

# BST

## TRANSFER ARM

for Sidel® Series1 & Series2 Blow Molding Machines



**BST1**  
for Sidel® Series1

- Long life robust design
- Improved precision
- Reduces maintenance and downtime



**BST2**  
for Sidel® Series2

BST2xx-5-1x90  
(Shimmed Vertical Adjustment - Standard)



BST2xx-5-1x90-AP  
(Threaded Vertical Adjustment - AP Option)

**ISO-9001  
CERTIFIED**

Quality Management  
System Certified

BST03



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MAC Distributor Network

**phd**   
SOLUTIONS FOR INDUSTRIAL AUTOMATION

[www.phdinc.com](http://www.phdinc.com)

# ORDERING DATA: SERIES BST1 TRANSFER ARM

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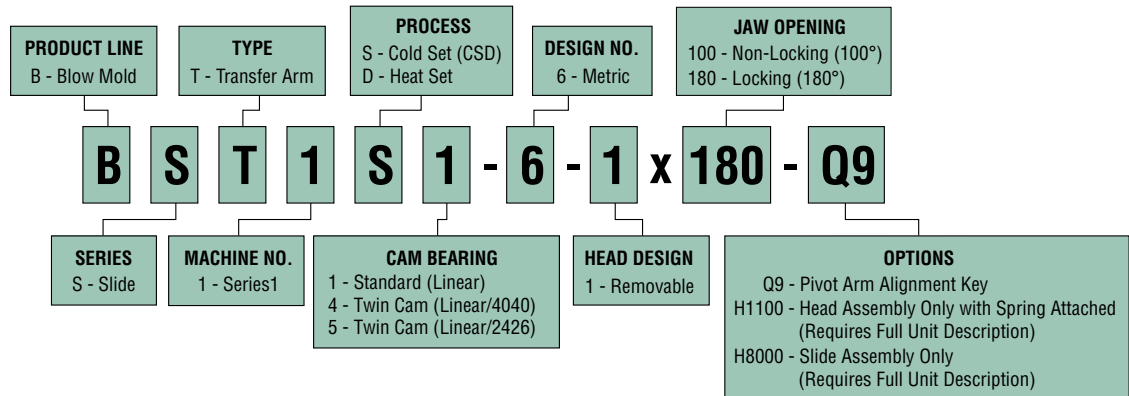
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### Series BST2

Pages 8 to 15

#### TO ORDER SPECIFY:

Product Line, Series, Type, Machine No., Process, Cam Bearing, Design No., Head Design, Jaw Opening and Options if required.



## RECOMMENDATIONS

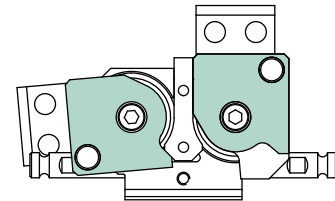
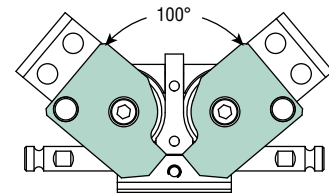
Care must be taken with the newer style preforms to ensure that the fingers match the profile of the finish being processed.

### 100° JAW OPENING (NON-LOCKING)

The gripper head utilizes an external extension spring and has a maximum opening angle of 100°. This head design is non-locking in the full open position. The unit can be converted to a 190° locking design simply by replacing the left and right jaws.

### 180° JAW OPENING (LOCKING)

The gripper head utilizes an external extension spring and has a maximum opening angle of 190°. This head design will cause the jaws to lock open once they are rotated past 180°. This jaw design can make performing maintenance easier by allowing the jaw to stay open while manually rotating the transfer arm table. The unit can be converted to a 100° non-locking design simply by replacing the left and right jaws.



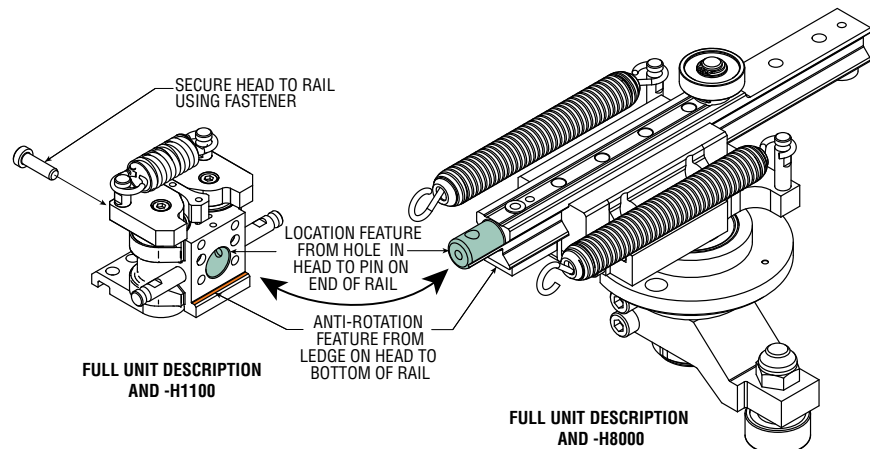
**WARNING:** See maximum open length on page 6. Jaws may be rotated only until the spring reaches the maximum open length. Exceeding this length will weaken or damage the spring.

## REMOVABLE HEAD DESIGN HEAD TO ARM POSITIONING

The BST1xx1-6 head to rail arm design consists of a precision rail arm dowel pin that interfaces with and accurately positions the transfer arm head axially onto the rail arm assembly.

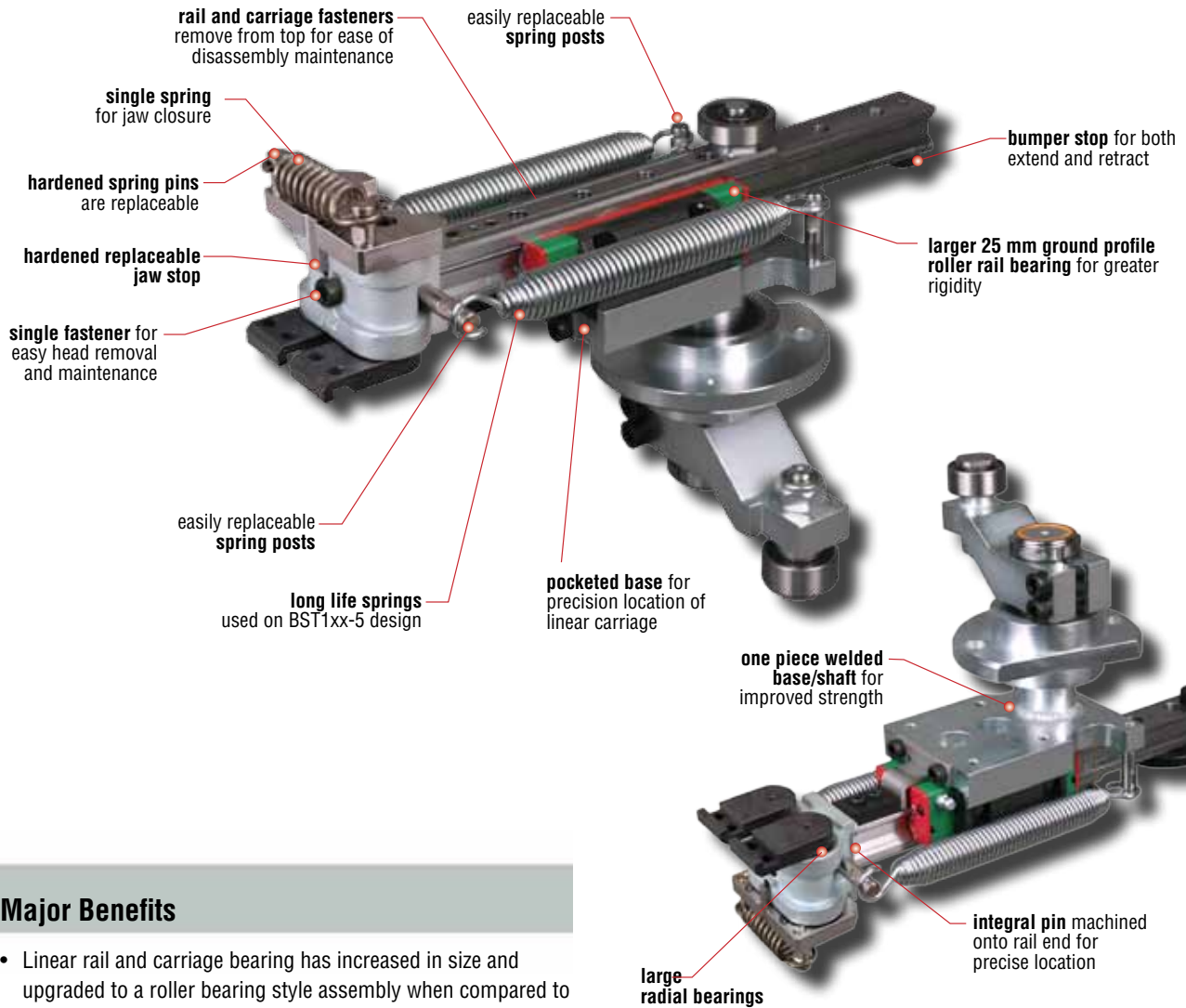
A locating edge on the bottom of the head radially orients and keeps it from rotating.

