650T	●
9	Feeding platform above 800T	●
10	Three size screw and barrel available	●
11	High-torque hydraulic motor drive screw	●
12	Screw speed testing device	●
13	Plasticizing Screw cold protection	●
14	Screw backward function	●
15	Five stages injection control, pressure/speed can be adjusted	●
16	Three stages pressure holding control, pressure/speed can be adjusted	●
17	Three stages plasticizing control, pressure/speed can be adjusted	●

HYDRALL LINIT		
1	Servo control 400T-2200T	●
2	Servo power saving system	●
3	Low pressure mold protection function	●
4	Fast speed clamp locking system	●
5	Oil level indicator and oil temperature detector	●
6	High efficiency heat exchanger	●
7	Oil temperature alarm device	●
8	Plasticizing back pressure	●
9	Self-closed type absorb oil filter (≥400T)	●
10	Iron-separator	●

CONTROL UNIT		
1	Transducer	●
2	KEBA controller	●
3	Malfunction self-diagnosis system	●
4	Emergency stop both at operation and nonoperation side	●
5	Multi-language (Standard with Chinese and English)	●
6	SPC quality control	●
7	Auto purge function	●
8	Clocking heating function	●
9	Fuse protection for heater band power leakage	●
10	PID program for heating	●
11	Data protect lock	●
12	Parameter quick settings	●
13	Robot interface	●

Features Configuration

BORCHE

Optional Features

SAFETY UNIT		
1	CE safety standard	
2	Main power with rotation handle	○
3	Mechanical safety lock device(≥260T)	○
4	Core pulling with pressure relief function	○

CLAMPING UNIT		
1	Multiple sets hydraulic core pulling	○
2	Hydraulic unscrewing	○
3	T slot platen (≤800 T)	○
4	Multiple sets air blower	○
5	Enlarged mold thickness	○
6	Mechanical position control for mold open	○
7	Quick change of central ejector pin	○
8	Special size mold locking ring	○
9	Graphite copper bush on moving platen	○
10	Transducer on moving platen	○
11	Manual centralized lubrication for rear platen	○
12	4 in-4 out water regulator	○
13	Photo sensor	○
14	Extra water manifold	○
15	RP/TP servo driving	○
16	Alarm lights	○

INJECTION UNIT		
1	Bi-metallic screw	
2	Chrome plated screw	○
3	PC screw	○
4	Bi-metallic screw and barrel	○
5	PET machine	○
6	UPVC machine	○
7	Enlarge one stage injection unit	○
8	Decrease one stage injection unit	○
9	Extended nozzle	○
10	Shut off nozzle (Hydraulic/ Pneumatic)	○
11	Feeding throat temperature detect and control	○
12	Enlarge one stage hydraulic motor	○
13	Carriage cylinder	○
14	Ceramic heater band	○
15	Infrared energy saving heater band	○
16	Manual centralized lubrication for injection unit	○
17	Stainless steel hopper	○

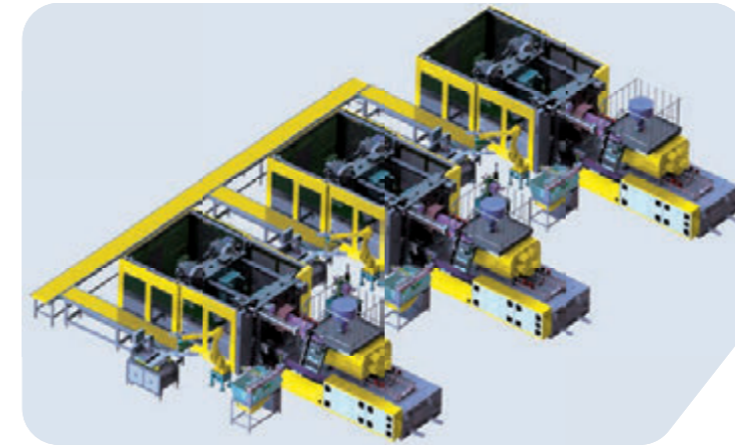
HYDRAULIC UNIT		
1	Proportional back pressure (≤1000T)	
2	Close loop cooling system	○
3	Filter on heat exchanger inlet port	○
4	Enlarge one stage motor and pump	○
5	VDP system	○
6	Ejector on fly	○
7	Parallel charging	○
8	High pressure bypass oil filter (≤500 T)	○
9	High speed proportional valve for Injection	○
10	High speed proportional valve for locking	○
11	Oil level low limit alarm	○
12	Pressure sensor for injection	○
13	Ball valve at suction port	○
14	Enlarge one stage heat exchanger	○

CONTROL UNIT		
1	Robot interface	○
2	Voltage stabilizer	○
3	Hot runner control	○
4	Phase protection	○
5	Multi sets sockets	○
6	Electricity meter	○
7	Special power voltage	○

