The future we see through

IS MACHINE

IS MACHINE
PARALLEL OPENING CLOSING
ADV 1050 ADV 8050
21 LINES VALVE BLOCK
AFE SYSTEM
PROPORTIONAL VALVES
GLASS LEVEL

BDF® industries

OUR HERITAGE

Since 1906, BDF Industries' principal activity has been the development and integration of complex technologies to aid industrial progress.

The **worldwide market** depends on BDF's multitasking, multicultural, and multi-expertise strategy, which has evolved and shaped itself over the years in response to market demands.

BDF provides the chance to join a top-notch technological group ready to compete with present and future business opportunities in terms of **competitiveness, performances, and reliability of products** and processes thanks to its natural collaborative instinct and the professionalism shown in more than **115 years of tradition**.

The future we see through.

OUR MISSION

Manufacturer of cutting-edge machinery, BDF Industries is a group where innovation and performance converge in a never-ending quest for excellence.

MELTING

For the design and supply of furnaces, working ends, and forehearths, BDF Industries Melting's product portfolio comprises the whole glass melting and conditioning technologies. Additionally, **relevant equipment** including oil and gas burners, firing system air, exhaust reverse valves, batch chargers, and stirrers are part of the product line.

BDF Industries furnaces are engineered with an **high level of customization**, focusing in particular on energy efficiency and environmental impacts. BDF Industries is able to offer a wide range in **design, manufacture, and supply** of different furnace types for production of containers, tableware, lighting ware, and technical glassware due to a long history of experience combined with a team of skilled people who work together in a synergistic way..

FORMING

The glass container Forming product line of BDF Industries is the company's historical primary activity. BDF Industries can supply a wide range of **machines with a high level of production flexibility** to satisfy the needs of its customers.

With more than 65 years of experience in glass forming field, BDF Industries can offer a complete range of IS machine including gob forming and delivery, ware handling, container and variable equipment. The glass forming machineries are **fully designed and assembled** in house at BDF Industries **in Italy**, which has relevant knowledge of production process with the most important glass manufacturers in the world (e.g. strong credentials for forming business in O-I, Saverglass, Sisecam, Vetropack, Vitro...).

SERVICE

BDF Industries has a Service division dedicated to provide a comprehensive range of **high-quality service solutions** to our clients from a single source. From glass melting to forming, filtering, energy facilities, and automation, our services serve the whole product value chain.

The service product line includes installation & startup, upgrades of mechanical equipment and automation, technical assistance for repairing and overhauling, training, performance evaluation & long term service agreement, integrated maintenance management & diagnostic solutions and systems, spare parts.

The contents of service are the following:

- Supply local qualified supervisors
- Supply of certified end/or upgraded OEM (Original Equipment Manufacturer) spare parts for all maintenance operations
- Performance of all equipment maintenance
- Repairs using state-of-the-art technology
- Optimization of Spare Parts inventory
- On the job Training of local maintenance and operation personel.

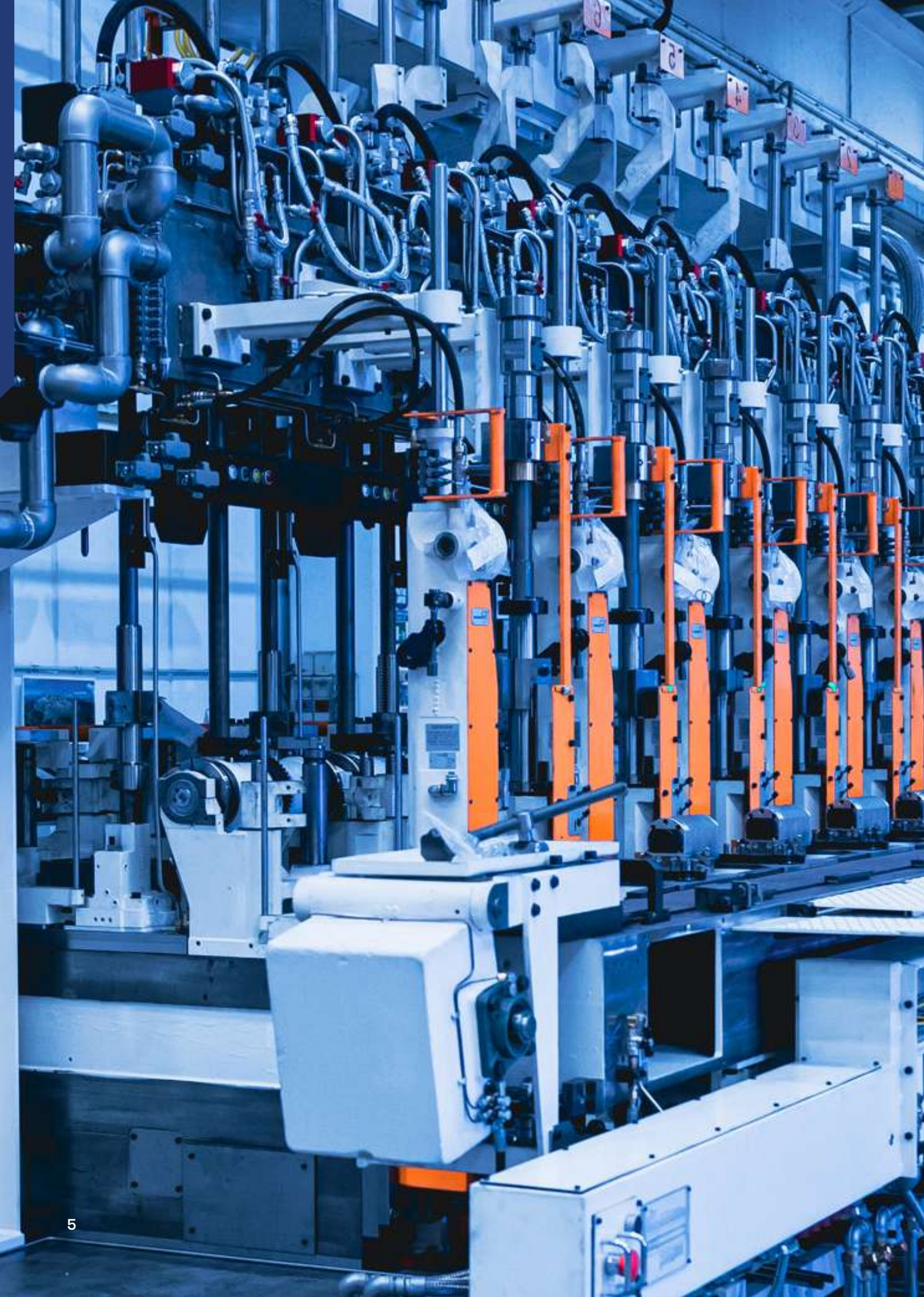
The BDF Industries Learning Center in Italy, as well as strategically situated Service Centers, provide a comprehensive range of technical training. Our technical courses are taught by field-tested experts who combine theoretical knowledge with practical expertise.