This quick head change feature allows the head and arm to be easily and quickly maintained.





## 100°/180° JAW OPENING



### Major Benefits

- Linear rail and carriage bearing has increased in size and upgraded to a roller bearing style assembly when compared to PHD's previous design
- Base and shaft have been incorporated into a weldment
- Head is designed with large radial bearings for increased rigidity and long life
- Hardened replaceable jaw stop for ease of repair and cost considerations
- Jaw and retract springs are manufactured especially for PHD, providing greater life
- All spring return pins are hardened and replaceable for ease of repair and cost considerations
- Unit is designed to operate over 20 million cycles
- Lighter in overall weight than OEM arm



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# ENGINEERING DATA: SERIES BST1 TRANSFER ARM

SPECIFICATIONS	IMPERIAL	METRIC
SERIES	Sidel® Series1 Replacement	
OPERATION	Cam Operated, Spring Return	
LINEAR BEARING SYSTEM	Steel Ground Profile Rail with Recirculating Roller Bearings	
LUBRICATION	FDA Regulation 21 CFR 1789.3570 on Linear Rail	
AMBIENT TEMPERATURE	-20° to 180° F	-29° to 82° C
GRIP FORCE AT TOOLING*		
COLD SET (CSD)	6.7 lb	29.8 N
HEAT SET	11.9 lb	52.9 N
EXTENSION SPRING FORCE**		
FULL RETRACT	20 lb	89.0 N
FULL EXTEND	47.4 lb	210.9 N
WEIGHT	11.4 lb	4.3 kg
STROKE	3.576 in	90.0 mm

\*See page 6 for alternate grip force springs.

\*\*Each spring provides 1/2 of total retract force.

## LIFE EXPECTANCY

Series BST Transfer Arms are designed for over 20 million trouble-free cycles with proper maintenance.

## MAINTENANCE

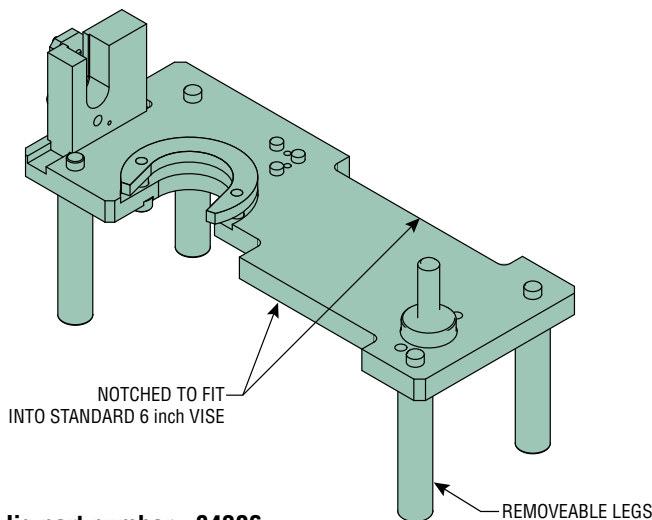
As with most PHD products, these transfer arms are field repairable. Repair kits, jig, and main structural components are available as needed for extended service.

## LUBRICATION

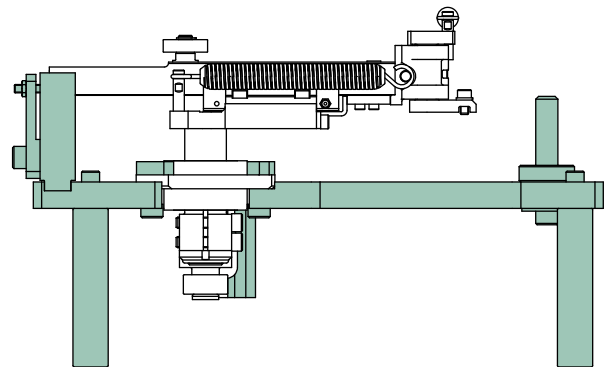
The Series BST Transfer Arm linear bearing system is lubricated with FDA-approved food grade lube which provides extended life. Lubrication of the bearing system every six months is recommended. Lubricant is available from PHD. Refer to repair procedures.

## SETUP TOOLING

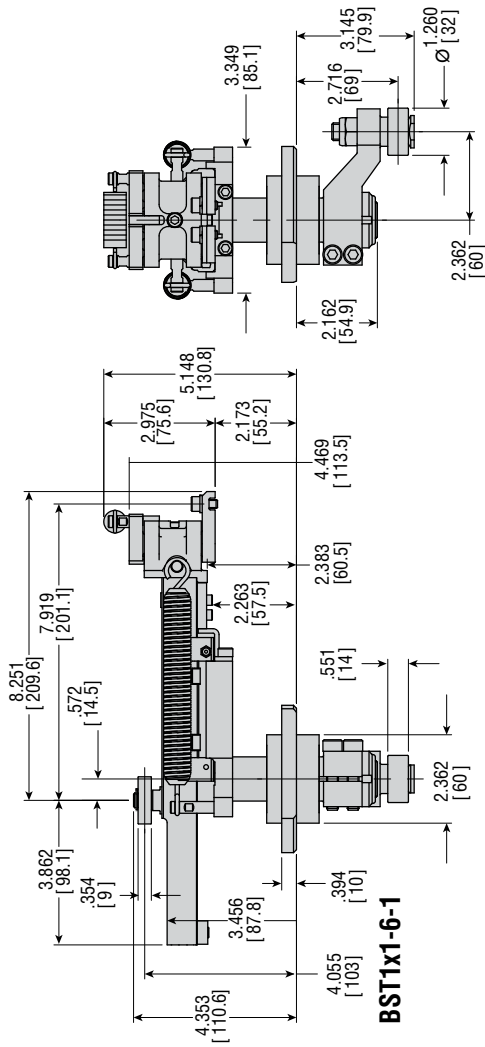
Optional jig kits are available to verify and re-align transfer arms as needed in the field.



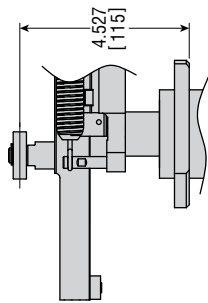
Jig part number - 84306



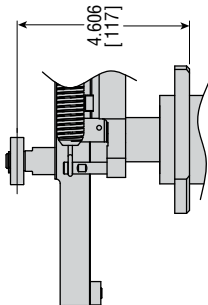
# DIMENSIONS: SERIES BST1 TRANSFER ARM - 100°/ 180° HEAD



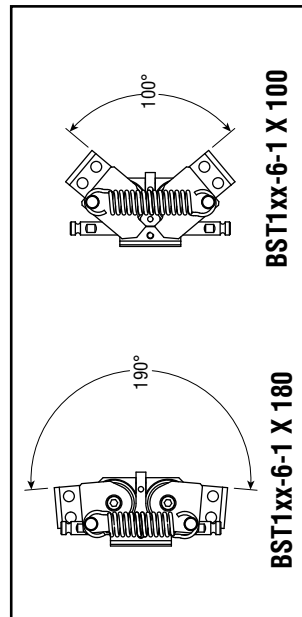
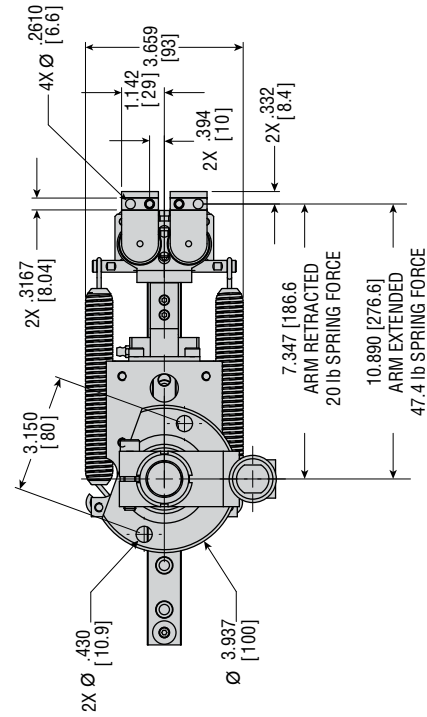
**BST1x1-6-1**



**BST1x4-6-1**



**BST1x5-6-1**



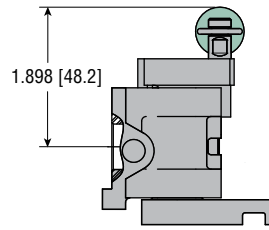
**NOTES:**  
 1) ALL DIMENSIONS ARE FOR REFERENCE ONLY  
 2) DIMENSIONS IN [ ] INDICATE VALUES IN mm  
 3) NOMINAL TRAVEL OF SLIDE IS 3.731 [94.8]

# PROCESSES & OPTIONS: SERIES BST1 TRANSFER ARM

## S COLD SET (CSD) PROCESS

### 100°/180° JAW OPENING

External extension springs provide the necessary grip force for Cold Set (CSD) bottle processes.

