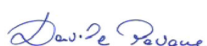


SUPPLY TECHNICAL SPECIFICATIONS

TS5 Screw S Line 28/410 G1 General CA FT TS5 22 01 00

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ED.	REV.	DATE	DESCRIPTION	EDITING	VERIFIED BY	APPROVED BY
1	0	22/10/2019	First issue	L. Deiana	D. Bovone	M. Mulvoni
SIGNATURES						

1. PURPOSE

The purpose of this document is to define the main technical characteristics and the supply conditions of the *Gualadispensing* product.

The product characteristics and performances are under the responsibility of *Gualadispensing* that will guarantee them through an appropriate Quality System.

This document refers to the *Gualadispensing* Sprayer approved by the compatibility tests carried out by *Gualadispensing* and by the Customer. To carry out the tests Guala Dispensing needs at least 10 litres of the product.

The supplier shall test the buyer's product according to the agreed test protocols and provide the Buyer with the relevant results and reports. The two parties finally approve.

Gualadispensing can not be considered responsible for any improper use of the sprayer: for example the use with untested products, incorrect filling operations, bottles outside specifications or other

Should the buyer change the product formulation he will immediately notify the supplier and all the tests must be repeated

With the purpose of improving the product, at his own discretion the Supplier reserves the right to introduce changes on the said product and/or its inner parts and to inform the customer only in case such changes affect/modify the product characteristics or performances defined by these specifications

The Buyer is responsible for putting the Product on the market and must provide the final consumer with all correct instructions.

Any requirement not included or not specified in the present document must be discussed.

Updated copies of these specifications must be requested by the buyer to *Gualadispensing*.

2. APPLICABLE DOCUMENTS

The documents that may be a support of this Supply Technical Specifications are the following:

- EEC Rules
- ISO 9000 / ISO 2859;
- Procedures (*Gualadispensing* Internal Procedures);
- Bottle Specifications.
- Neck finish drawings.



3. QUALITY

3.1 QUALITY SYSTEM

Gualadispensing ensures the quality of the supplies through a Company Quality System, according to UNI EN ISO 9001.

Our main purpose is to strive for continuous improvement.

The system is integrated with its production process.

3.2 DEFINITION OF DEFECTS

The Faults of the supplies can have the following classification:

CRITICAL DEFECTS: all those defects that, as the common sense and experience show, make the article unemployable and unfit for the use it is meant for.

MAJOR DEFECTS: all those defects that without being critical may cause a failure, breakdown or substantially reduce the suitability or usefulness of the article.

MINOR DEFECTS: all those defects which do not substantially reduce the usefulness of the product as for its intended purpose; or defects representing a deviation from the established standards, not having any appreciable effects on its use or effective operation. Appearance defects.

3.3 GENERAL TABLE OF DEFECTS

The AQL (Acceptance Quality Level), defined according to defects, are the following:

Critical defect:	AQL = 0.25
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Major defect:	AQL = 1
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Minor defect:	AQL = 4
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3.3.1 Table T1 Description and classification of defects

Description and classification of general defects	Critical	Major	Minor
	A.Q.L.= 0.25	A.Q.L.= 1	A.Q.L.= 4
Breakage or disassembling		X	
Incorrect materials		X	
Delivery incorrectly labelled			X
Internal or external dirtiness			X
Incorrect quantity			X

Table T1 defines, by describing and classifying, the defects.

The batch will be representative of one continuous production (i.e.: one pallet is considered as one batch).

The sampling procedures and the acceptance criteria are determined with reference to ISO 2859 rules (or Mil. Std 105 E); the Customer shall apply the same criteria.

The sampling programme shows the number of pieces for each batch which need to be controlled as well as the criteria to approve and accept the batch (acceptance or refusal numbers).

3.4 WARRANTY

Gualadispensing guarantees that the product is in compliance with what expressly agreed and specifically indicated. This warranty lapses after one year from the date the goods were shipped.

The product's technical features and performances are verified and approved through internal tests carried out directly both by Gualadispensing and the Customer.

Tables T defines the batch acceptance criteria.

