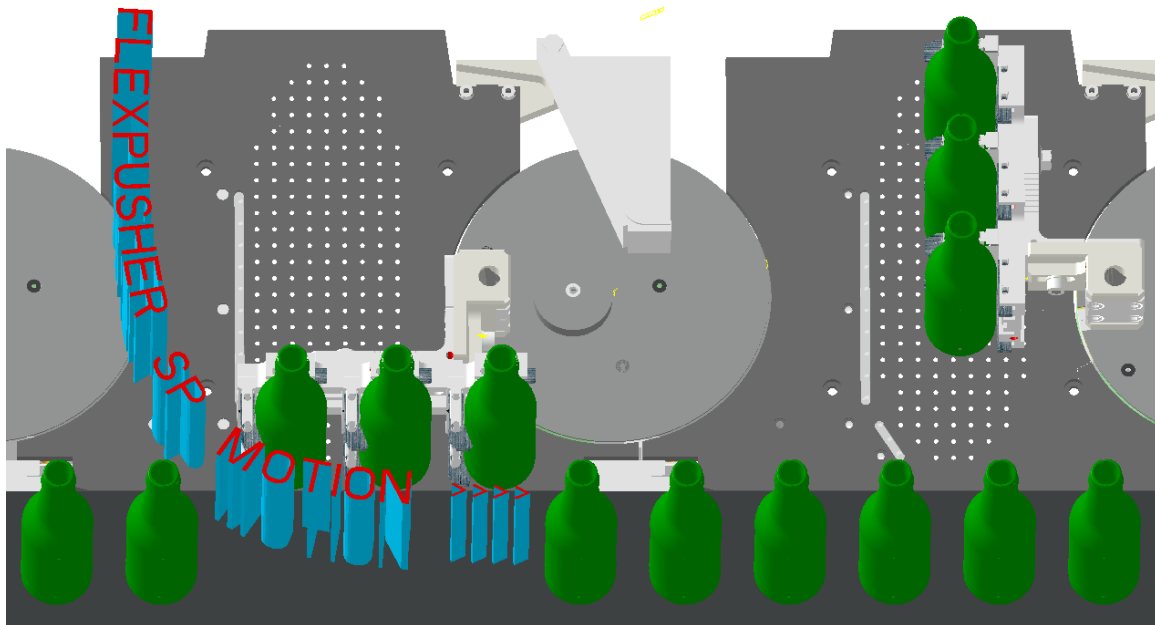


Technical News Bulletin

Steinhausen, November 2011



FlexPusher SP (Special Performance – High Speed / Non-round)

- Precise, full servo push-out motion.
- Simple interface for motion profiles adjustments - optimization made by plant personnel.
- FlexPusher SP with FlexIS standalone available for ware handling upgrades.

Introduction

Emhart Glass introduced 2008 very successfully the full servo FlexPusher system (see TNB 134) which became the industry standard. The full Emhart IS machine (SIS, IS, AIS, NIS, BIS) ware range is handled. As a standalone the ware handling performance on existing machines can be considerably improved. The precise and repeatable servo controlled FlexPusher sweep out movement is reducing ware handling losses and gives the opportunity to increasing machine speed. On non-round productions the ware handling is much better.

The **FlexPusher SP** (Special Performance) is a FlexPusher extension, addressing specific high speed triple gob, non-round and unstable productions, restricting the standard FlexPusher ware range.

In case the ware range limitation is not an issue standard FlexPusher installations are upgradable to FlexPusher SP (and vice versa), by changing the upper housing (conversion kit 904-12/16).