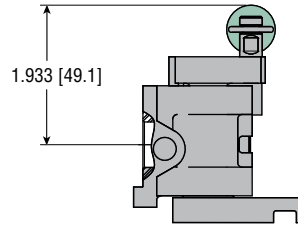


For forces, see engineering data page or alternate head spring at bottom of page.

## D HEAT SET PROCESS

### 100°/180° JAW OPENING

External extension springs with heavier spring force provide the necessary grip force for heat set bottle processes.



For forces, see engineering data page or alternate head spring at bottom of page.

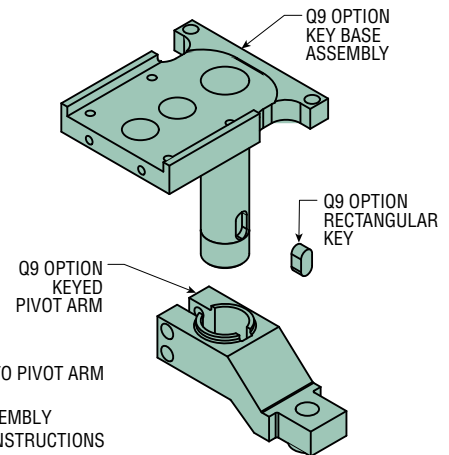
## Q9 FACTORY INSTALLED PIVOT ARM ALIGNMENT KEY

Factory installation of the key provides locking of pivot arm.

**WARNING:** Pivot arm alignment key is for alignment purposes only and is not intended as a safety shear coupling. If the Sidel® machine's torque limiter is set incorrectly, damage to the transfer arm may occur if the arm is contacted during machine operation.

**NOTE:** KEYWAY IS NOT PROVIDED AS STANDARD. IF -Q9 OPTION IS NOT ORDERED, THE TRANSFER ARM MUST BE JIG SET. THE KIT CAN BE ORDERED SEPARATELY FOR FIELD RETROFIT IF REQUIRED. SEE "KIT INCLUDES" FOR COMPONENTS.

\* KIT 84505 INCLUDES: 1 - RECTANGULAR KEY - SHAFT TO PIVOT ARM  
1 - KEYED PIVOT ARM  
1 - KEYED BASE WELDMENT ASSEMBLY  
1 - DISASSEMBLY / ASSEMBLY INSTRUCTIONS



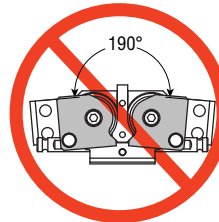
## ALTERNATE HEAD SPRINGS

Listed in the chart below are alternative PHD designed springs for BST1xx-6 jaws. This list provides the customer with a variety of differing force springs that fit onto the posts of the transfer arm head. The springs are color coded for ease of identification with NSF registered DYKEM®.

**NOTE:** PHD highly recommends the application of lubrication applied to the inside of the spring hooks and the post grooves for maximum life.

Forces are calculated based on dimension from the center of the shafts to the center of the preform/bottle as shown in Figure 1. If tooling is longer or shorter than that shown, grip force will vary from the list given.

Consult PHD for grip force other than listed.



**WARNING:** See maximum open length "A" in chart below. Jaws may be rotated only until the spring reaches the maximum open length "A". Exceeding this length will weaken or damage the spring.

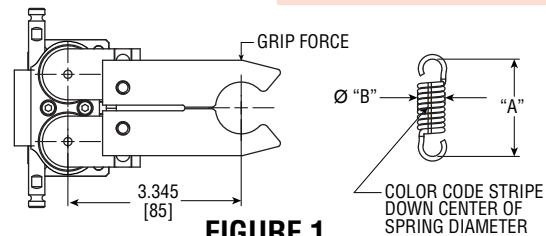




FIGURE 1

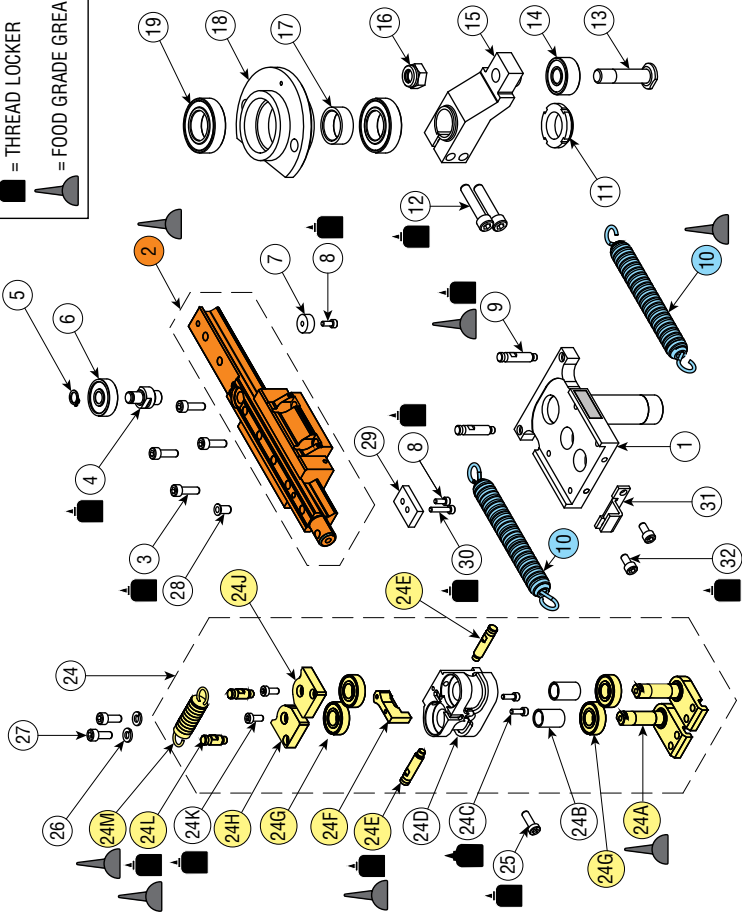
PHD Part #	Grip Force		Stripe Color	Stripe Qty	Standard PHD Use	Free State Dimension "A"		Maximum Open Length "A"		Dimension "Ø B"	
	lbs	N				Inch	mm	Inch	mm	Inch	mm
83884	3.4	15.1	Yellow	1	-	2.179	55.3	2.450	62.2	0.748	19.0
76655	5.1	22.7	Green	2	-	1.935	49.1	2.684	68.2	0.554	14.1
77602	6.7	29.8	White	1	BST1 Cold Set	1.721	43.7	2.935	74.6	0.600	15.2
84491	9.4	41.8	Yellow	2	-	2.061	52.3	2.450	62.2	0.663	16.8
77603	11.9	52.9	White	2	BST1 Heat Set	1.855	47.1	2.935	74.6	0.670	17.0

**NOTE:** Pull out forces are related to grip forces but will vary depending on finger tooling design. PHD springs will allow process refinement for both bottle and preform transfer.