The unacceptable batch will be replaced without charging any costs to the Customer, who shall claim neither for damages nor ask for the reduction in prices, nor the rescission of the contract.



4. PERFORMANCES AND TEST METHODS

Note: in general, if not explicitly written, all the tests will be carried out using water. The tests will be carried out using only bottles defined between Guala and the customer. In the following test procedures we often use the statement "normal condition of usage": with this expression we mean three consecutive full actuations of the sprayer in a time of 2 seconds (a rate of 90 strokes per minute).

4.1 Consumer characteristics: performances and description of test methods.

4.1.1 *Priming*

a) **Description**

The number of operations to prime the pump

b) **Test methodology**

Fill 20 bottles and screw the sprayers; open the pump rotating the ON/OFF device and actuate the pump. Count the number of operations (normal condition of usage); do not count the actuation with complete dose.

Carry out the test with bottle in up-right position.

4.1.2 *Dose*

a) **Description**

The quantity of product dispensed during a complete actuation of the trigger.

b) **Test methodology**

Fill 20 samples, operate the pump by applying the force near the joint pin of trigger lever. Record the weight variations of complete pack (trigger and bottle) for 3 consecutive cycles of 10 operations each, in normal condition of use.

4.1.3 *Atomization*

a) **Description**

The atomization is the capacity of a sprayer to dispense the product in tiny drops and with a spray pattern.

b) **Test methodology**

Fill 20 bottles, prime the pump (complete atomization on the full stroke of the trigger); after priming the pump, spray on blotting paper and measure the diameter of the spray pattern.

For Laundry/Carpet test must be done with the trigger at 45°, from a distance of 10 cm. The paper layed down on a flat surface.



4.1.4 **Foaming**

a) **Description**

The foaming is the capacity of a sprayer to dispense the product as a foam

b) **Test methodology**

Fill 20 bottles with the foaming product, screw the sprayers on the bottles and prime the pump (complete actuation on the full stroke of the trigger). After priming the pump, put the sprayer in front of the glass panel, where you have to foam, from a distance of 20 cm; carry out a full actuation in normal condition of usage (as above defined) on the surface, taking care that the surface is initially dry.

Check the quality of the spray pattern verifying the diameter and the adhesion on the surface. For Laundry/Carpet test must be done with the trigger at 45°, from a distance of 10 cm. The paper layed down on a flat surface.

4.1.5 **Working life**

a) **Description**

The sprayer performance shall not deteriorate after a long-term operating cycle.

b) **Test methodology**

Fit 10 samples on the proper machine (the reference is the Guala machine) and submit them to an operating cycle of 5,000 operations (60 operations / min, samples in up position). Than check the performances in straight position and compare them with the target.

4.1.7 **Leakage test**

a) **Description**

No drops of the product shall be visible on the external body.

b) **Test methodology**

Fill 20 bottles (be sure that the bottles are in accordance with the technical specifications), screw the sprayers on the bottles.

It is possible to carry out the following test:

Put the samples horizontaly at room temperature ($20 \pm 3^{\circ}\text{C}$) and keep them in that condition for 1 hour (put white blotting paper under the bottles to mark leakage).

After 1 hour look for leakage

If a defect is present (bottle or trigger) it will become evident within 1 hour.

The test is carried out on the whole package, if the result is negative the complete package has to be verified to define if the leakage is caused by the trigger.



4.2 User characteristics: performances and description of test methods.

4.2.1 *Overall dimensions*

a) **Description**

The measured values shall be in accordance with the values recorded on the drawings enclosed with relevant tolerances.

b) **Test methodology**

Dimensional survey of the value.