IS Machine

Glass Forming Machine

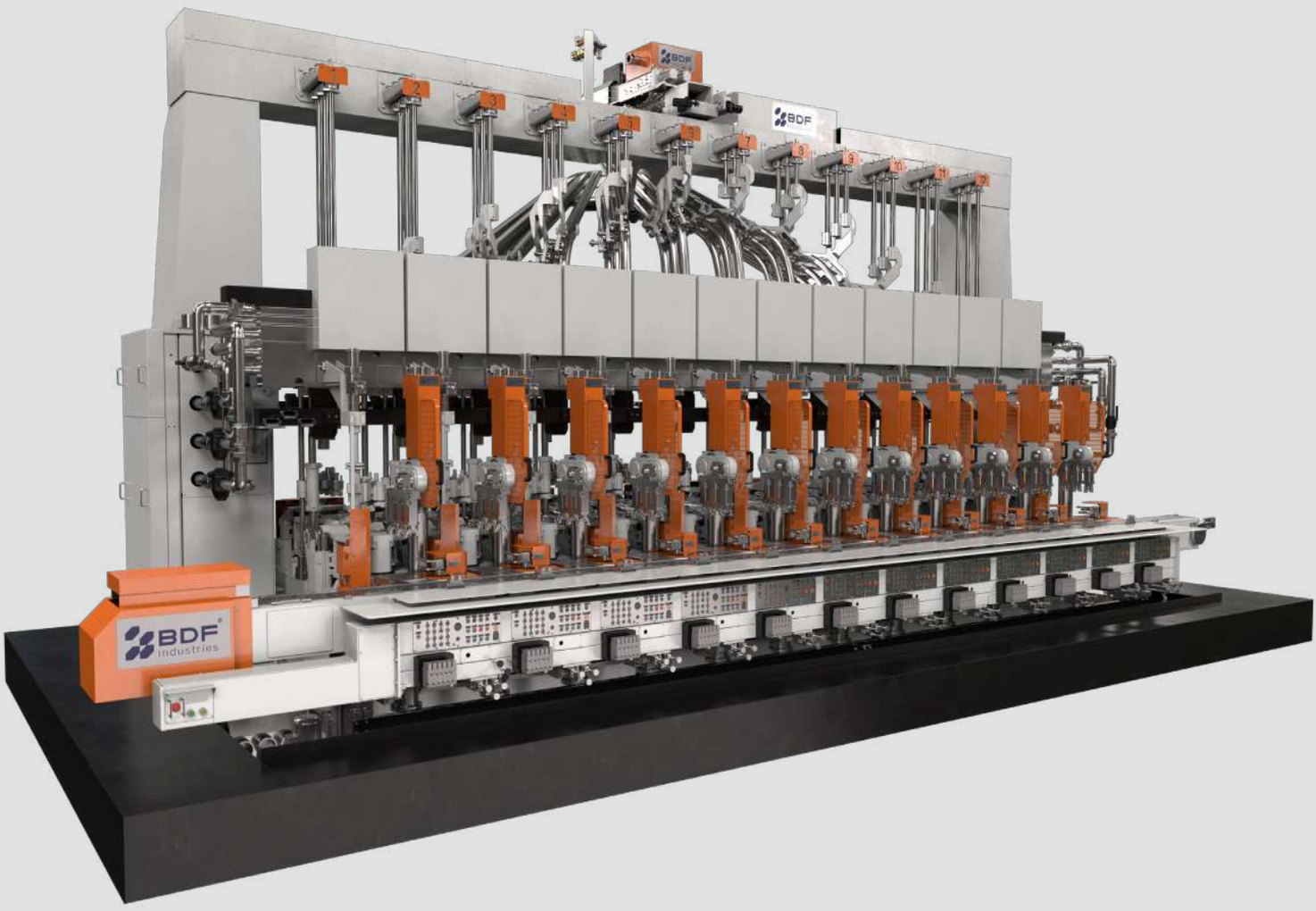
Innovation, technology, and versatility make the BDF IS Machines the ideal solutions for high productivity, improved world surroundings, and considerable energy savings.

The BDF machines are particularly designed for being functional in all their mechanical components (gob delivery, servo, and pneumatic mechanism, molds cooling, easy mounting variable equipments, special process apparatus, wares hanling) and also in electronic control systems (integrated and stand-alone).



IS ANGULAR
ADV 1050-8050

6-8-10-12 SECTIONS AND TANDEM
IS 4 ¼": SG-DG-TG 3"-TG 3 ⅛"
IS 5" S: SG-DG-TG 85MM
IS 5 ½": SG-DG
IS 6 ¼": SG-DG-TG 4 ¼"



STANDARD MACHINE CONFIGURATION

FEEDER

- Servo plunger
- Gear-type revolving tube mechanism
- Servo Arcuate shear
- Shear spray system

DELIVERY SYSTEM

- Servo gob distributor SGD 330
- Easy Aligning Delivery System (EADS)

MACHINE

- Angular opening close mechanism
- 21 lines valve block
- Blank and Blow side Stack-cooling
- Blow side vertical cooling
- Roller bearing Neck Ring mechanism
- Series 300 2-Line Mechanism:
  Baffle - Funnel - Blow head
- Servo Invert
- Servo Takeout

WARE HANDLING

- Step pusher
- Conveyor
- Transfer wheel TRW 1305

TIMING SYSTEM

- ADV 8050

PROCESS

- Blow & Blow
- Press & Blow
- Narrow Neck Press and Blow (NNPB)

OPTIONAL

FEEDER

- Dual motor Servo Arcuate Shear
- Servo parallel Shear mechanism
- Servo plunger with indipendent modules
- Fixed Drop Guide
- Feeder Flowtech

DELIVERY SYSTEM

- Multi Direct Drive servo gob distributor X2/X3/X4
- Multi Direct Drive servo gob distributor SG-DG
- Costant Angle 30° Delivery system (on 8B10-10-12 section machine)

