



Proper keg spear maintenance with regards to safety of personnel and equipment



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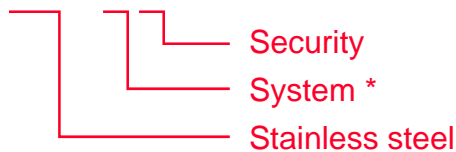


World of Spears

Flat		Well			Combi	Soft
A-System	G-System	S-System	D-System	U-System	M-System	L-System



RS - A S



- * **A-System** = Alumasc
- * **G-System** = Grundy
- * **S-System** = Sankey
- * **D-System** = Draft System

- * **U-System** = Universal Equipment Company
- * **M-System** = Micro Matic
- * **L-System** = Soft Drink (Limonade)

D-System

- Dominant in US
- 3 neck interfaces
- Double valve operation



Two Variations

Ball Type

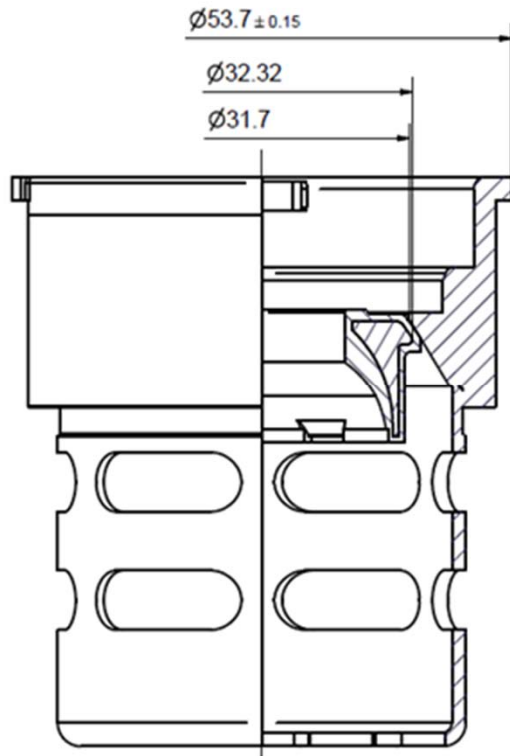


Poppet Type

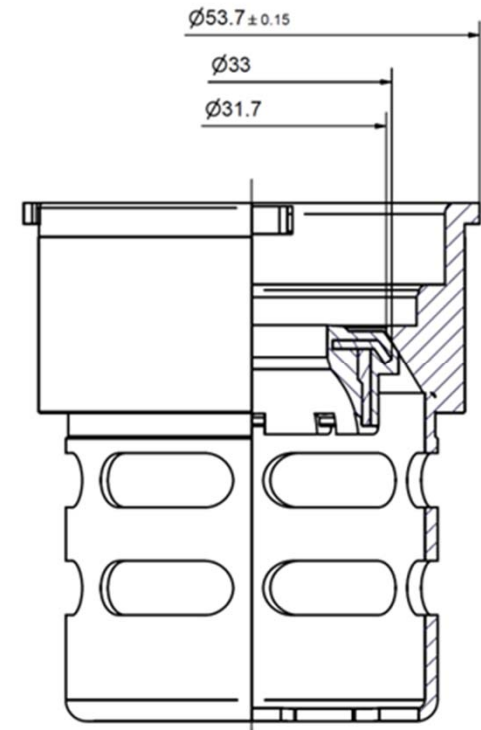


Critical Measurement Specifications

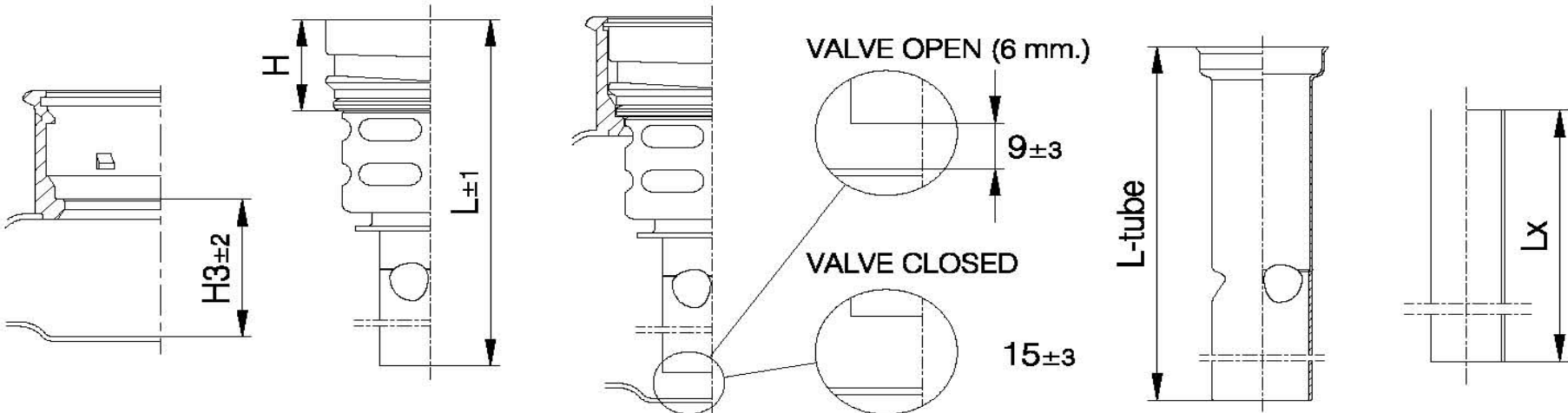
700-133 vs. 102-006



700-133 vs. 102-618



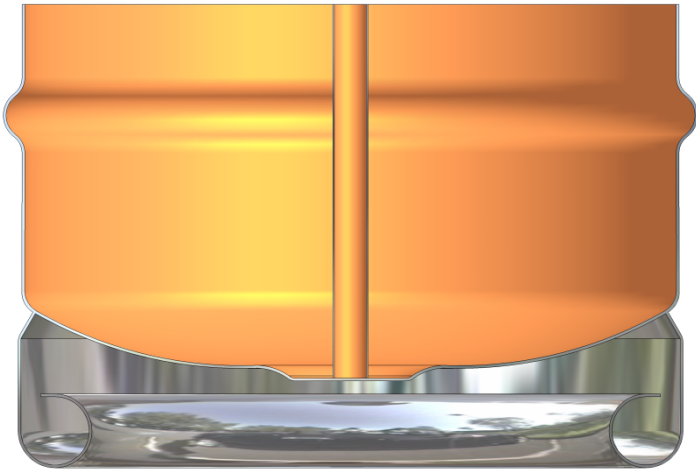
Critical measurement specifications



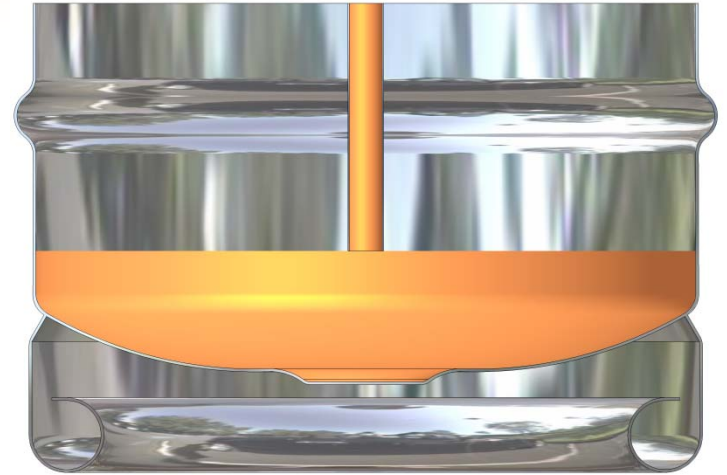
Moving tube: stroke filling line is different to stroke coupler

Spear No.	Spear type	Tube No.	Thread/ Neck	L [mm]	Comments for special ...	L-tube (Lt) [mm]	Lx [mm]
700-035	RS-D	732-305		$H3 + 12$	H3 from spec. Neck	L-19	$Lt + 3$
700-060	RS-D (USA)	732-310		$H3 + 12$	H3 from spec. Neck	L-19	$Lt + 17.3$