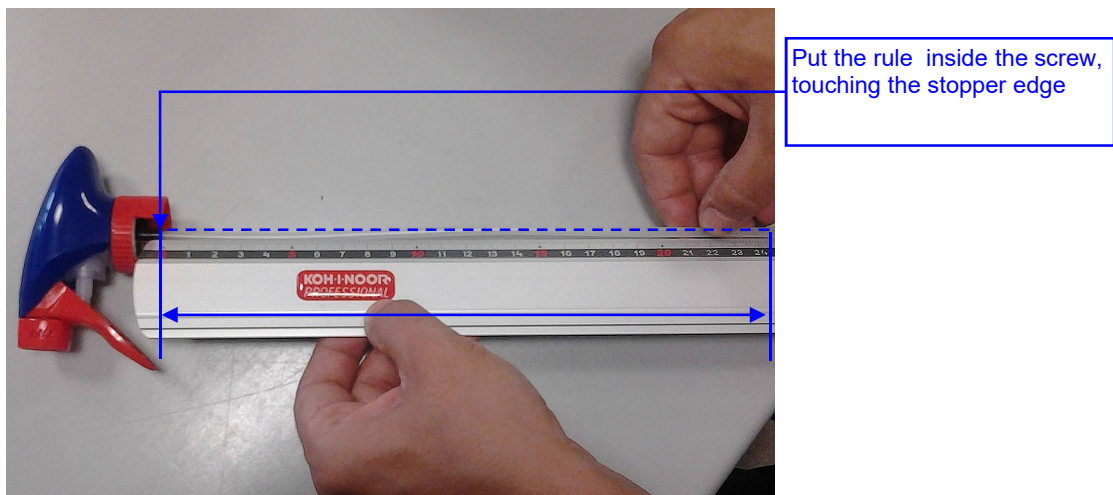
4.2.2 *Dip tube length*

a) **Description**

Dip tube length is defined as outer part of the tube. It is included from the end part of the Stopper to the end part of the tube. That means the part of the tube inserted is not considered.

b) **Test methodology**

The measurement of the dip tube length is possible by putting the measurement instrument inside the screw, in touching with the stopper edge.



To measure the length then it is necessary to use a rule having care to keep the tube straight; read the measure as shown on the picture above.



Table T2 - SUMMARY OF CHARACTERISTICS AND TARGET
SPRAY VERSION

Characteristic	Target	Critical A.Q.L.= 0.25	Major A.Q.L.= 1	Minor A.Q.L.= 4
Priming	10 full strokes max (at a rate of 90 strokes per minute)	X		
Dose (output per stroke)	1.2 ± 0.3 ml (up-right position)		X	
Spray pattern diameter	170 mm ± 30 mm (from a distance of 20 cm)			X
Spray pattern diameter (Wide Spray Version)	220 mm ± 30 mm (from a distance of 20 cm)			X
Spray pattern diameter (Narrow Spray Version)	140 mm ± 30 mm (from a distance of 20 cm)			X
Dip tube retention force	1,5 Kg min – 15 N min. (new samples)		X	
Dip tube length	According to the technical sheet (+/- 2mm of tolerance)		X	
Dip tube bending	See enclosed drawings			X
Screw on torque	18 ± 3 Kg*cm - 180 ± 30 N*cm		X	
Screw off torque (after ageing)	10 Kg*cm min - 100 N*cm min (Immediate)		X	
	5 Kg*cm min - 50 N*cm min (After 7 days at 40 °C)		X	
Leakage between trigger components	No leakage after 1 hour at R.T.		X	
Working life	5.000 actuations (all the functional characteristics within the tolerances)			X
Aesthetics	As approved visually – spray and foam			X
Overall dimensions	See enclosed drawings			X

Table T3 - SUMMARY OF CHARACTERISTICS AND TARGET
V15 PIPE FOAM VERSION

All the spray characteristics are considered excepted those following reported.

Characteristic	Target	Critical A.Q.L.= 0.25	Major A.Q.L.= 1	Minor A.Q.L.= 4
Foam pattern dimension	100 ± 30 mm (from a distance of 20 cm)			X
Overall dimensions foam version	See enclosed drawings			X



**Table T4 - SUMMARY OF CHARACTERISTICS AND TARGET
V35 - V45 MESH FOAM VERSION**

All the spray characteristics are considered excepted those following reported.