MACHINE

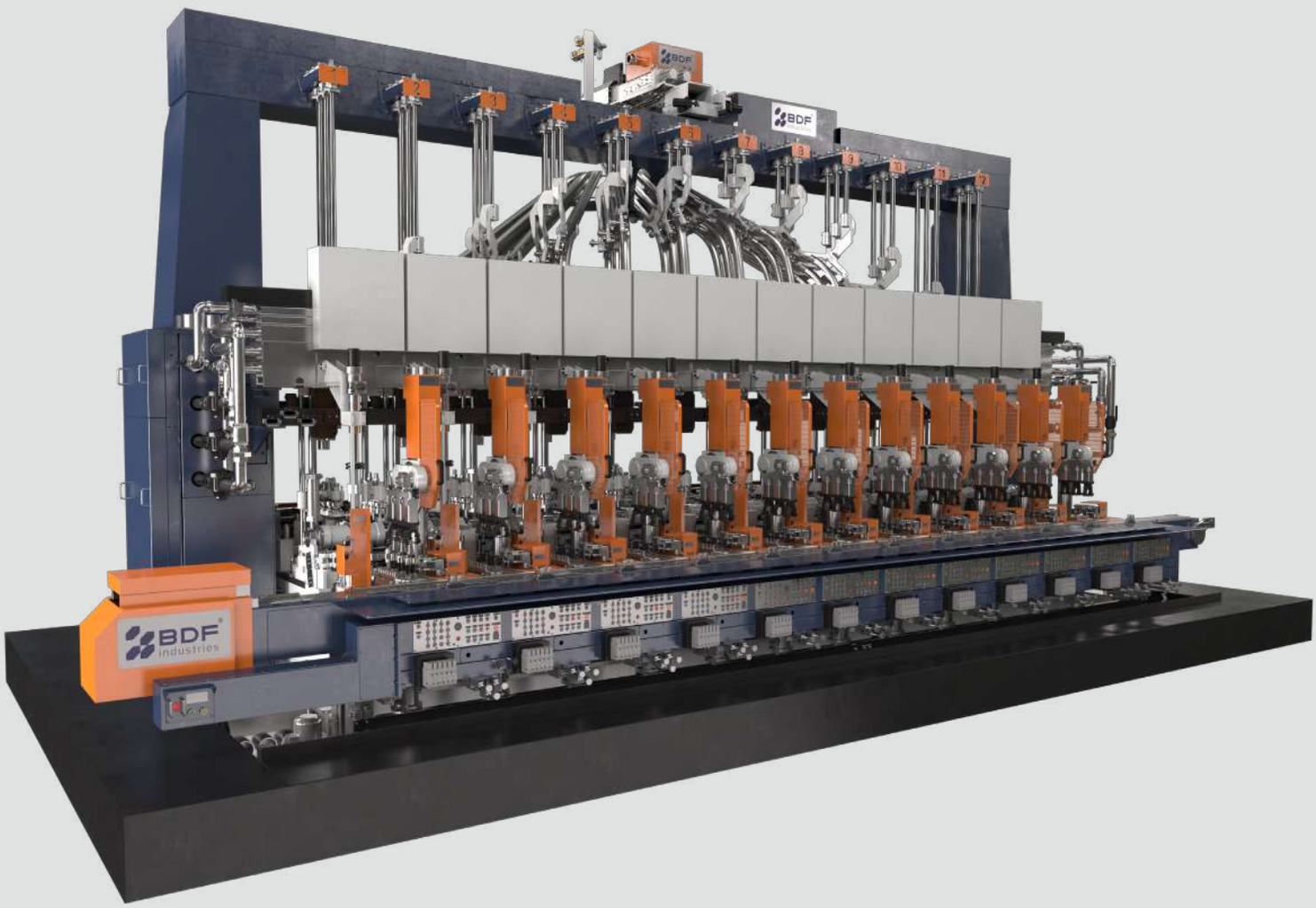
- Blank side axial cooling (on IS 5” ½ -6” ¼)
- Blow side axial cooling (on IS 5” ½ -6” ¼)
- Servo Take Out with motor from the top
- Servo Baffle
- Servo Blowhead
- Air-spring funnel
- Proportional valves:
  Plunger up - Counter Blow - Final Blow
- IWS system
- PMPC
- Black Box
- Thermocontroller
- CWD

WARE HANDLING

- AP Pusher mechanism (dual motor)
- Air jet pusher
- Transfer wheel TRW HSS double chain
- Transfer wheel TRW-SA-1305 (Small Article)

IS PARALLEL
ADV 8050

8-10-12 SECTIONS AND TANDEM
IS-P: DG 6 ¼”-TG 4 ¼”



STANDARD MACHINE CONFIGURATION

FEEDER

- Servo plunger
- Gear-type revolving tube mechanism
- Servo Arcuate Shear
- Shear spray system

DELIVERY SYSTEM

- Servo gob distributor SGD 330
- Easy Aligning Delivery System (EADS)

MACHINE

- Parallel opening close mechanism
- 21 lines valve block
- Blank side axial cooling
- Blow side axial cooling
- Blow side vacuum system
- Series 300 2-line mechanisms:
  Baffle Pantograph - Funnel - Blow head
- Servo Invert
- Servo Take Out with motor from the top

WARE HANDLING

- Step pusher
- Conveyor
- Transfer wheel TRW 1305

TIMING SYSTEM

- ADV 8050

PROCESS

- Blow & Blow
- Press & Blow
- Narrow Neck Press and Blow (NNPB)

OPTIONAL

FEEDER

- Dual motor Servo Arcuate Shear
- Servo parallel Shear Mechanism
- Servo plunger with indipendent modules
- Fixed Drop Guide
- Feeder Flowtech

DELIVERY SYSTEM

- Multi Direct Drive servo gob distributor X2/X3/X4
- Multi Direct Drive servo gob distributor SG-DG
- Costant Angle 30° Delivery system (on 8B10-10-12 section machine)