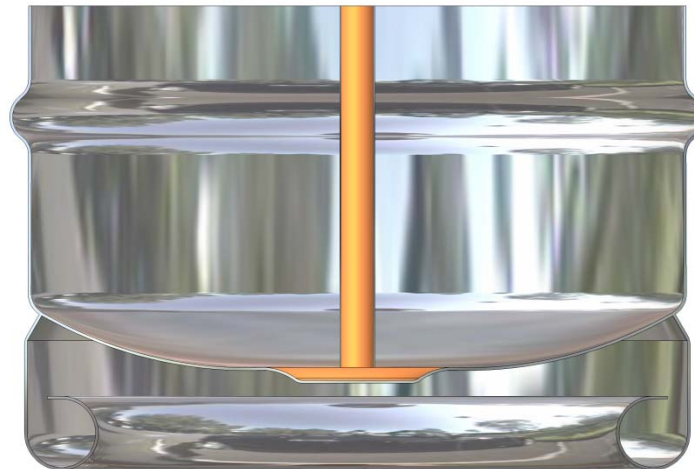
Correct tube length / Dispensing



Too long
No beer comes out

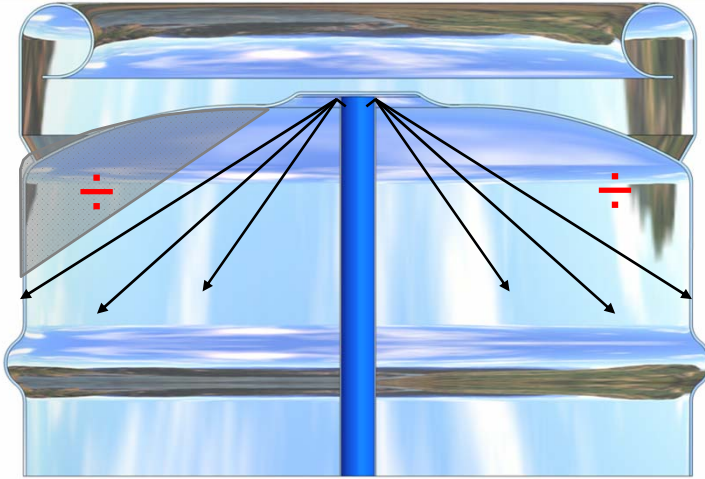


Too short
Beer residual



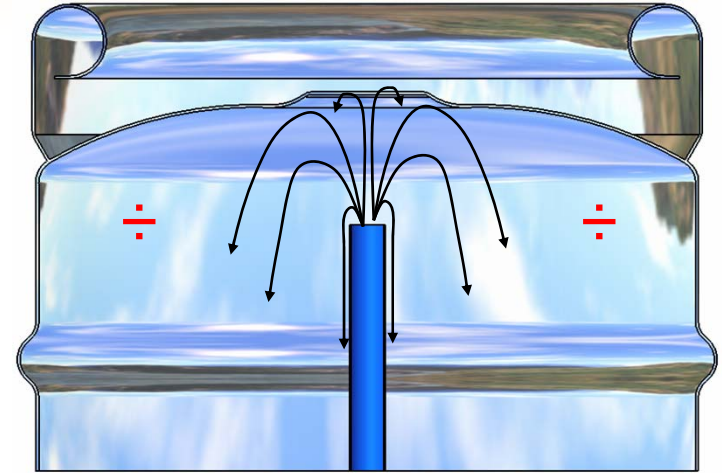
Right length

Correct tube length / Cleaning



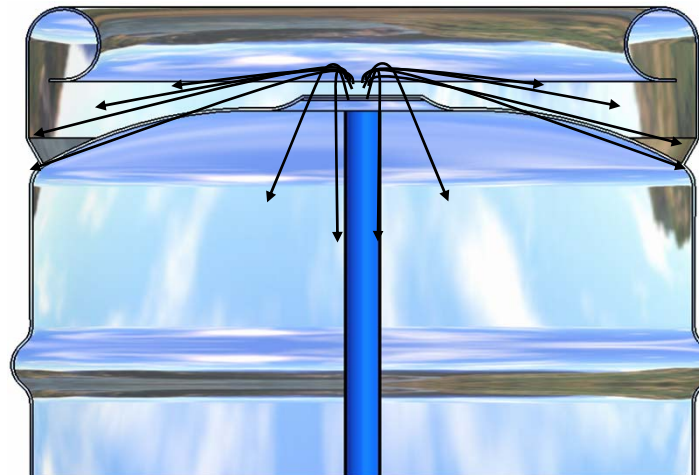
Too Long

Detergent does not reach the “keg shoulders” and optimum cleaning is not achieved



Too Short

Detergent does not reach the “keg shoulders” and optimum cleaning is not achieved



Correct length

Spear Maintenance

- What is the normal life of a spear?
- What parts need to be replaced during a rebuild?
- Does it matter where the parts come from?
- Should we do this in-house or outsource it?