Characteristic	Target	Critical	Major	Minor
		A.Q.L.= 0.25	A.Q.L.= 1	A.Q.L.= 4
Foam pattern dimension	70 ± 30 mm (from a distance of 20 cm)			X
Overall dimensions foam version	See enclosed drawings			X

**Table T5 - SUMMARY OF CHARACTERISTICS AND TARGET
STREAM VERSION**

All the spray characteristics are considered excepted those following reported.

Characteristic	Target	Critical	Major	Minor
		A.Q.L.= 0.25	A.Q.L.= 1	A.Q.L.= 4
Stream	a jet			X
Overall dimensions foam version	See enclosed drawings			X

5. COMPONENT LIST – MATERIAL

Component	Material
SHROUD	PP
CHASSIS	PP
NOZZLE	PEHD
VALVE	EVA or TPE-E or TPE-O
TRIGGER LEVER	PP
FOAMED GASKET	Foamed PE
DIP TUBE	PELD + PEHD (from reel)
SCREW COLLAR	PP
BALL	PP or PP + GF
SPRING	POM or PP
STOPPER	PP or PE
PISTON	PE
FOAM DEVICE (Optional)	PP
MESH (Optional)	PP

6. PACKING

The trigger sprayers are adequately packed and sent to the Customer.

In the definite quantity, the sprayers are placed in cardboard boxes.

The type of packing is suitable for internal handling and storage of the finished product. Any damages of the packing,

which are due to the transport and found by the Customer, on acceptance of incoming goods, should be pointed out by the Customer to the transporter.

The type of damages has to be reported on the transport document (CMR).

The following packing specification refers to our standard delivery conditions.

Other particular requests can be discussed and regulated by Guala and Customer

6.1 Packing specification

The pallets are suitable for correct handling.

Each pallet shall be stretch-wrapped with plastic film.

Box sizes (cm): **59 x 50 x 34**

No of box per pallet: **24**

Pallet sizes (cm): **100 x 120 x 215**

Dip tube length up to 200 mm

No of units per box: **480 ± 2%**

Max box weight Kg *: **12**

No of units per pallet: **11.520 ± 2%**

Dip tube length between to 201 mm and 270 mm

No of units per box: **450 ± 2%**

Max box weight Kg *: **11,5**

No of units per pallet: **10.800 ± 2%**

Dip tube length beyond 270 mm

No of units per box: **430 ± 2%**

Max box weight Kg *: **11**

No of units per pallet: **10.320 ± 2%**

Pallet material: wood

Box weight and dimensions can change according to the product configuration and to environmental conditions (for example humidity percentage variations).

* "Box weight" shall mean the weight of reference for the box handling and cannot be used for the pieces calculation

6.2 Packing identification

Each box is identified with a proper label that indicates:

Batch number	Production date
Customer's product code	<i>Guala's product code</i>
Delivery address	Line no.
Quantity per box	Box no.
Customer Description	Customer Code

6.3 Storage specification

The temperature of the area where the pallets are stocked at the Customer's shall not be lower than 10° C; the relative humidity shall not be kept high for long periods, i.e. shall not be higher than 70 - 80%, since this could cause the breaking of the packing cartons.

The pallets should be kept in the production department at least 24 hours to settle to room temperature ($20 \pm 3^{\circ}\text{C}$) before being used (if the sprayers have been stocked in a warehouse at low temperature it is necessary to leave the pieces in a warmer place for an enough period of time in order to allow the pieces to reach the above mentioned room temperature).

In order to prevent defects to the box/product just one pallet can be put on another one.

Guala Dispensing suggests to use FIFO system in the usage of the stock or a completely stock rotation every six months.

Note: make sure that the fitting process is carried out at room temperature ($20 \pm 3^{\circ}\text{C}$) and in any case not under 17°.

7. CUSTOMER TECHNICAL SERVICE AND COMPLAINT MANAGEMENT

Customer technical service supports the customer providing with all necessary information and technical documents to permit the proper usage of Guala's products in the capping process. In case of complaint, *Gualadispensing* will investigate the causes and provide for corrective actions (whether needed) in order to avoid the repetition of the event.

To achieve this aim following information will be requested:

- number of defective pieces and percentage;
- description of the fault;
- date of production;
- batch number. etc.