MACHINE

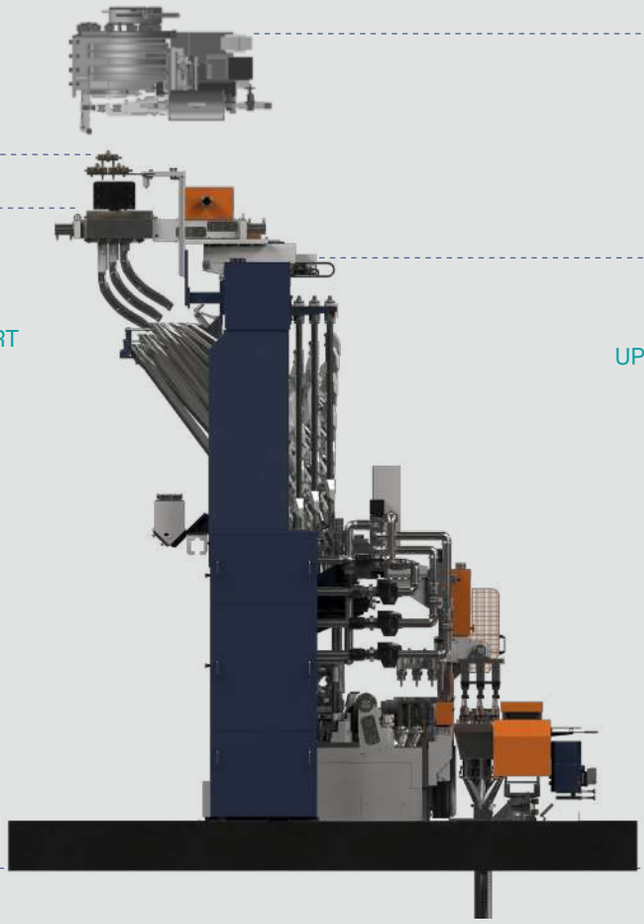
- Proportional valves:
  Plunger up - Counter Blow - Final Blow
- Servo Baffle
- Servo Blowhead
- IWS System
- PMPC
- Black Box
- Thermocontroller
- CWD

WARE HANDLING

- AP Pusher mechanism (dual motor)
- Air jet pusher
- Transfer wheel TRW HSS double chain

Technical Details

Side View



A
GOB INTERCEPTOR
UPPER PART

B
FUNNEL
UPPER PART

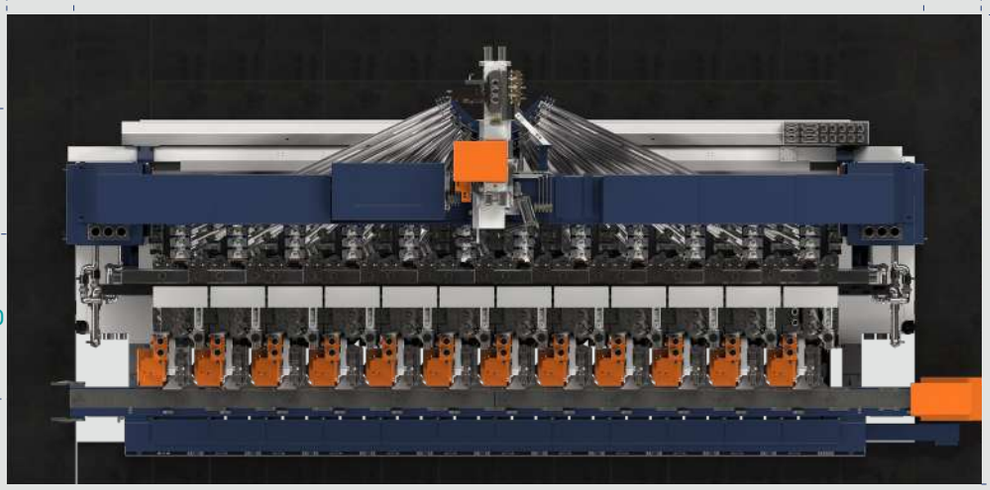
C
BEAM
UPPER PART

D
METAL
LINE

Top View

E
REQUIRED SPACE LENGHT (mm)

F
LOADING POINTS OF BED LENGHT (mm)



G
C.L. ORIFICE
TO C.L. CONVEYOR
(mm)

H
LOADING
POINTS OF BED
WIDTH (mm)

I
MAX
REQUIRED
SPACE
WIDTH (mm)

MACHINE TYPE

ANGULAR M.O.C.				
IS-4"¼	SG	DG 4" ¼ (108 mm)	TG 3" (76 mm)	TG 3" ⅛ (80 mm)
IS-5"	SG	DG 5" (127 mm)	TG 85 mm	
IS-5"½	SG	DG 5" ½ (140 mm)		
IS-6"¼	SG	DG 6" ¼ (159 mm)	TG 4" ¼ (108 mm)	

PARALLEL M.O.C.		
IS-P 6"¼	DG 6" ¼ (159 mm)	TG 4" ¼ (108 mm)

MACHINES DIMENSIONS

ANGULAR M.O.C.

SIDE VIEW
(easy aligning version)

DELIVERY	EASY ALIGNING											
MACHINES	IS-4" ¼			IS-5"			IS-5" ½			IS-6" ¼		
SECTIONS	6-8	10	12	6-8	10	12	6-8	10	12	6-8	10	12
A GOB INTERCEPTOR UPPER PART (mm)	3.666	3.975	4.380	3.705	3.975	4.380	3.765	4.065	4.455	3.765	4.065	4.455
B FUNNEL UPPER PART (mm)	3.470	3.780	4.180	3.505	3.780	4.180	3.565	3.865	4.255	3.565	3.865	4.255
C BEAM UPPER PART (mm)	3.065	3.375	3.775	3.100	3.375	3.775	3.160	3.460	3.850	3.160	3.460	3.850
D METAL LINE (mm)	4.800	5.000	5.400	4.800	5.000	5.400	4.800	5.200	5.600	4.800	5.200	5.600

SIDE VIEW
(constant angle version)

DELIVERY	CONSTANT ANGLE											
MACHINES	IS-4"¼			IS-5"			IS-5" ½			IS-6" ¼		
SECTIONS	8B10	10	12	8B10	10	12	8B10	10	12	8B10	10	12
A GOB INTERCEPTOR UPPER PART (mm)	4.390	4.390	4.650	4.390	4.390	4.650	4.470	4.470	4.720	4.470	4.470	4.720
B FUNNEL UPPER PART (mm)	4.205	4.205	4.460	4.205	4.205	4.460	4.270	4.270	4.520	4.270	4.270	4.520
C BEAM UPPER PART (mm)	3.805	3.805	4.055	3.805	3.805	4.055	3.865	3.865	4.120	3.865	3.865	4.120
D METAL LINE (mm)	5.500	5.500	5.800	5.500	5.500	5.800	5.600	5.600	5.900	5.600	5.600	5.900