# PARTS LIST & REPAIR KITS: SERIES BST1 TRANSFER ARM

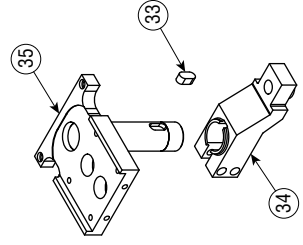
KEY	PART DESCRIPTION	PART NO.	
		BST1x1-6	BST1x5-6
1	Weldment Base Assembly Rail & Carriage Assembly	83780	83780
2	Carriage to Base SHCS	Sold as part of Rail & Carriage Assembly Repair Kit 14308-118	
3	Bearing Mounting Shaft	83783	84313
4	Retaining Ring	63462-008	
5	Upper Cam Bearing	2334-047	
6	Bumper	83796	
7	Bumper to Carriage Rail SHCS	14308-019	
8	Spring Holder Pin	83784	
9	Extension Spring	Sold as part of Extension Spring Kit	
10	Lock Nut	75556	
11	Pivot Arm SHCS	14308-031	
12	Lower Cam Bearing Shaft	75552	
13	Lower Cam Bearing	2334-041	
14	Pivot Arm	85004	
15	Nylon Insert Locking Nut	65759-007	
16	Bearing Spacer	75548	
17	Mounting Flange	75544	
18	Mounting Flange Bearing	2334-013	
19	Head Assembly	84667	
20	Jaw Shaft	81393	
21	Bearing Spacer	14308-019	
22	Body to Tang SHCS	83789	
23	Body	86120	
24	Body Spring Holder Pin	83794	
25	Jaw Bearing	2334-050-01	
26	Left Jaw	Full unit description required followed by -H1100	
27	Right Jaw	Full unit description required followed by -H1100	
28	Left / Right Jaw to Shaft LHCS	14308-416	
29	Jaw Spring Holder Pin	83795	
30	Jaw Extension Spring	14308-436	
31	Head to Rail LHCS	61745-002	
32	Split Lock Washer	14308-033	
33	Finger to Jaw SHCS	84771	
34	Metric Rivit Nut	84772	
35	Shock Pad	14308-091	
36	SHCS	84773	
37	Shock Pad Stop Bracket	14308-115	
38	SHCS	84773	
39	Shaft Key	Sold as part of Pivot Arm Alignment Kit	
40	Keyed Pivot Arm	85511	
41	Keyed Weldment Base Assembly	84504	

 = THREAD LOCKER  
 = FOOD GRADE GREASE



## KITS

KIT DESCRIPTION	KIT NUMBER
Pivot Arm Alignment Key Kit	84505 (See page 6)
Jig Kit	84306 (See page 4)
Rail & Carriage Assembly Repair Kit	84307
Head Repair Kit - Cold Set (CSD), 180°	84308-01
Head Repair Kit - Heat Set, 180°	84308-02
Head Repair Kit - Cold Set (CSD), 100°	84308-03
Head Repair Kit - Heat Set, 100°	84308-04
Spring Extension Spring Kit	77304
Cam Shaft Bearing Replacement Kit	84311
Twin Cam Shaft Bearing Replacement Kit (4040)	84312
Twin Cam Shaft Bearing Replacement Kit (2426)	84700
Jig Conversion Kit	85306



# ORDERING & ENGINEERING DATA: SERIES BST2 TRANSFER ARM

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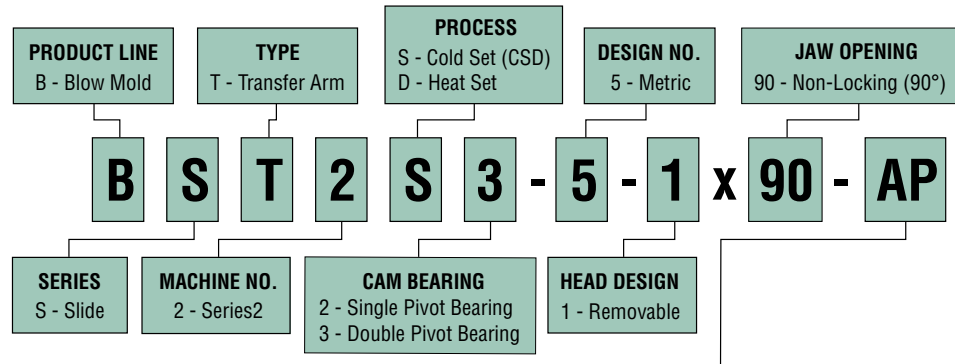
Processes & Options  
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Accessories & Kits  
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Parts List & Repair Kits  
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### TO ORDER SPECIFY:

Product Line, Series, Type, Machine No., Process, Cam Bearing, Design No., Head Design, Jaw Opening and Options if required.



OPTIONS
AP - Threaded Vertical Height Adjustment
KS - Shim Height Adjustment Installed
H110 - Head Assembly with Spring Installed, No Clamp (Requires Full Unit Description)
H115 - Head Assembly with Spring and Clamp Installed (Requires Full Unit Description)
H116 - Head Assembly Only, No Spring, No Clamp (Requires Full Unit Description)
H117 - Head Assembly with Clamp Installed, No Spring (Requires Full Unit Description)
H800 - Slide Assembly Only (Requires Full Unit Description)

## RECOMMENDATIONS

Care must be taken with the newer style preforms to ensure that the fingers match the profile of the finish being processed.

SPECIFICATIONS	IMPERIAL	METRIC
SERIES	Sidel® Series2 Replacement	
OPERATION	Cam Operated, Spring Return	
LINEAR BEARING SYSTEM	Steel Ground Profile Rail with Recirculating Roller Bearings	
LUBRICATION	FDA Regulation 21 CFR 1789.3570	
AMBIENT TEMPERATURE	-20° to 180° F	-29° to 82° C
GRIP FORCE AT TOOLING*	3.4 to 9.4 lb	15.1 to 41.8 N
EXTENSION SPRING FORCE		
FULL RETRACT	14 lb	62.3 N
FULL EXTEND	45 lb	200.2 N
WEIGHT - STANDARD UNIT	13.1 lb	4.9 kg
WEIGHT - AP ADJUSTABLE UNIT	13.8 lb	5.2 kg
STROKE	3.543 +.472/- .551 in	90 +12/-14 mm

\*See page 14 for alternate grip force springs.

## LIFE EXPECTANCY

Series BST Transfer Arms are designed for over 20 million trouble-free cycles with proper maintenance.

## MAINTENANCE

As with most PHD products, these transfer arms are field repairable. Repair kits and main structural components are available as needed for extended service.

## LUBRICATION

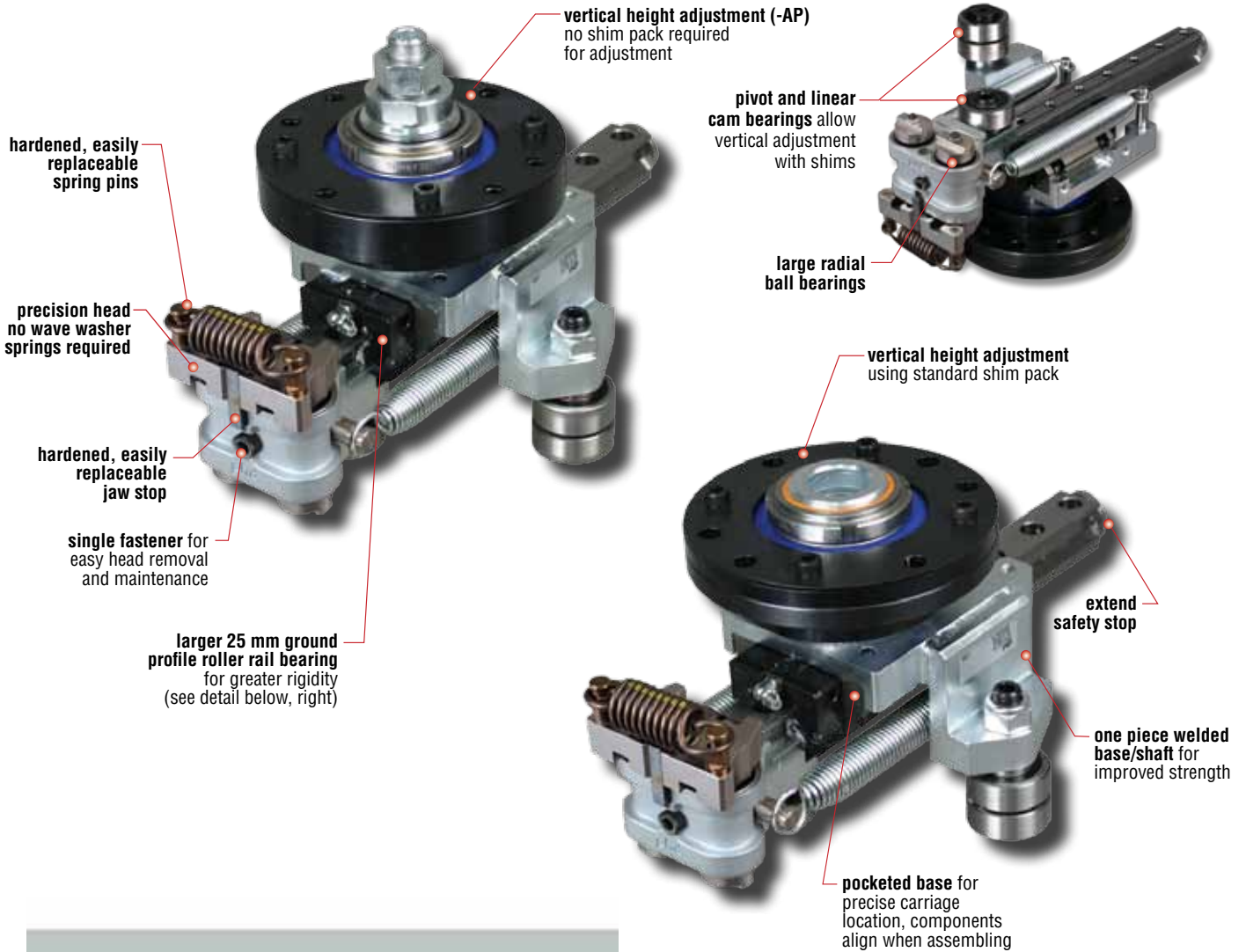
The Series BST Transfer Arm linear bearing system is lubricated with FDA-approved food grade lube which provides extended life. Lubrication of the bearing system every six months is recommended. Lubricant is available from PHD. Refer to repair procedures.