Note : representative samples are requested too.

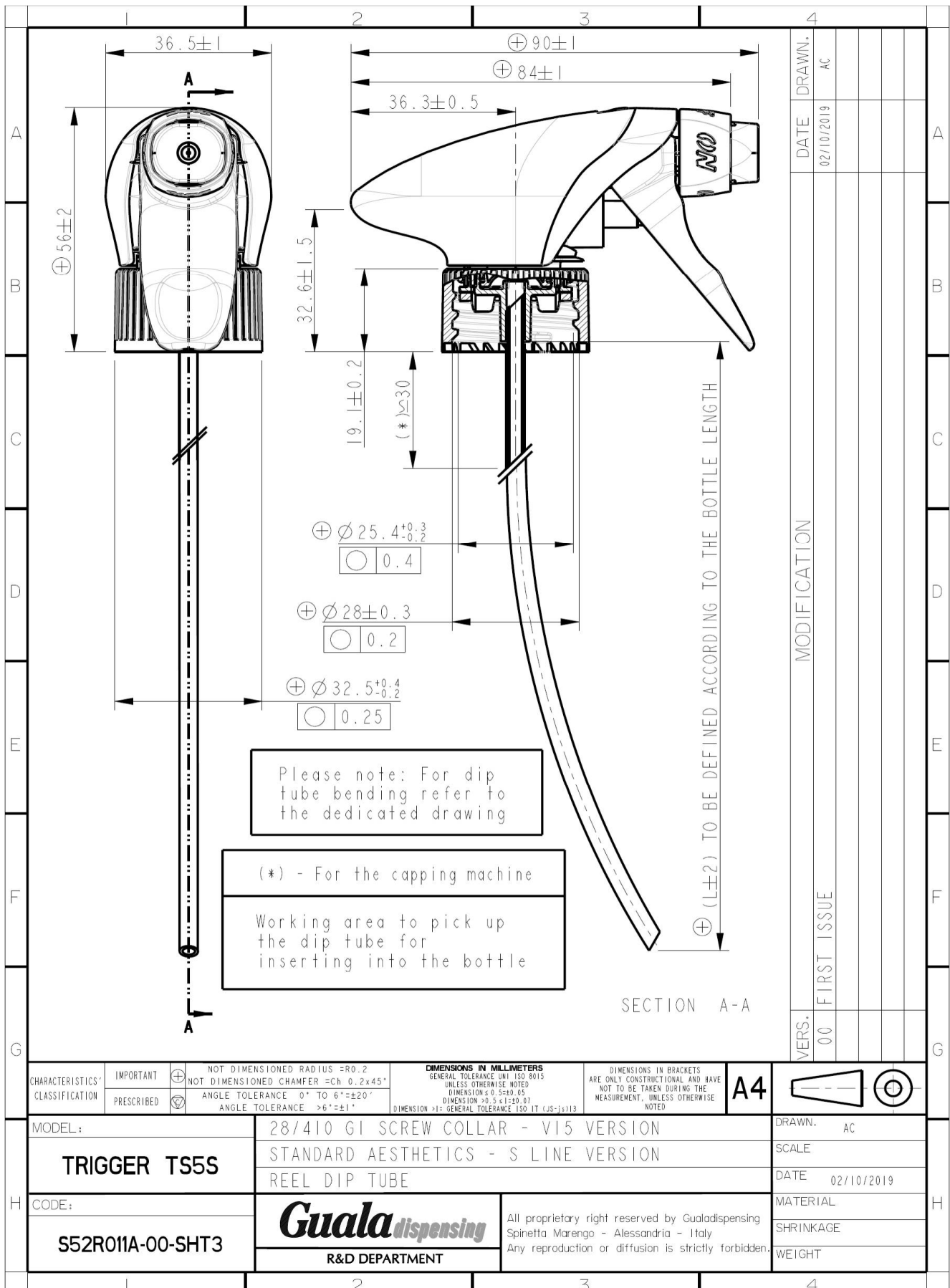
Guala dispensing is not liable for his own product after one year from the delivery time.
Product life: two years from the delivery time.