TOP VIEW

MACHINES	IS-4" ¼				IS-5"				IS-5" ½				IS-6" ¼		
SECTIONS	6	8	10	12	6	8	10	12	6	8	10	12	8	10	12
E REQUIRED SPACE LENGHT (mm)	5.180	6.250	7.315	8.380	5.180	6.250	7.315	8.380	5.180	6.250	7.315	8.380	6.250	7.315	8.380
F LOADING POINTS OF BED LENGHT (mm)	4.480	5.547	6.614	7.680	4.480	5.547	6.615	7.680	4.480	5.550	6.615	7.680	5.550	6.615	7.680
G C. L. ORIFICE TO C. L. CONVEYOR (mm)	2.397	2.397	2.397	2.657	2.417	2.417	2.417	2.786	2.565	2.565	2.565	2.825	2.621	2.621	2.881
H LOADING POINTS OF BED WIDTH (mm)	1.465	1.465	1.465	1.465	1.465	1.465	1.465	1.465	1.465	1.465	1.465	1.465	1.465	1.465	1.465
I MAX REQUIRED SPACE (mm)	5.300	5.300	5.300	5.300	5.300	5.300	5.300	5.300	5.300	5.300	5.300	5.300	5.300	5.300	5.300

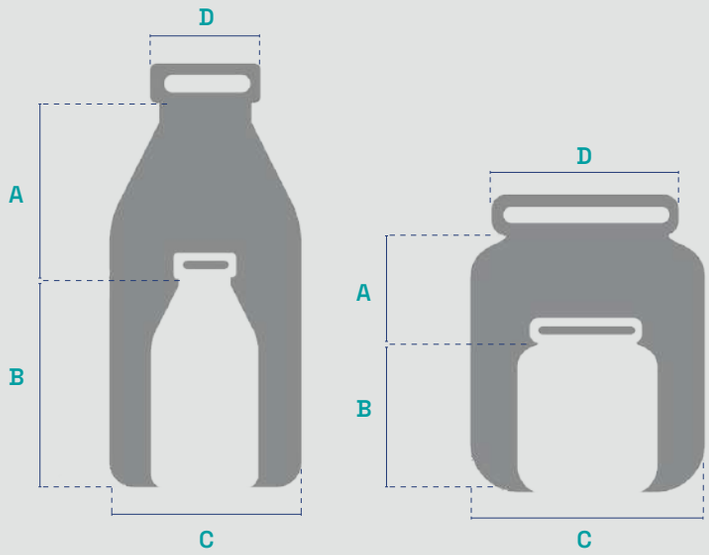
PARALLEL M.O.C.

SIDE VIEW

DELIVERY	EASY ALIGNING			CONSTANT ANGLE		
MACHINES	IS-P 6" ¼					
SECTIONS	8	10	12	8	10	12
A GOB INTERCEPTOR UPPER PART (mm)	3.762	4.062	4.452	4.470	4.470	4.720
B FUNNEL UPPER PART (mm)	3.565	3.865	4.265	4.270	4.720	4.520
C BEAM UPPER PART (mm)	3.160	3.460	3.850	3.865	3.865	4.120
D METAL LINE (mm)	4.800	5.200	5.600	5.600	5.600	5.900

TOP VIEW

MACHINES	IS-P 6" ¼		
SECTIONS	8	10	12
E REQUIRED SPACE LENGHT (mm)	6.247	7.314	8.380
F LOADING POINTS OF BED LENGHT (mm)	5.547	6.614	7.680
G C. L. OREFICE TO C. L. CONVEYOR (mm)	2.621	2.621	2.881
H LOADING POINTS OF BED WIDTH (mm)	1.465	1.465	1.465
D MAX REQUIRED SPACE WIDTH (mm)	5.300	5.300	5.300



PRODUCTION LIMIT TABLE

ANGULAR M.O.C.												
MACHINES	IS 4" ¼				IS 5"			IS 5" ½		IS 6" ¼		
CONFIGURATION	SG	DG	TG 3"	TG 3"⅛	SG	DG	TG 85	SG	DG	SG	DG	TG 4"¼
BLOW-BLOW												
MAX HEIGHT UNDER FINISH (mm) (A)	360[1]	305	276	152	360[1]	324	245	380[2]	347	380[2]	347	287
MIN HEIGHT UNDER FINISH (mm) (B)	25	32	59	25	25	56	55	54	68	54	68	38
MAX BODY DIAMETER (mm) WITH STACK-COOLING (C)	178	90	52	60	178	102	62	178	111	178	130	90
MAX BODY DIAMETER (mm) WITH VERTICAL BLOW COOLING (C)	156	76	51	50	156	95	60	156	102	156	121	76
MAX FINISH DIAMETER (mm) (D)	48	48	30	35	48	48	30	48	48	48	48	48
PRESS-BLOW												
MAX HEIGHT UNDER FINISH (mm) (A)	285[1]	282	258	152	285[1]	287	213	326[2]	305	326[1]	305	268
MIN HEIGHT UNDER FINISH (mm) (B)	22	32	47	45	22	48	50	62	58	62	58	38
MAX BODY DIAMETER (mm) WITH STACK-COOLING (C)	178	90	52	60	178	102	62	178	111	178	130	90
MAX BODY DIAMETER (mm) WITH VERTICAL BLOW COOLING (C)	156	76	51	50	156	95	60	156	102	156	121	76
MAX FINISH DIAMETER (mm) (D)	120	83	38	45	120	90	55	120	90	120	105	70

Ware ranges assume the use of standard mold equipment. Absolute minimum or maximum value must be determined individually if these ranges are to be exceeded.

NOTES:
[1] With blow mold stack cooling using Non-Vertical Blow Cooling bottom plates.

[2] With blow mold stack cooling, with or w/o Non-Vertical blow cooling bottom plates.

MACHINES	IS 4" ¼			IS 5"		IS 5" ½	IS 6" ¼	
CONFIGURATION	DG	TG 3"	TG 3"⅛	DG	TG 85	DG	DG	TG 4"¼
NNPB								
MAX HEIGHT UNDER FINISH (mm) (A)	282	258	141	282	213	305	305	268
MIN HEIGHT UNDER FINISH (mm) (B)	32	47	45	48	50	58	58	38
MAX BODY DIAMETER (mm) WITH STACK COOLING (C)	90	52	60	102	62	111	130	90
MAX BODY DIAMETER (mm) WITH VERTICAL BLOW COOLING (C)	76	51	50	95	60	102	121	76
MAX FINISH DIAMETER (mm) (D)	38	38	38	38	38	38	38	38

Ware ranges assume the use of standard mold equipment. Absolute minimum or maximum value must be determined individually if these ranges are to be exceeded.

NOTES:
(1) With blow mold stack cooling using Non-Vertical Blow Cooling bottom plates.

(2) With blow mold stack cooling, with or w/o Non-Vertical blow cooling bottom plates.

PARALLEL M.O.C.