Reasons for Leakers

Mechanical damages by filling machine

- De-centralization of spear
- Wrong adaptor design
- Wrong stroke
- Too high clamping pressure (250 Kp max)



Others

- Too high temperature detergent 185°F / steam 275°F
- Too high concentration max 3 %
- Damaged by coupler in the market



All the above leading to reduced life time

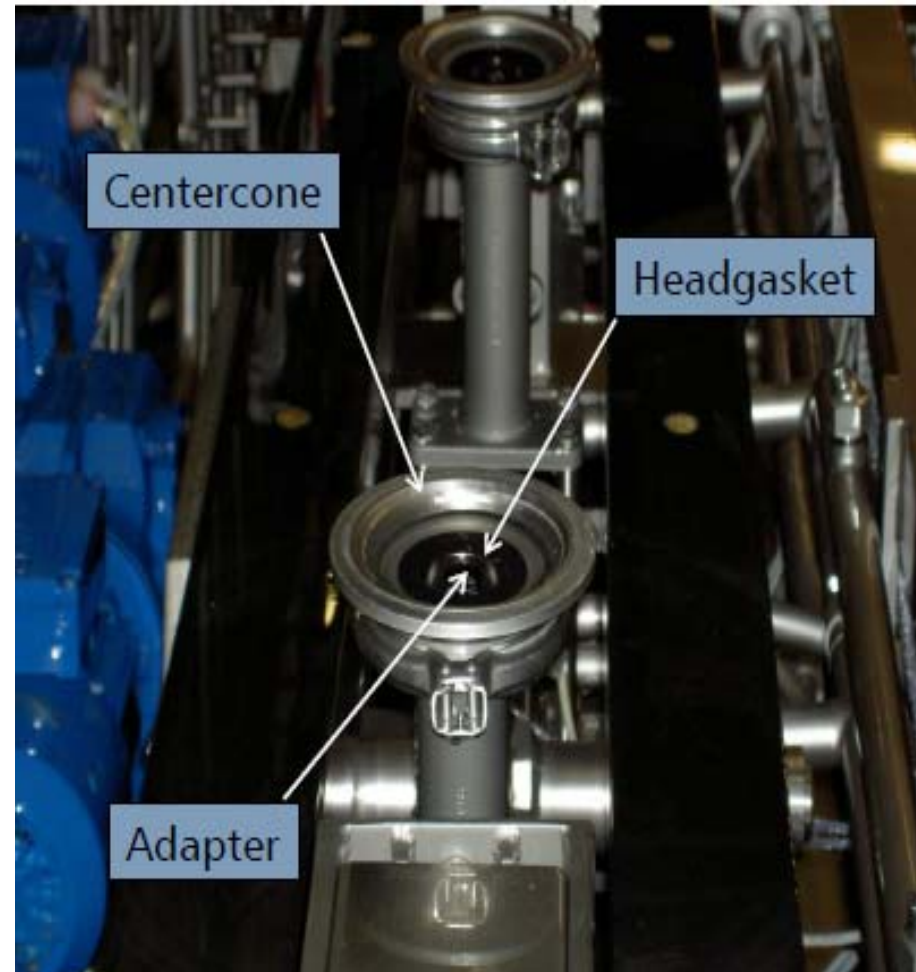
Filling Machine Checks

Centering ring

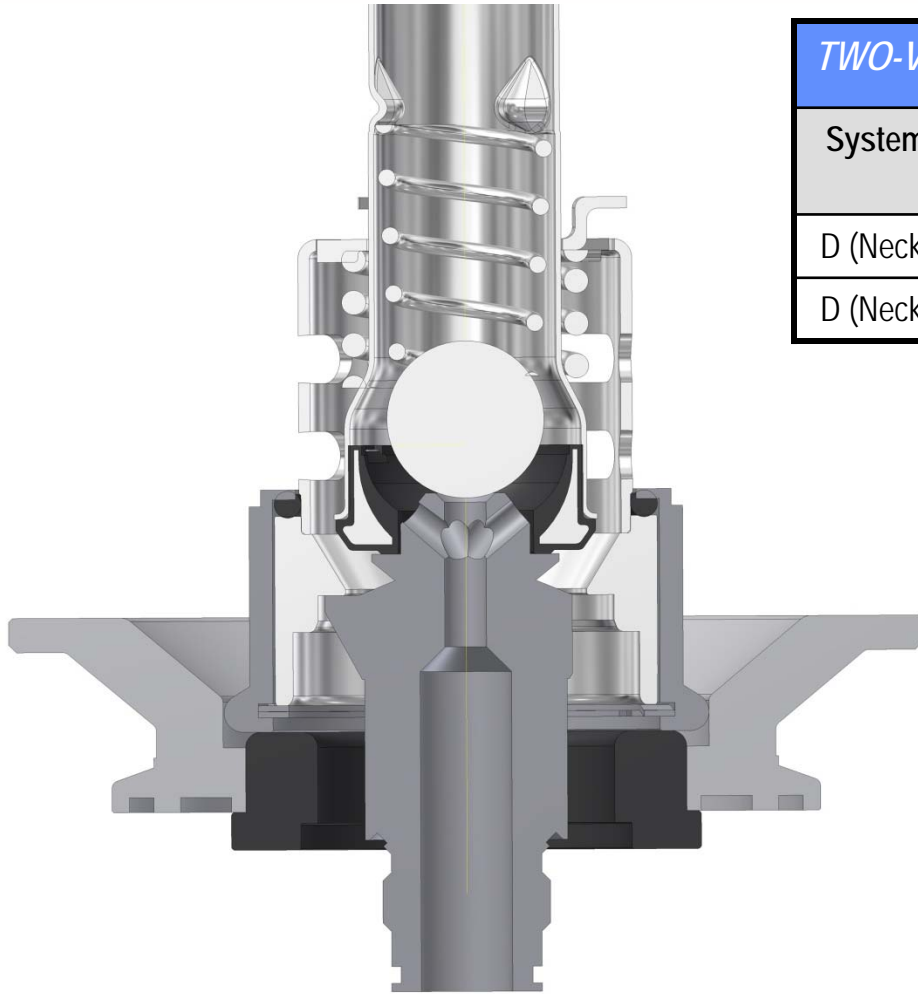
- Inside tolerances
- No burrs
- Regular gasket replacement

Filling and cleaning adaptor

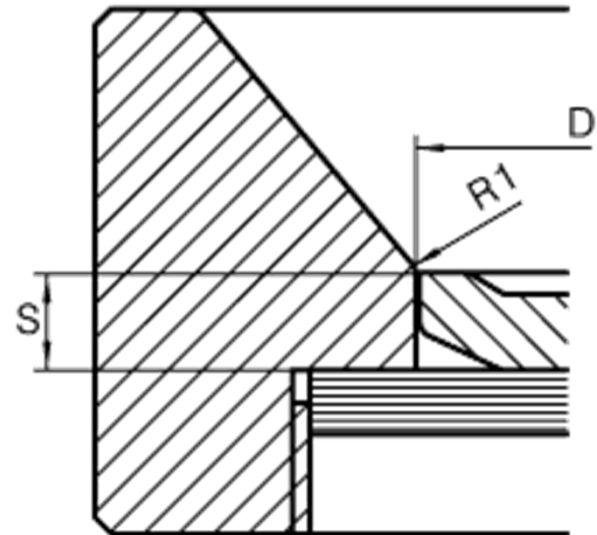
- Controlled stroke / mechanical stop
- Chamfered edges
- Centrally fixed
- Regular control