# SERIES BST2 TRANSFER ARM



## 100°/180° JAW OPENING



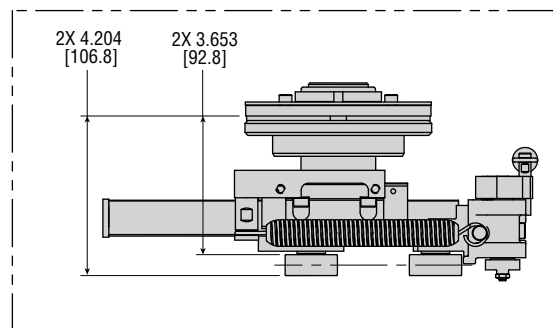
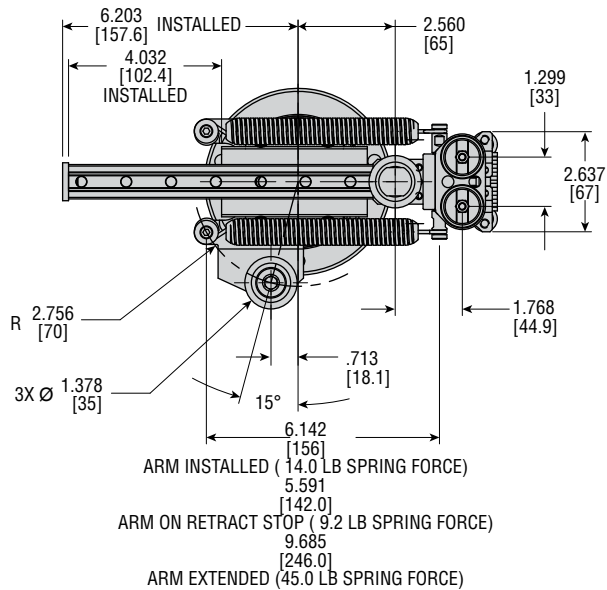
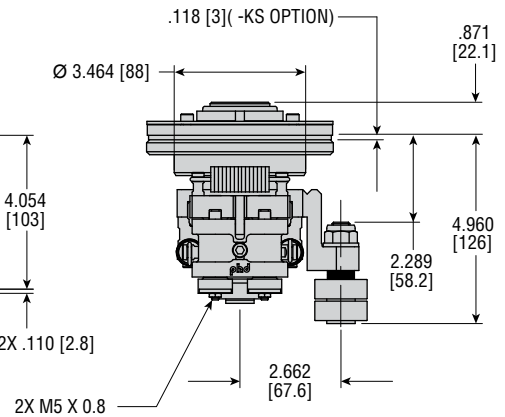
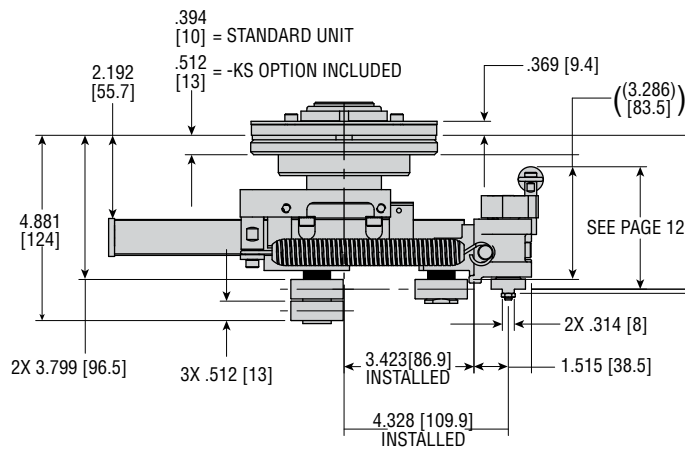
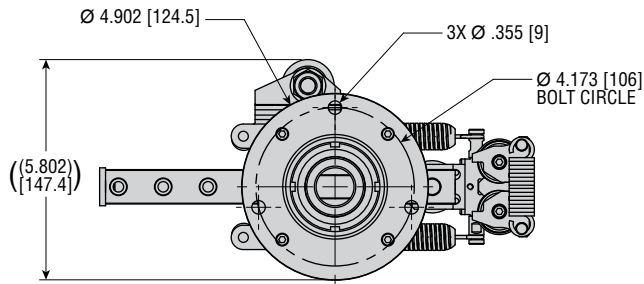
### Major Benefits

- Threaded vertical height adjustment eliminates need for shim pack, which greatly reduces setup adjustment time (-AP option)
- Linear rail and carriage bearing has increased in size and upgraded to roller bearing style assembly
- Base, shaft, and pivot incorporated into one piece weldment
- Head is designed with large radial bearings for increased rigidity and long life
- Hardened replaceable jaw stop for ease of repair and cost considerations
- Jaw and retract springs manufactured especially for PHD, providing greater life
- All spring return pins hardened and replaceable for ease of repair and cost considerations
- Unit is designed to operate over 20 million cycles



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# DIMENSIONS: SERIES BST2xx-5 TRANSFER ARM

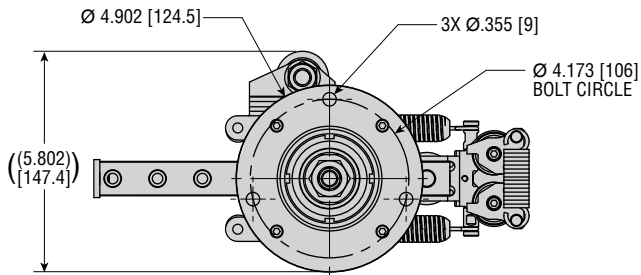


## FOR BST2X2-5 UNITS

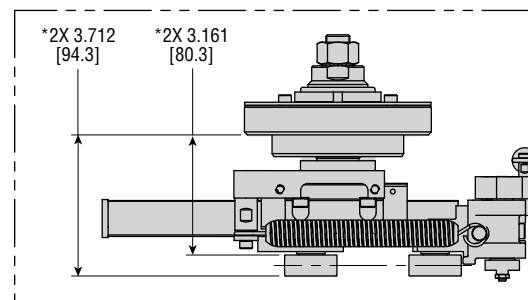
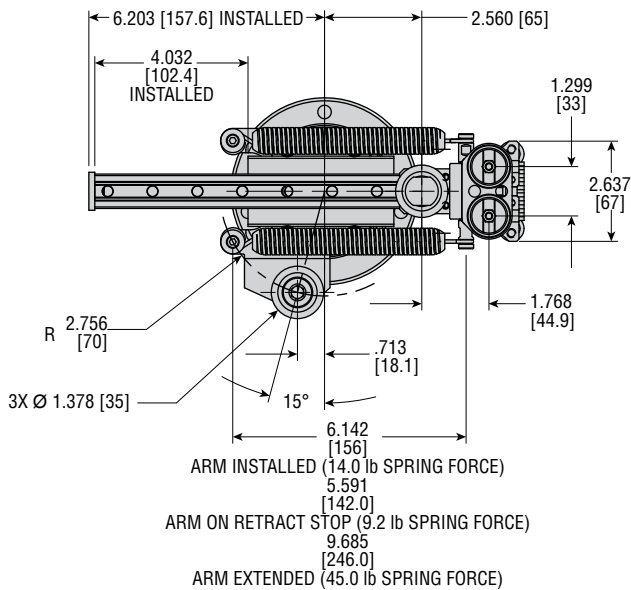
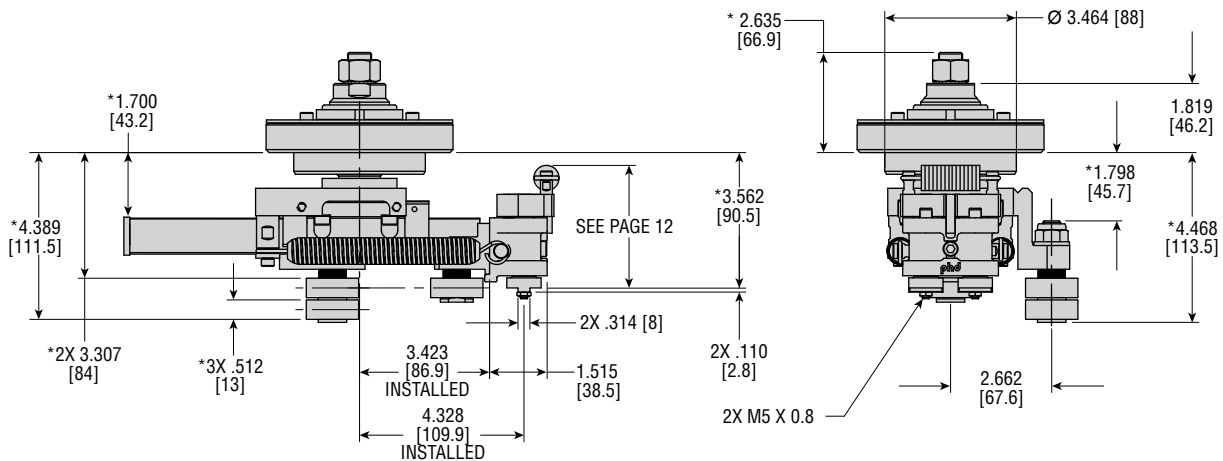
### NOTES:

- 1) ALL DIMENSIONS ARE REFERENCE ONLY
- 2) DIMENSIONS IN [ ] INDICATE VALUES IN mm
- 3) JAW ROTATION IS  $90^\circ$  TOTAL,  $45^\circ$  EACH JAW
- 4) MAXIMUM TRAVEL OF SLIDE IS  $4.567$  [116.0]
- 5) UNIT DESIGNED FOR STROKE OF  $3.543$  [90.0]
- 6) RETRACT OVERTRAVEL IS  $.551$  [14.0]
- 7) EXTEND OVERTRAVEL IS  $.472$  [12.0]

# DIMENSIONS: SERIES BST2xx-5 WITH-AP OPTION



\* = VERTICAL HEIGHT ADJUSTMENT DIMENSIONS THAT WILL CHANGE +/- .1575 [4mm] (ONE FULL TURN IS EQUAL TO .0394 [1mm])



## FOR BST2X2-5 UNITS

### NOTES:

- 1) ALL DIMENSIONS ARE REFERENCE ONLY
- 2) DIMENSIONS IN [ ] INDICATE VALUES IN mm
- 3) JAW ROTATION IS 90° TOTAL, 45° EACH JAW
- 4) MAXIMUM TRAVEL OF SLIDE IS 4.567 [116.0]
- 5) UNIT DESIGNED FOR STROKE OF 3.543 [90.0]
- 6) RETRACT OVERTRAVEL IS .551 [14.0]
- 7) EXTEND OVERTRAVEL IS .472 [12.0]

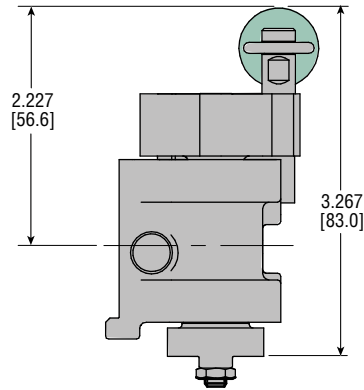
# PROCESSES & OPTIONS: SERIES BST2 TRANSFER ARM



## COLD SET (CSD) PROCESS

### 90° JAW OPENING

External extension springs provide the necessary grip force for Cold Set (CSD) bottle processes.



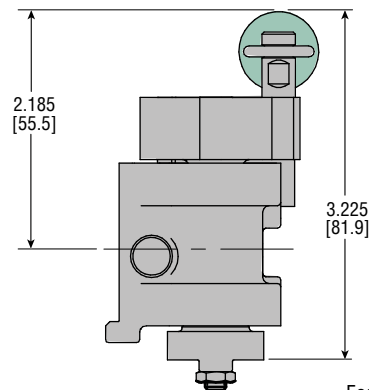
For forces, see engineering data on page 8 or alternate head spring at top of page 14.



## HEAT SET PROCESS

### 90° JAW OPENING

External extension springs with heavier spring force provide the necessary grip force for heat set bottle processes.



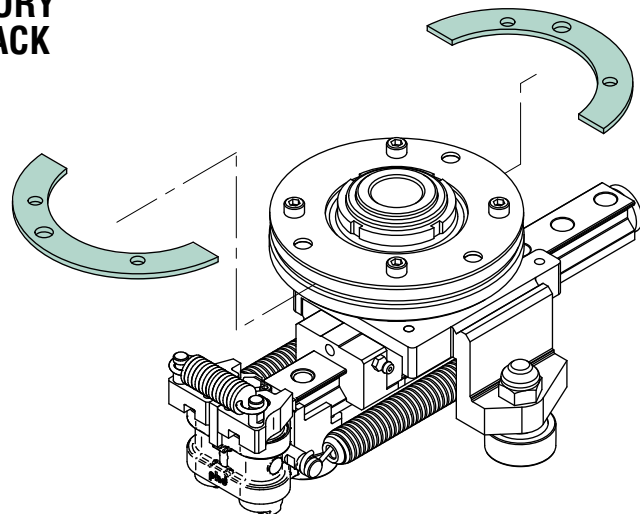
For forces, see engineering data on page 8 or alternate head spring at top of page 14.



## SHIM HEIGHT ADJUSTMENT FACTORY INSTALLED FLANGE BASE SHIM PACK

A factory installed flange base shim pack is required for transfer height setup in the machine. This option allows for vertical adjustment of the unit.

**NOTE:** Standard unit does not include flange shim spacers. PHD offers this in kit form (see page 14). Sidel® shims are interchangeable with the PHD transfer arm.



KIT DESCRIPTION	KIT NUMBER
Flange Base Shim Kit	84916

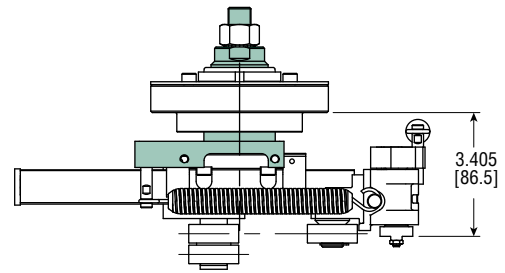
# PROCESSES & OPTIONS: SERIES BST2 TRANSFER ARM



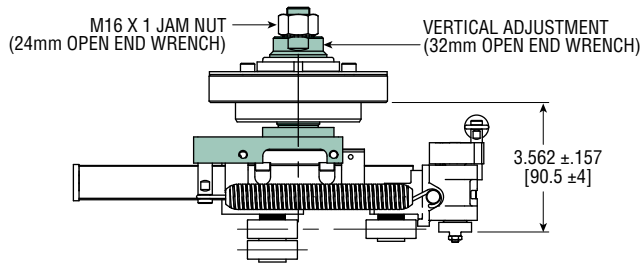
## THREADED VERTICAL HEIGHT ADJUSTMENT

This option allows for fast and easy vertical height adjustment once the unit is positioned in the machine. There is no need to remove the unit from the machine while adjusting the height. This option eliminates the need for a shim pack.

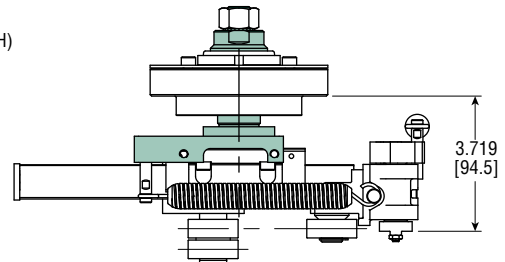
**NOTE:** One full turn is equal to .0394 in [1mm] adjustment.