MACHINES	IS-P 6"¼	
CONFIGURATION	**DG 6"¼ (159 mm)**	**TG 4"¼ (108 mm)**
BLOW-BLOW		
MAX HEIGHT UNDER FINISH (mm) (A)	345	308
MIN HEIGHT UNDER FINISH (mm) (B)	98	91
MAX BODY DIAMETER (mm) WITH STACK-COOLING (C)	N/A	N/A
MAX BODY DIAMETER (mm) WITH VERTICAL BLOW COOLING (C)	121	76
MAX FINISH DIAMETER (mm) (D)	48	48
PRESS-BLOW		
MAX HEIGHT UNDER FINISH (mm) (A)	299	289
MIN HEIGHT UNDER FINISH (mm) (B)	78	78
MAX BODY DIAMETER (mm) WITH WITH STACK-COOLING (C)	N/A	N/A
MAX BODY DIAMETER (mm) WITH VERTICAL BLOW COOLING (C)	121	76
MAX FINISH DIAMETER (mm) (D)	105	70
NNPB		
MAX HEIGHT UNDER FINISH (mm) (A)	299	289
MIN HEIGHT UNDER FINISH (mm) (B)	78	78
MAX BODY DIAMETER (mm) WITH WITH STACK-COOLING (C)	N/A	N/A
MAX BODY DIAMETER (mm) WITH VERTICAL BLOW COOLING (C)	120	76
MAX FINISH DIAMETER (mm) (D)	38	38

STANDARD SERVICE REQUIREMENT

ANGULAR M.O.C.

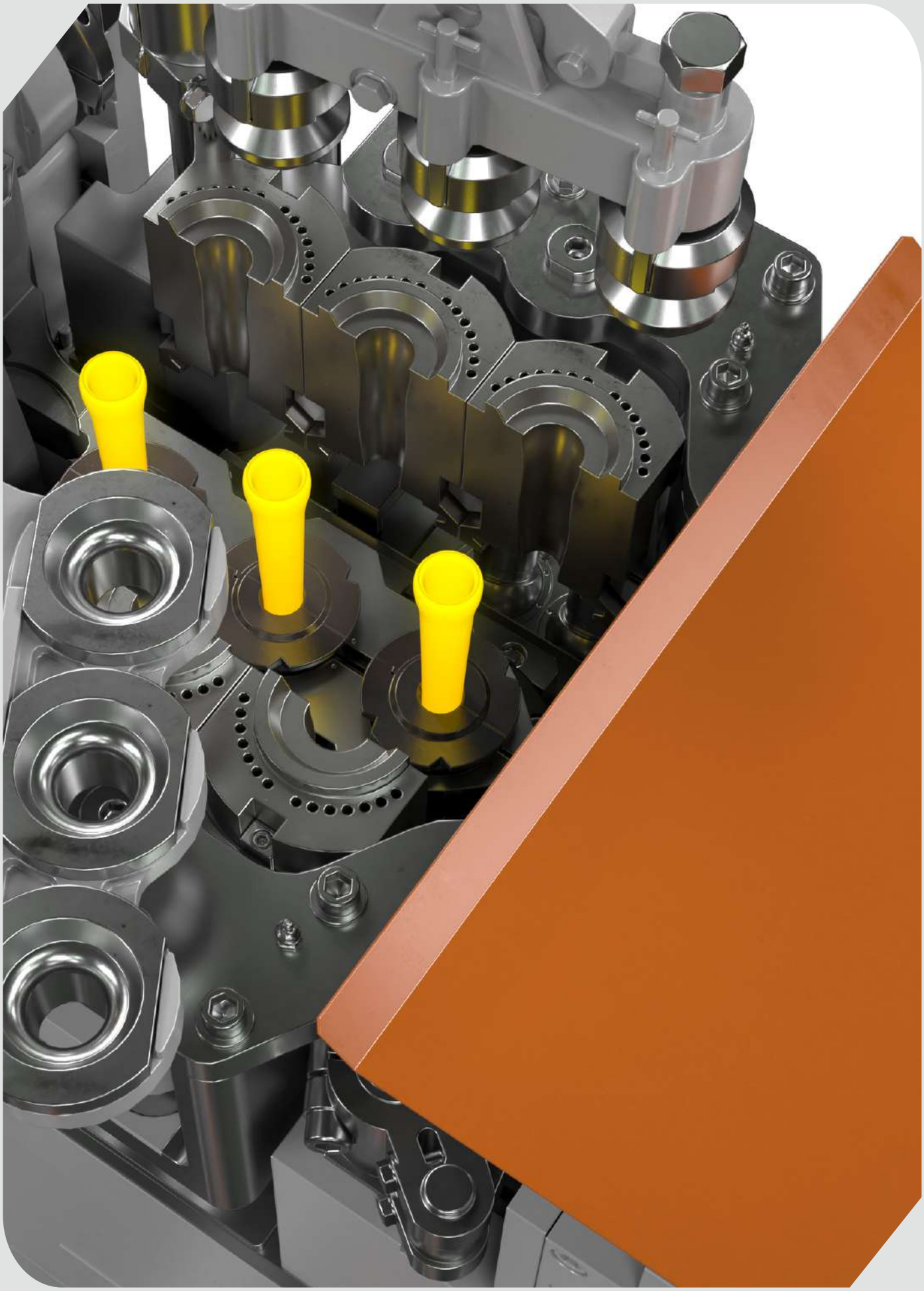
MACHINES			IS-4" ¼ — IS-5"						IS-5" ½ — IS-6" ¼					
	PRESSURE		8		10		12		8		10		12	
	P.S.I.	kg/cm²	ft³/min	Nm³/min	ft³/min	Nm³/min	ft³/min	Nm³/min	ft³/min	Nm³/min	ft³/min	Nm³/min	ft³/min	Nm³/min
L.P. COMPRESSED AIR	34,8	2,4	282	8	353	10	424	12	311	8,8	388	11	466	13,2
H.P. COMPRESSED AIR	50,75	3,5	847	24	1.059	30	1.271	36	1.073	30,4	1.342	38	1.610	45,6
P&B - PLUNGER COOLING*	50,75	3,5	282	8	353	10	424	12	339	9,6	424	12	508	14,4
NNPB - PLUNGER COOLING*	87	6	282	8	353	10	424	12	339	9,6	424	12	508	14,4
VACUUM BLOW MOLD	"25"Hg	635mm Hg	226	6,4	282	8	339	9,6	226	6,4	282	8	339	9,6
VACUUM BLANK SIDE	"25"Hg	635mm Hg	113	3,2	141	4	169	4,8	113	3,2	141	4	169	4,8
MACHINE COOLING AIR	"49" WC	1250mm WC	18.361	520	22.952	650	27.542	780	22.598	640	28.248	800	33.898	960
CONVEYOR COOLING AIR	"26"WC	650mm WC	4.237	120	5.297	150	6.356	180	4.237	120	5.297	150	6.3566	180
COOLING WATER	30	2		15 l/min		15 l/min		15 l/min		15 l/min		15 l/min		15 l/min

PARALLEL M.O.C.