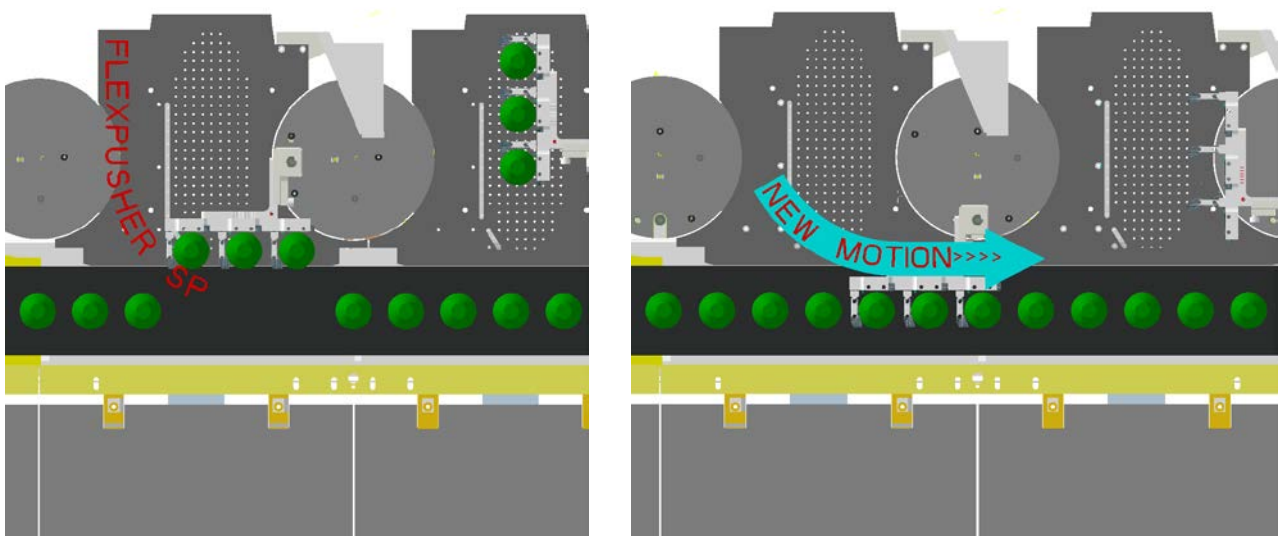
Remark: FlexPusher SP is not applicable on NIS machines due to the 22.5" section width (21")

Specification

The FlexPusher SP, with the new upper housing, is designed and optimized for high conveyor belt speeds. The SP interface and control is the same as the standard FlexPusher, fully integrated into the FlexIS process control system.

The FlexPusher SP is available for DG and TG operations with the Emhart Glass Universal Conveyor. It is also available as a conversion on non Emhart Glass conveyors.

It is the same assembly for LH and RH. A LH mechanism can be converted to RH and vice versa with no additional parts. The basic mechanism is identical for all IS machines. Pusher fingers, pusher mounting brackets,



calibration guards and dead plates are different for each machine configuration and must be selected accordingly.

Documentation:

| | |
|-------------------------------------------|-----------|
| FlexPusher SP mechanism | 904-10-02 |
| FlexPusher conversion kit, standard to SP | 904-12 |
| FlexPusher conversion kit, SP to standard | 904-16 |
| FlexPusher system in general | TNB134 |
| FlexPusher manual | H51002EEN |

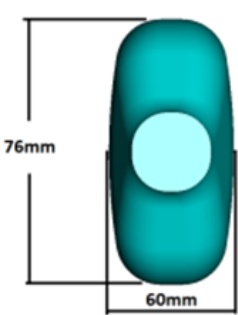
Layout drawings:

| | |
|--------|--------|
| DG 5 ½ | 904-92 |
| DG 6 ¼ | 904-90 |
| TG 85 | 904-91 |
| TG 4 ¼ | 904-90 |

Availability

The FlexPusher SP system works with all firing orders provided by the FlexIS Control System.

| 5 Questions for what type of Flexpusher to use: | | |
|-------------------------------------------------------|----------------------------|--------------------|
| Answers | | |
| 1 Number of cavities per section? | DG&TG or TG, next question | if only SG or DG → |
| 2 Is the speed higher than about 400 BPM? | Yes, next question | if NO → |
| 3 Is the max diameter for DG less than ø94mm? | Yes, next question | if NO → |
| 4 Is the max diameter for TG less than ø70mm? | Yes, next question | if NO → |
| 5 Are the non-round containers within the area shown? | Yes | if NO → |