UNIT SHOWN AT HIGHEST POSITION



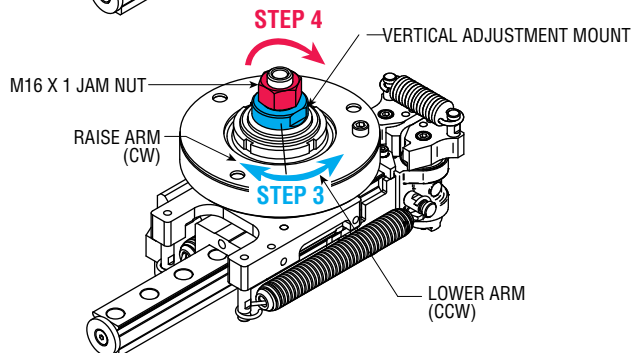
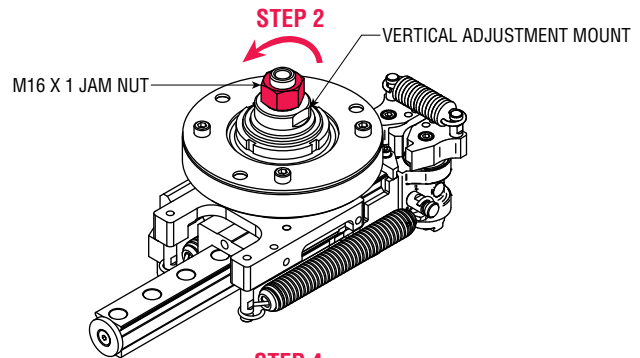
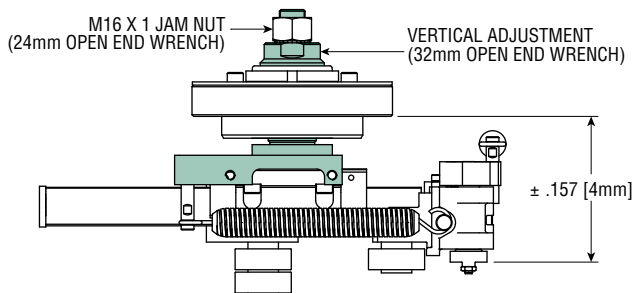
UNIT SHOWN AT MID POSITION



UNIT SHOWN AT LOWEST POSITION

## HEIGHT ADJUSTMENT PROCEDURES

- 1) Install the arm into the machine.
- 2) Using a 24mm box end wrench, loosen the locking nut.
- 3) Using a 32mm open end wrench, rotate the vertical adjustment mount to adjust the arm height until the jaw fingers are at the proper height over the mold. Clockwise (CW) movement will raise the arm, counterclockwise (CCW) will lower the arm. The arm has a range of  $\pm .157$  [4mm].
- 4) Tighten the lock nut while holding the vertical adjustment mount stationary to ensure that the height does not change.



# ACCESSORIES & KITS: SERIES BST2 TRANSFER ARM

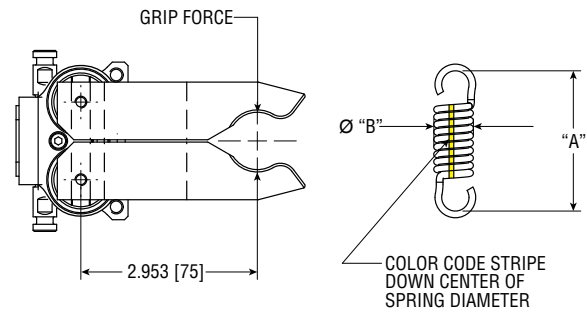
## ALTERNATE HEAD SPRINGS

Listed are alternative PHD designed springs for BST2 jaws. This list provides the customer with a variety of differing force springs that fit onto the posts of the transfer arm head. The springs are color coded with NSF registered DYKEM® per the chart below for ease of identification.

**NOTE:** PHD highly recommends the application of lubrication applied to the inside of the spring hooks and the post grooves for maximum life.

Forces are calculated based on the dimension from the center of the shafts to the center of the preform/bottle as shown in **Figure 1**. If tooling is longer or shorter than what is shown, the grip force will vary from the list given.

Consult PHD for grip force adjustments other than listed.



**FIGURE 1**

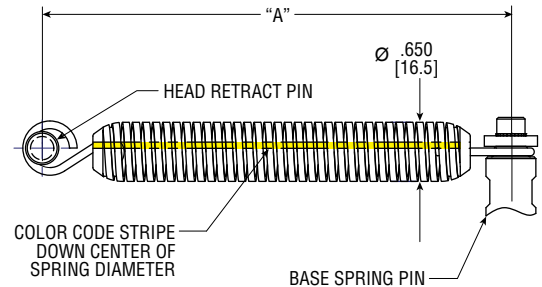
PHD Part #	Grip Force		Stripe Color	Stripe Qty	Standard PHD Use	Free State Dimension "A"		Dimension "Ø B"	
	lb	N				Inch	mm	Inch	mm
83884	3.4	15.1	Yellow	1	BST2 Cold Set	2.179	55.3	0.748	19.0
76655	5.1	22.7	Green	2	—	1.935	49.1	0.554	14.1
77602	6.7	29.8	White	1	—	1.721	43.7	0.600	15.2
84491	9.4	41.8	Yellow	2	BST2 Heat Set	2.061	52.3	0.663	16.8
77603	11.9	52.9	White	2	—	1.855	47.1	0.670	17.0

**NOTE:** Pull out forces are related to grip forces, but will vary depending on finger tooling design. PHD springs will allow process refinement for both bottle and preform transfer.

## ALTERNATE RETRACT SPRINGS

Listed are alternative PHD designed springs for BST2 retraction. This list provides the customer with alternative force spring that fits onto the posts of both the head and base spring pins. The springs are color coded with NSF registered DYKEM® per the chart below for ease of identification.

**NOTE:** PHD highly recommends the application of lubrication applied to the inside of the spring hooks and the post grooves for maximum life.



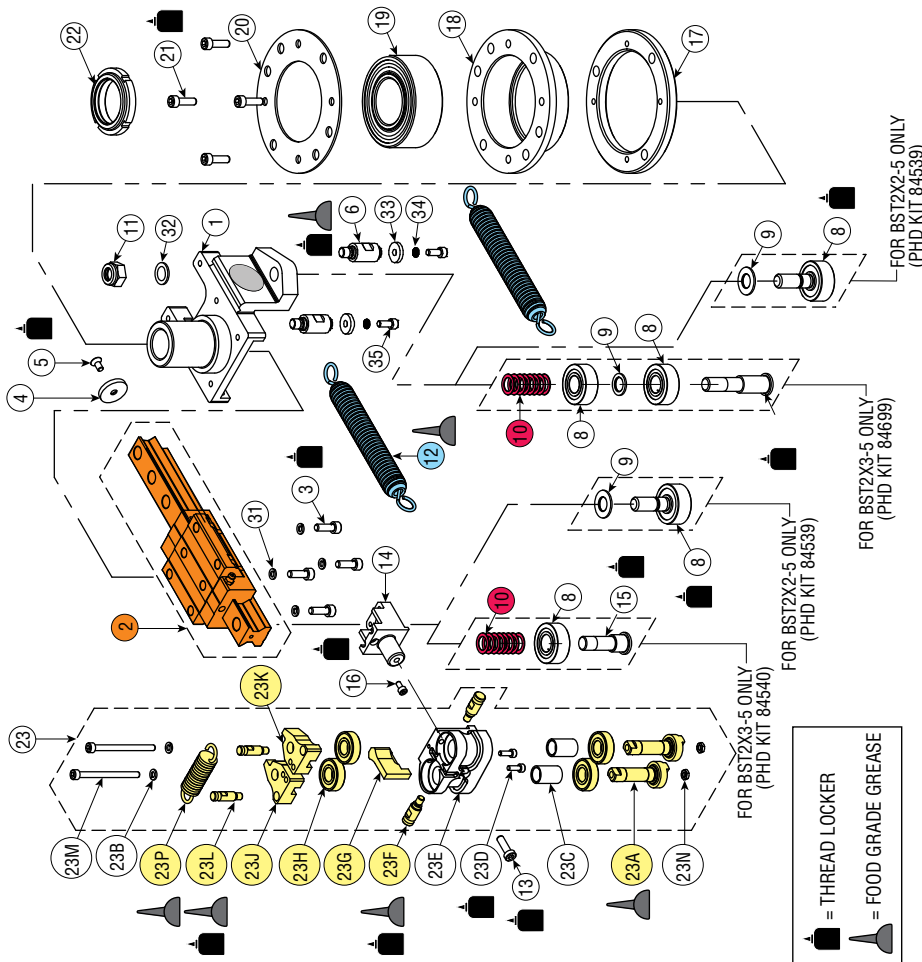
PHD Part #	Stripe Color	Stripe Qty	Standard PHD Use	Dimension "A"		Total Force (lbs)		Dimension "A"		Total Force (lbs)		Dimension "A"		Total Force (lbs)	
				Arm On Stop Inch	Arm On Stop mm	Arm On Stop lb	Arm On Stop N	Arm Out Min Inch	Arm Out Min mm	Arm Out Min lb	Arm Out Min N	Arm Out Max Inch	Arm Out Max mm	Arm Out Min lb	Arm Out Min N
85051	Yellow	1	BST2	5.591	142.0	4.6	20.5	6.142	156.0	7.0	31.1	9.685	246.0	22.5	100.1
82892	Yellow	2	—	5.591	142.0	3.4	15.1	6.142	156.0	5.0	22.2	9.685	246.0	15.1	67.2

### NOTES:

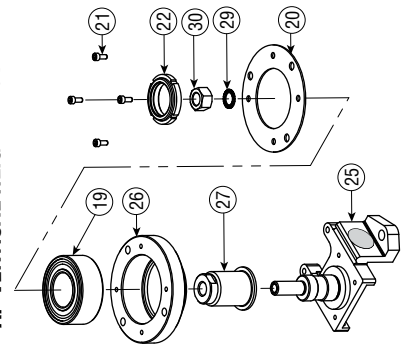
- 1) Pull out forces are related to grip forces, but will vary depending on finger tooling design. These spring options allow process refinement for both bottle and preform transfer.
- 2) Total retract forces are two times the above charted forces, as two springs are required per unit.