MACHINES			DG 6"¼ - TG 4"¼					
	PRESSURE		8		10		12	
	P.S.I.	kg/cm²	ft³/min	Nm³/min	ft³/min	Nm³/min	ft³/min	Nm³/min
L.P. COMPRESSED AIR	34,8	2,4	311	8,8	388	11	466	13,2
H.P. COMPRESSED AIR	50,75	3,5	1.073	30,4	1.342	38	1.610	45,6
P&B - PLUNGER COOLING*	50,75	3,5	339	9,6	424	12	508	14,4
NNPB - PLUNGER COOLING*	87	6	339	9,6	424	12	508	14,4
VACUUM BLOW MOLD	25*Hg	635mm Hg	226	6,4	282	8	339	9,6
VACUUM BLANK SIDE	25*Hg	635mm Hg	113	3,2	141	4	169	4,8
MACHINE COOLING AIR	55* WC	1400mm WC	19.209	544	24.011	680	28.813	816
CONVEYOR COOLING AIR**	26*WC	650mm WC	4.237	120	5.297	150	6.356	180
COOLING WATER	30	2,1		15 l/min		15 l/min		15 l/min

* For PB-NNPB plunger cooling pressures above 3.15 Kg/cm2 (if required by the customer)
** Valure referred to Stack Cooling blank side and Vertiflow blow side
*** Valure referred to Axial Cooling blank side and Axial Cooling or Vertiflow blow side

- Quantities specifed are free air (21°C-70°F and 1 Kg/cm2-14.7 p.s.i.)
- The operating air supply must be clean and dry (it is required the installation of drying and filter system before the piping connection to the machine with an effciency of 98% and a nominal retention of 4 ÷ 10 µ)
- Maximum temperature of compressed air supply to the machine = 80°C
- Minimum temperature of compressed air supply to the solenoid valve block = 10°C • Pilot air (Valve Block) 0.5 m3/min of free air at 21°C (clean, oil and water free) • Dew point of compressed air: -5 ÷ -2 °C
- Water hardness 100 parts CaCO3 per 1,000,000 parts of water (P.P.M.)



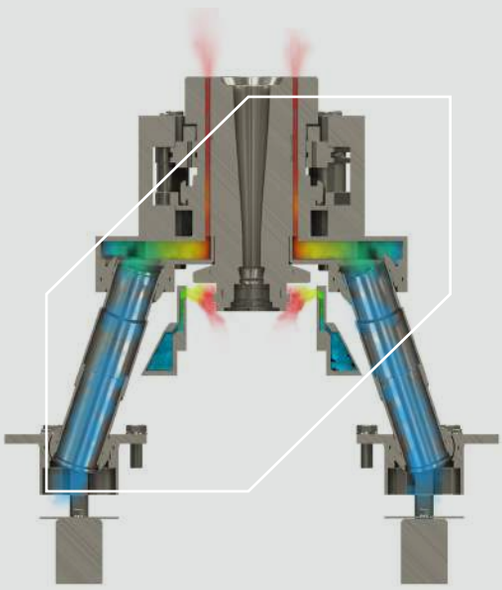
Mould Cooling

IS ANGULAR AXIAL COOLING SYSTEM ON IS DG 5”½ - IS DG 6”¼ TG 4”¼

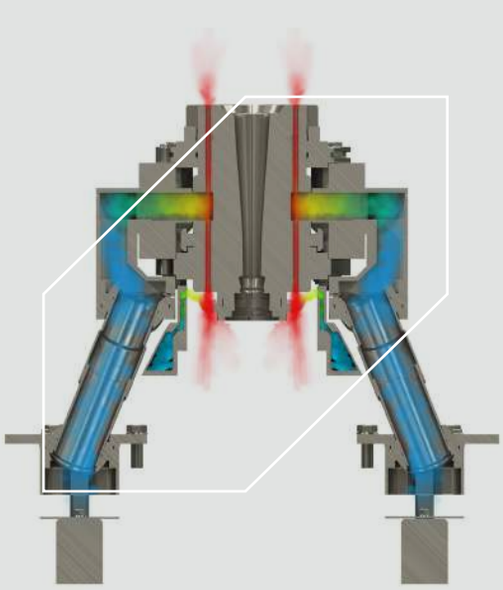
Improved cooling efficiency and thermal homogeneity by maintaining standard moulds and equipment:

- Use of standard moulds designed for stack-cooling (radial)
- Use of standard mould holders, arms, plates, or inserts
- Dual on-off valve for blank cooling and neck-ring cooling (blank side)
- Neck-ring cooling design with standard nozzles and spacers (blank side)
- Telescopic tube with quick self centering clamping system

Mould Cooling



Mould Cooling



DOWN-UP BLANK AXIAL COOLING

- Dedicated plenum chamber shaped according mould’s diameter and height
- One cooling air flow direction: from bottom to top

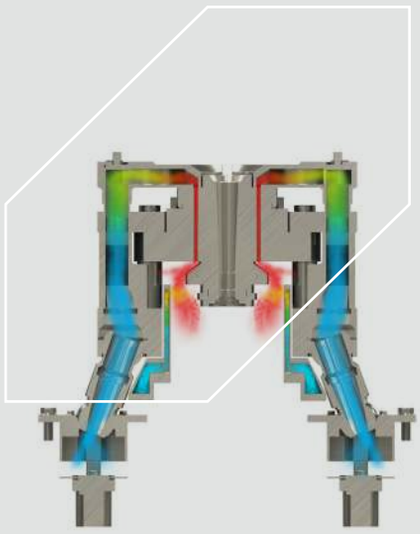
BLANK AND BLOW BIDIRECTIONAL AXIAL COOLING