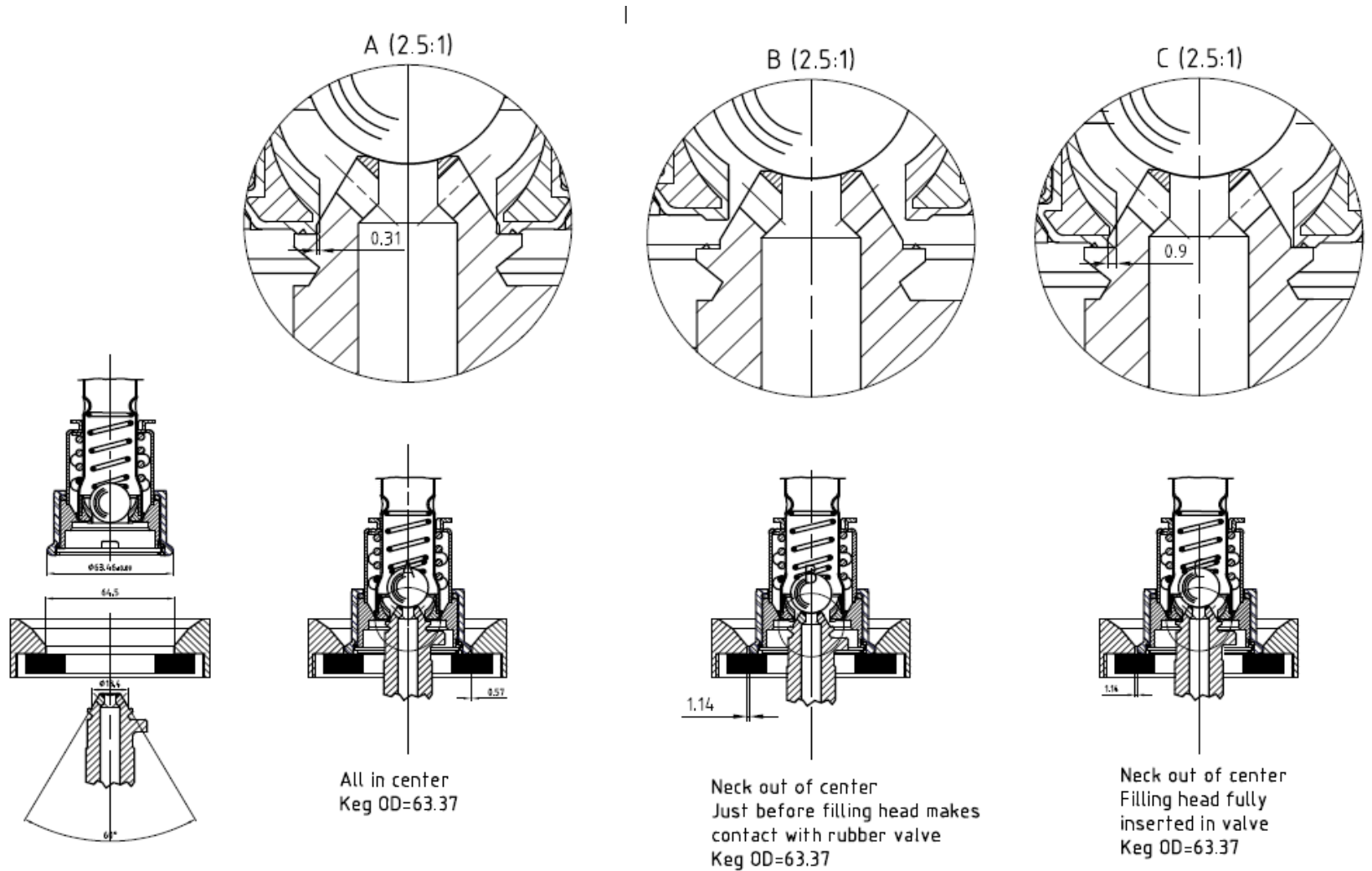
Centering Ring



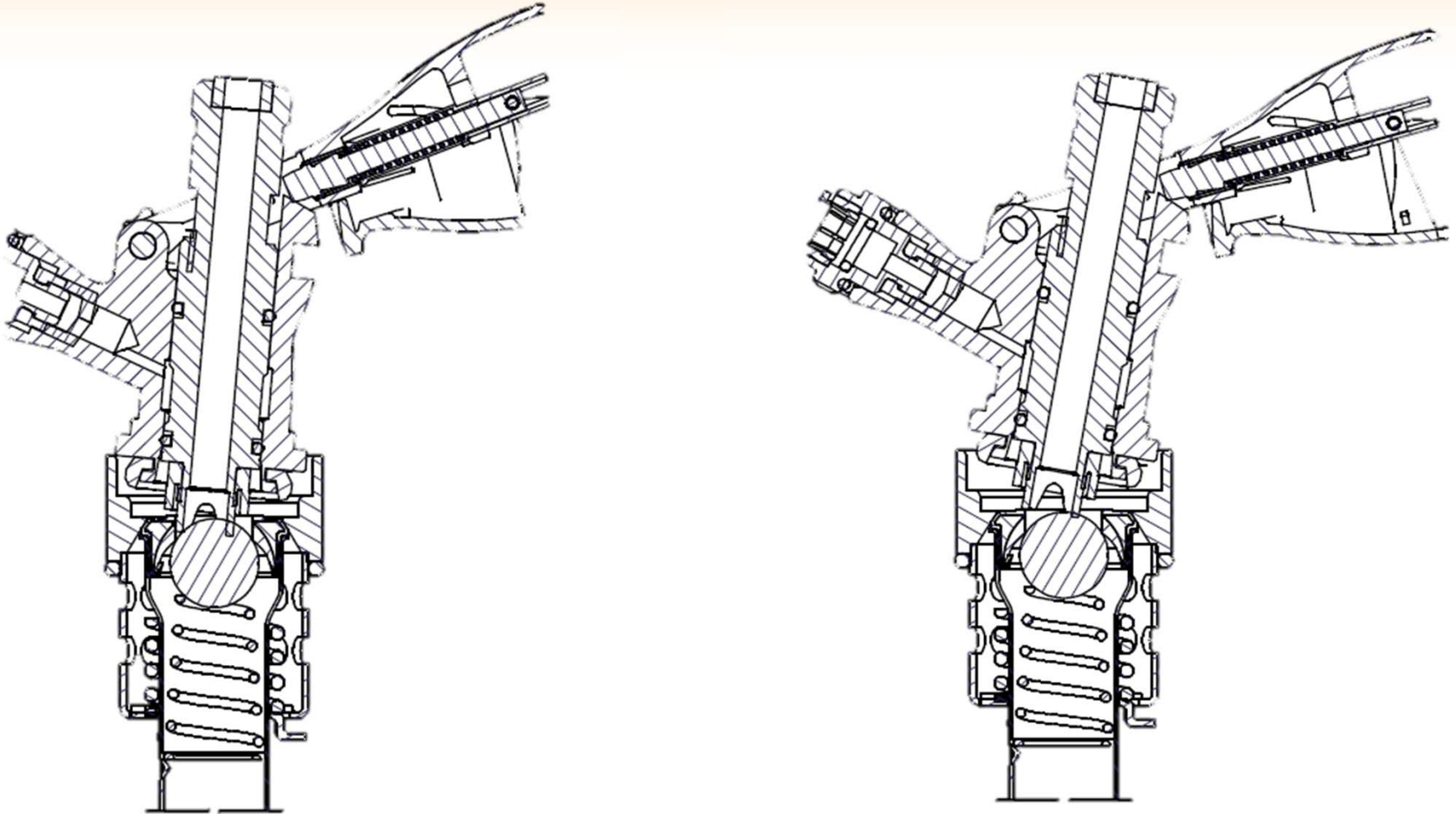
<i>TWO-VALVE SYSTEMS</i>				
System	Max. Diam./ Height "Fitting"	D	S _{Min.}	Replacement -D
D (Neck)	~ ø 63.5	ø 63.8±0.1	6	ø 64.2
D (Neck)	~ ø 63.2	ø 63.5±0.1	6	ø 64.0



Critical Filling Adaptor Position



Coupler damage



Forced wrong position or probes with burrs

Incorrect handling of kegs



Handling

Consequences

Fall from a height

Dents

Impact on keg base

Deformed collar rings or neck

Crooked neck

Fall on crimping

Defective spears

Fall on dimple

Defective spears



Damage largely irreparable

Freezing of content

Rubber distortion

Can no longer be used on filling machine

Volume change



Damage irreparable

Overheating of content

Rubber distortion

Volume change

Opening of bursting disc



Neck leaks after filling

New spears

- Not mounted correctly (locking ring not in place)
- O-ring cut during mounting
- Too high mounting force (O-ring destroyed)