Optional Functions Of Intelligent Manufacturing:

1	With Industry 4.0 on IMM, three mold change ways can be realized with mold change platform: one-stop automatic mold change, semi-automatic mold change and manual mold change. IMM can automatically identify mold and acquire parameter of mold change, technique and peripherals. The hole of IMM should be tailored to suit that of the mold change platform and hydraulic clamp. IMM will evaluate the safety of above holes. Safety lock is active when matching signal received. IMM plays a responsible role in mold change platform and hydraulic clamp.
2	IMM controller can display all machines'(peripherals included)operation condition and malfunction alarm. There are eight malfunction alarm interfaces for following peripherals: one robot, two mould temperature controllers, one water cooler, one dryer and all-in-one compact dryer. The communication and alarm function of other peripherals are connected to IMM through external connection cabinet so that intelligent interconnection of IMM and peripherals is built.
3	Plug and play, intelligently inter-connected water cooler operated and controlled in IMM with close-loop connection Intelligent interconnection of IMM and chiller can be operated and controlled by IMM controller. Data is close-loop interconnection.
4	Intelligent interconnection of IMM and mould temperature controller can be operated and controlled by IMM controller. All data is close-loop interconnection.
5	Intelligent interconnection of IMM and all-in-one compact dryer can be operated and controlled by IMM controller. All data is close-loop interconnection.
6	Compression injection molding technique
7	High speed proportional valve for mold open and close and non-contact maglev linear transducer realize real-time monitor
8	Robot connects with IMM in real-time, which reduce the interference of robot, IMM and mold. Robot can be fixed on the top or side of fixed platen according to parts pick requirements
9	Automation system of IMM and peripherals interact with MES management system 1) Order Monitor 2) CProduction Status Display 3) Alarm Monitor 4) Technique Parameter Management 5) Equipment Management 6) Production Report
10	iPHM, IMM Prognoses and Health Management (Equipment Online Doctor) 1) Safe and reliable bidirectional terminal is equipped with built-in firewall and remote VPN connection; various networking is available. Cloud platform connects IMM controller in real-time 2) Data of equipment operation, malfunction alarm and worker operation is collected in real time.IMM data visualization on Cloud Platform is realized. 3) Self diagnose module of failure and performance based one the dynamic data, can reduce the malfunction rate, and improve the equipment performance. 4) Operation and maintenance system connects the on-line management platform of after-sales service. It realizes remote on-line program upgrading, and improves the maintenance efficiency and quality. 5) IMM condition and performance report can be checked through mobile terminal; After-sales service request can be reported via WeChat.
11	Mold Visual Monitor 1) Low pressure mold protection for higher precision and efficiency 2) CAccurate checkup 3) Self-adaption to exterior light change 4) Self-adaption to inaccurate mold open position 5) Real-time record
12	Visual Detective System for surface quality checking 1) Fast detection, detection precision reaches to 0.001mm 2) Defectives check of contamination, color difference, flake, and short injection. 3) Wide application
13	Vision-induced System 1) Accurate positioning 2) Sensitive identification 3) Wide application

01 Factory Layout- Borche specializes in intelligent IMM factory design. Many intelligent factory cases carried out worldwide in IMM industry.

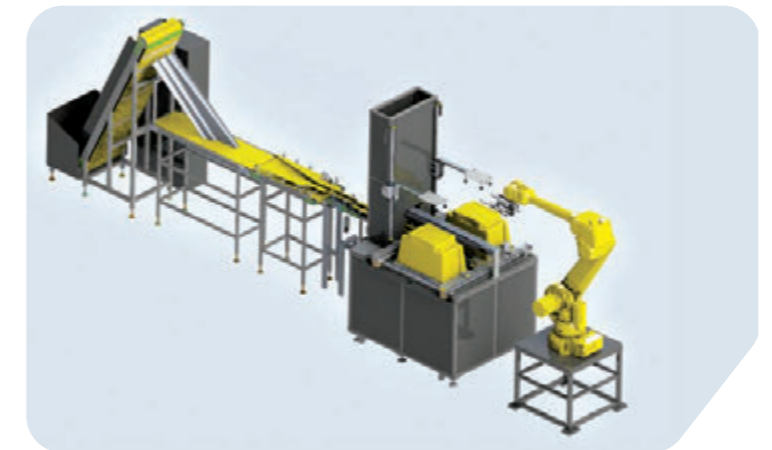


02 Flexible Automation -360° visual detection, robot operation, automatic assembling, parts insert, polishing and deburring...

Visual Detective System



Robot Application (part pick-up, casting insert, assembling, stacking, deburring, degating)



03 Intelligent Logistics- AGV, rolling line, automatic packing, wrapper.