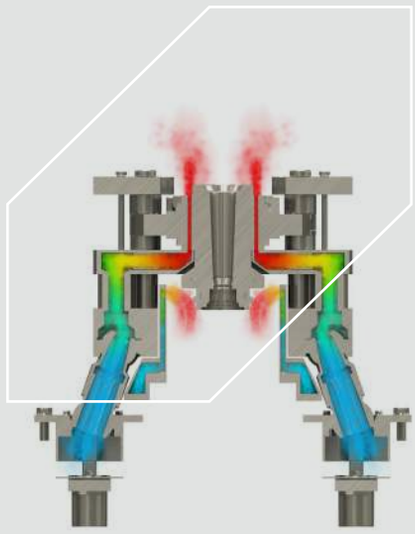
- Dedicated plenum chamber shaped according mould’s diameter and height
- Two separated cooling air flows (upwards and downwards) with independent air volume optimization
- Available for blank and blow side

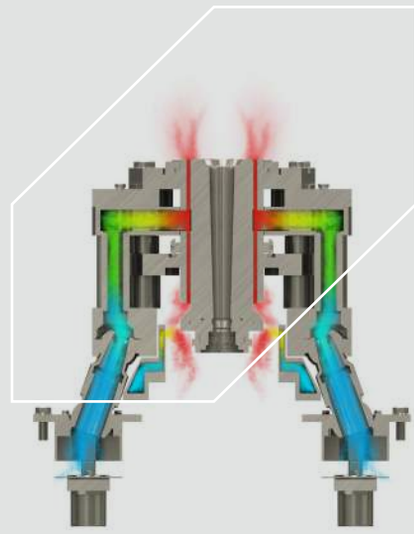
IS-P DG 6” ¼ - TG 4” ¼ PARALLEL M.O.C. AXIAL COOLING SYSTEM

Improved cooling efficiency and thermal homogeneity

- Indipendent valve for blank cooling and neck-ring cooling (blank side)
- Double telescopic tube with a quick self centering clamping system







BLANK TOP-DOWN AXIAL COOLING

- Dedicated plenum chamber shaped according to mould’s diameter and height
- One cooling airflow direction: from top to bottom

BLANK DOWN-UP AXIAL COOLING

- Dedicated plenum chamber shaped according to mould’s diameter and height
- One cooling airflow direction: from bottom to top

BLANK AND BLOW BIDIRECTIONAL AXIAL COOLING

- Dedicated plenum chamber shaped according to mould’s diameter and height
- Two separated cooling airflow (upwards and downwards) with independent air volume optimization

IS Machine

Timing Systems

ADV SERIES
E-SAVE SYSTEM

- Complete **integrated control system** for control of the entire machine operation from stirrer to ware handling
- Real-time **telediagnostic**
- Automatic set up of feeder mechanism, gob distributor mechanism, machine, transport line, articles rejected according to the production changes
- Open system with **field bus architecture**
- Modular machine and industrial standard for Hw and Sw, with centralised, decentralised, and with **distributed intelligence**
- Full integration of BDF stand-alone systems in 3rd part-timer

ADV 1050

- User friendly
- Low-cost basic functions
- Possible Servo Feeder Control
- From 4 up to 12 sect,
- Single gob, Double Gob, Triple Gob.
- Tandem Capability

The Control is made up of One CPU per section controller for every 4 sections, Independent MS and EME-Stop with certified safety relay per each section, and servo motor to fit CE safety requirements, Ethernet communication, and remote access.

Machine Controls for Servo Plunger, Servo Parallel Shear, Servo Gob Distributor; on demand: Servo Tube Height Positioning and Servo Tube Rotation.

Integrated Drive Controller For Mechanical Feeder (when the Servo Feeder is not present), Conveyor, Transfer, and Cross Conveyor.

The Section Controller has 48 outputs, Free assignable events to outputs with attributes for blank or blow side, Integrated electric pusher with step motor, Individual Ware-Rejection with manual or automatic stop, and Special cycles.

ADV 8050

- Servo Mechanisms Control
- Stand Alone Mechanisms Control
- IWS and PMPC Close loop Control
- Energy Saving With AFE Technology • From 6, up to 12 sect
- Single, Double, Triple or Quad Gob
- Tandem Capability

The Control is made up of and individual section controller and 24 VDC power supply (one per section), Independent MS, and E-Stop with robust safety relay per section, and servo motor to meet CE requirements, Ethernet communication, and remote access through the internet or telephone modem.

Machine Integrated controls for Servo Plunger, Servo Tube Height Positioning, Servo Tube Rotation, Servo Arcuate Shear, BDF Three Axis Servo, Servo Parallel Shear, Servo Gob Distributor, BDF-CWD Conveyor Ware Detector Integrated Drive Controller For Mechanical feeder, Conveyor, Transfer, Cross conveyor, BDF Dual Axes servo stacker.

E-SAVE ENERGY SAVING SYSTEM
AFE DC BUS

We consider a complete BDF system equipped with a servo plunger, servo shears, servo gob, servo pusher, servo invert, and servo take-out mechanisms.

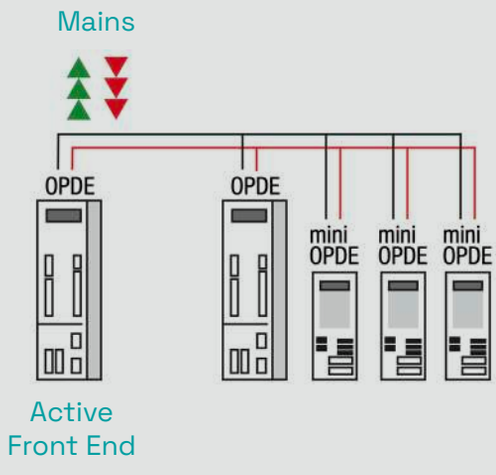
Considering the system from a mechanical point of view, there is a continuous energetic inertial change due to the continuous mechanisms of acceleration and deceleration.

We may say that for every movement the energy needed for the acceleration is balanced with the energy needed for the deceleration, more energy to compensate for the mechanical and electronic losses. These losses are functions of the machine's speed. As the servomechanisms movements are not in the same time, the excesed energy is recovered on the CC BUS.

The system takes from the main line only the energy to compensate for all the losses (passive energy) that are not compensated by the recovered energy.
The system transfers from the main line to the BUS full power (without cutting) with cosϕ=1.

The sinusoidal current is without low harmonic (remaking signal), and the only harmonic signal present is very low and with high frequency, because depends on the modulation frequency (PWM signal).
The converter system on the BDF control cabinet is reversible and recovers the mini OPDE Hydro Power AFE Regenerated Power
(kW) Inverter energy on the BUS line.

- Sinusoidal line current with reduction of the harmonic current distorsion THDi
- Compensation for line voltage variations
- Energy saving
- DC BUS Control also with power line voltage fluctuations
- Regenerative capability thus to make power flow in both directions.



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