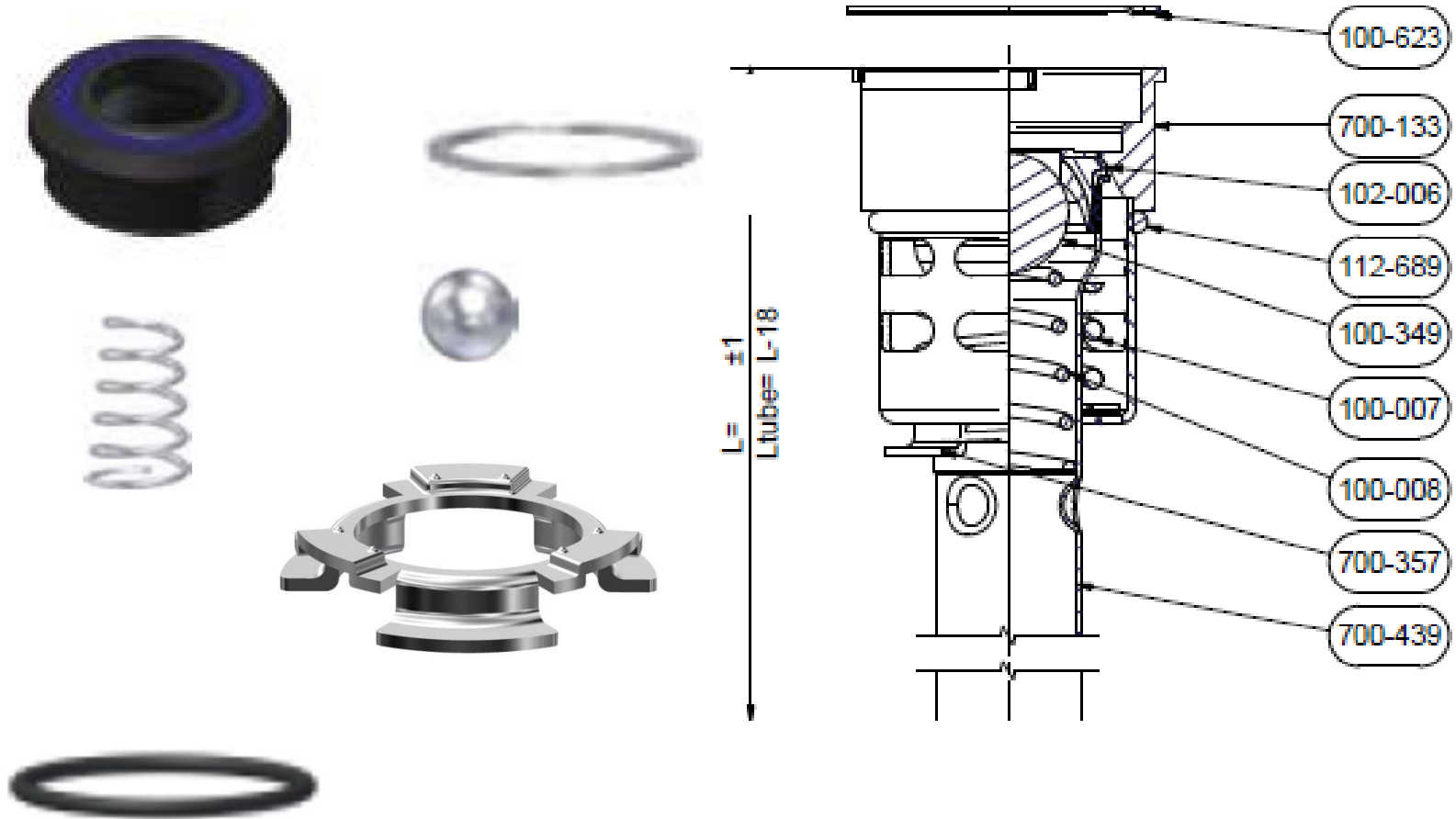
“Old” spears

- Too high clamp pressure (O-ring destroyed, max 2500 N)
- Too low mounting force (locking ring not in place)
- Tampering in the market
- O-ring needs replacement

Safety / Spear removal

- Always treat every keg as if it is under pressure
- Always use proper tools made by the manufacturer
- Always de-pressurize the keg FIRST
- Always read removal instructions from the manufacturer
- Always train inexperienced personnel prior to project

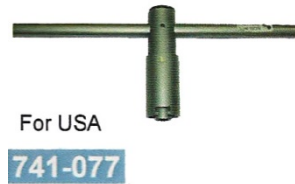
Use Only Genuine Parts



Use Manufacturers Tools



Installation tool



Decompression tool



Removal tool



Removal tool



Removal tool



Service tool

Be Safe!



- Saving money is not worth injury or death to employees
- Always do proper maintenance to avoid injury to personnel and machinery

Thank you for your attention!