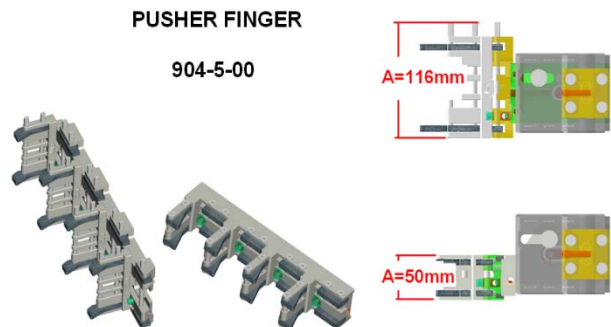


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**Flexpusher SP
904-9**

**Flexpusher
904-6**

FlexPusher SP Fingers are available in a large variety (DG and TG) of setups in 116mm height and for most of setups in 50mm height. For more detailed information about available pusher fingers, see 904-5-00.



Restrictions

The FlexPusher SP is restricted for IS and AIS machines, and is NOT applicable for NIS-machines.

Ware range restrictions

- Double gob = Maximum diameter 94mm
- Triple gob = Maximum diameter 70mm

| MOLD SPACING | BELT ADVANCE | PUSHER FINGER SPACING | FLEXPUSHER SP 904-9 WARE RANGE MAX ø mm | FLEXPUSHER 904-6 WARE RANGE MAX ø mm | ASSEMBLY DRAWING & PART LIST |
|--------------|------------------|-----------------------|-----------------------------------------|--------------------------------------|------------------------------|
| TG 3" IS | 7 7/8 (200) | 2 5/8 (66,7) | ø36 | ø36 | 904-53-00 & 904-113-00 |
| | 8 3/4 (222,3) | 2 59/64 (74,2) | ø50 | ø50 | |
| | 9" (228,6) | 3" (76,2) | ø51 | ø51 | |
| | 10 1/2 (266,7) | 3 1/4 (82,6) | ø45 | ø45 | |
| | 10 1/2 (266,7) | 3 1/2 (88,9) | ø40 | ø40 | |
| DG 4 1/4 IS | 7 7/8 (200,0) | 3 15/16 (100,0) | ø73 | ø73 | 904-52-00 & 904-112-00 |
| | 10 1/2 (266,7) | 5 1/4 (133,4) | ø83 | ø83 | |
| TG 4 1/4 AIS | 10 1/2 (266,7) | 3 1/2 (88,9) | ø50 | ø50 | 904-53-00 & 904-113-00 |
| | 11 13/16 (300,0) | 3 7/8 (98,4) | ø67 | ø67 | |
| | 12" (304,8) | 4" (101,6) | ø70 | ø70 | |
| | 13 1/8 (333,4) | 4 3/8 (111,1) | ø70 | ø76 | |
| DG 5" IS | 7" (177,8) | 3 1/2 (88,9) | ø60 | ø60 | 904-52-00 & 904-112-00 |
| | 8 3/4 (222,2) | 4 3/8 (111,1) | ø83 | ø83 | |
| | 10 1/2 (266,7) | 5 1/4 (133,4) | ø94 | ø102 | |
| DG 5 1/2 IS | 10 1/2 (266,7) | 5 1/4 (133,4) | ø94 | ø108 | 904-52-00 & 904-112-00 |
| DG 6 1/4 AIS | 10 1/2 (266,7) | 5 1/4 (133,4) | ø94 | ø113 | 904-52-00 & 904-112-00 |
| | 13 1/8 (333,4) | 6 9/16 (166,7) | ø94 | ø127 | |
| TG 85mm IS | 10 1/2 (266,7) | 3 1/2 (88,9) | ø63 | ø63 | 904-53-00 & 904-113-00 |

Features and Benefits

- Precise, full servo push-out motion
- Controls fully integrated into FlexIS process control system
- Optimized motion profiles stored at job file
- Simple interface for motion profiles adjustments - optimization made by plant personnel
- Entire pusher motion without pneumatics and Lincoln lubrication
- FlexPusher SP with FlexIS standalone available for ware handling upgrades
- Flexible Pusher Finger concept with exchangeable liners
- Very efficient vertical pocket air available