# PART & REPAIR KITS: SERIES BST2 TRANSFER ARM

KEY	PART DESCRIPTION	BST2x3-5	PART NO.	BST2x2-5
1	Weldment Base Assembly	Full Unit Description followed by -H110 Sold as Part of Rail Repair Kit	14308-117 83867 14308-584 85291 82889	BST2x2-5
2	Rail & Carriage Assembly			
3	Carriage to Base SHCS			
4	Extend Stop			
5	Extend Stop FHCS			
6	Spring Holder Body Pin			
7	Linear Cam Bearing Shaft			
8	Bearing	2334-052-02	84536-01	
9	Bearing to Bearing Spacer	85364	83714	
10	Commercial Shim Washer	77430-05-004-0	-----	
11	Nylon insert Lock Nut	65759-007	65759-013	
12	Extension Spring	Sold as Part of Extension Spring Kit	14308-436 82858	
13	Head to Arm SHCS			
14	Arm Mount	83713	-----	
16	Mounting Arm to Rail SHCS	14308-401	-----	
17	Lower Bearing Ring Mount	82888	-----	
18	Mid Bearing Ring Mount	82884	-----	
19	Bearing	2334-051-01	-----	
20	Upper Bearing Ring Mount	82885	-----	
21	Upper Bearing Ring Mount SHCS	61054-033	-----	
22	Locking Nut	82887	-----	
23	Total Head Assembly	Full Unit Description followed by -H11x		
23A	Shaft	Sold as Part of Head Assembly		
23B	Split Lock Washer	Sold as Part of Head Assembly		
23C	Bearing Spacer	Sold as Part of Head Assembly		
23D	Body to Tang SHCS	Sold as Part of Head Assembly		
23E	Body	Sold as Part of Head Assembly		
23F	Body Spring Holder Pin	Sold as Part of Head Assembly		
23G	Tang	Sold as Part of Head Assembly		
23H	Bearing	Sold as Part of Head Assembly		
23J	Left Jaw	Sold as Part of Head Assembly		
23K	Right Jaw	Sold as Part of Head Assembly		
23L	Jaw Spring Holder Pin	Sold as Part of Head Assembly		
23M	Jaw to Nut SHCS	Sold as Part of Head Assembly		
23N	Metric Nut	Sold as Part of Head Assembly		
23P	Jaw Extension Spring	Sold as Part of Head Assembly		
25	Weldment Base Assembly	Full Unit Description followed by -H110		
26	Mid Bearing Ring Mount	83990	-----	
27	Vertical Adjustment Mount	83871	-----	
29	Serrated Washer	84141-017	-----	
30	Metric Nut	3204-083-1	-----	
31	Serrated Washer	84141-008	-----	
32	Flat Metric Washer	64398-11-1-02	-----	
33	Spring Base Washer	85290	-----	
34	Serrated Washer	84141-007	-----	
35	Washer to Spring Post SHCS	61054-009	-----	



## -AP VERTICAL HEIGHT ADJUSTMENT



## KITS

KIT DESCRIPTION	BST2x3-5	BST2x2-5	KIT NO.
Rail & Carriage Assembly Repair Kit	84317	85895	BST2x2-5
Head Repair Kit - Heat Set	84318-01		
Head Repair Kit - Cold Set (CSD)	84318-02		
Spring Extension Spring Kit	84319		
BST2x2 Cam Bearing Replacement Kit	84539		
BST2x3 Cam Bearing Replacement Kit	84540		
BST2x3 Pivot Bearing Replacement Kit	84699		
Flange Base Shim Kit	84916		
Cam Bearing Shim Kit	84917		

# Other PPC Solutions:

## stretch rod cylinders

### BCS Stretch Rod Cylinders

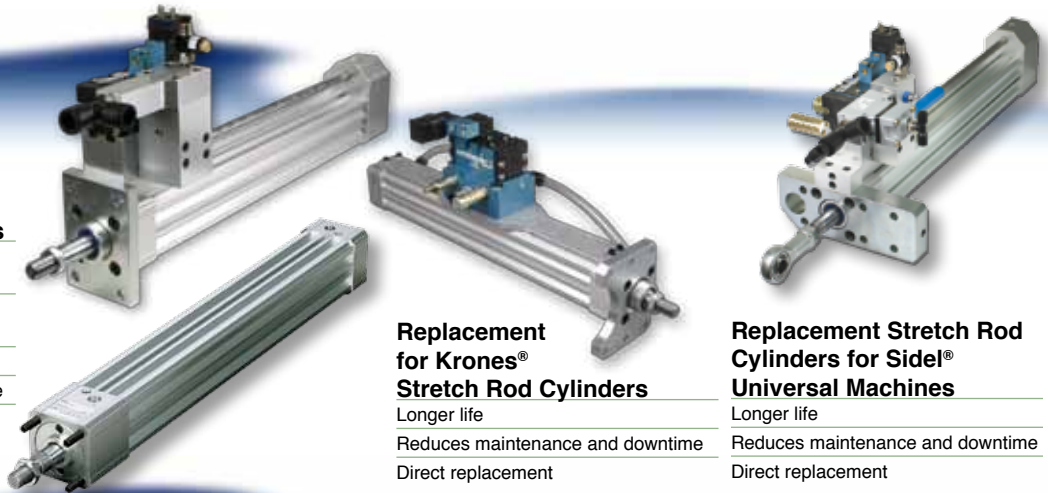
Direct replacement for Sidel® Series1 and Series2 machines

Mounts into same space and bolt pattern

Superior delivery

Longer life and reduced maintenance

X27 PHD check valve option



### Replacement for Kronos® Stretch Rod Cylinders

Longer life

Reduces maintenance and downtime

Direct replacement

### Replacement Stretch Rod Cylinders for Sidel® Universal Machines

Longer life

Reduces maintenance and downtime

Direct replacement

## nozzles



### Series1 Pneumatic Nozzle Cylinder (SB02-SB06)

Mounts into the same space and bolt patterns

Longer life, less downtime

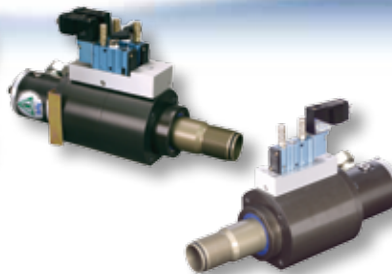
Simplified design and maintenance

Provides energy savings with enhanced sealing technology



### Series1 Nozzle Cylinder Upgrade for Mechanical Nozzle

Pneumatic nozzle can save energy, improves production/quality and enables your machine to run lighter preforms



### BCZ Nozzle Cylinders

Direct replacement for Sidel® Model Series2 CSD & Heat Set machines

Valve manifold assembled to cylinder available as standard

Longer life

## eject slides



### Preform/Bottle Eject Slide

Direct replacement for Series2

Direct valve manifold provides quicker response with higher kinetic energy capacity

## Replacement for Sidel® Series2 Preferential Transfer Arm Head ML#311319

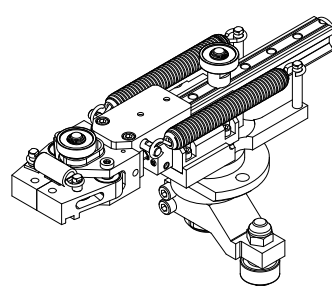


### PHD, Inc.

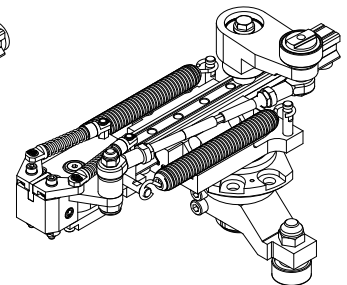
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P.O. Box 9070, Fort Wayne, Indiana 46899 U.S.A.  
Phone (260) 747-6151 • Fax (260) 747-6754  
www.phdinc.com • phdinfo@phdinc.com



Illustrations are concept only. Contact your local PHD Distributor for more information.



Preferential Transfer Arm  
(Based on BST1xx6 Design)



Articulated Transfer Arm  
(Based on BST1xx6 Design)

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