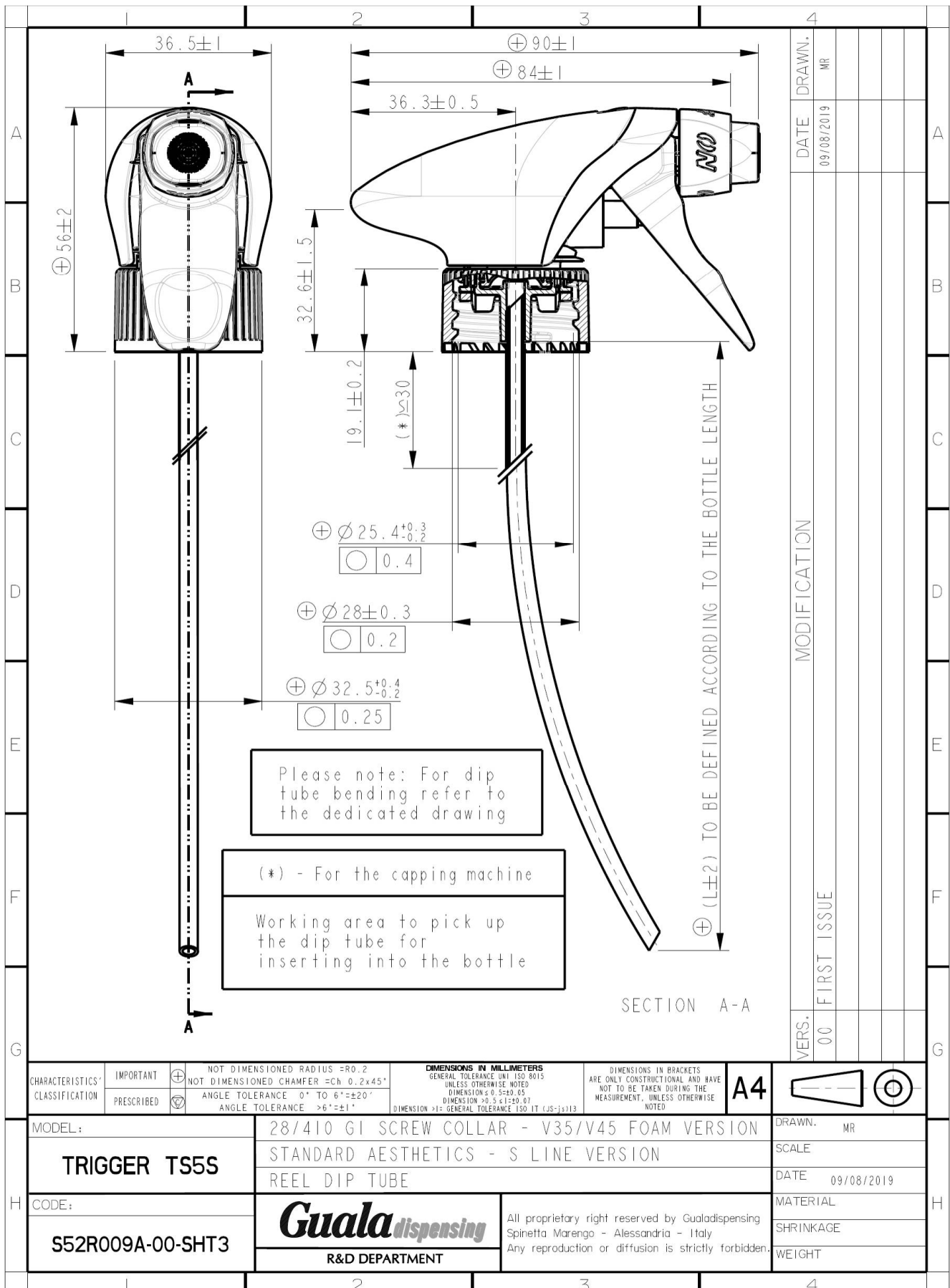
8 ENCLOSURES

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- S52R011A-00-T3
- S52R009A-00-T3
- S52R012A-00-T4

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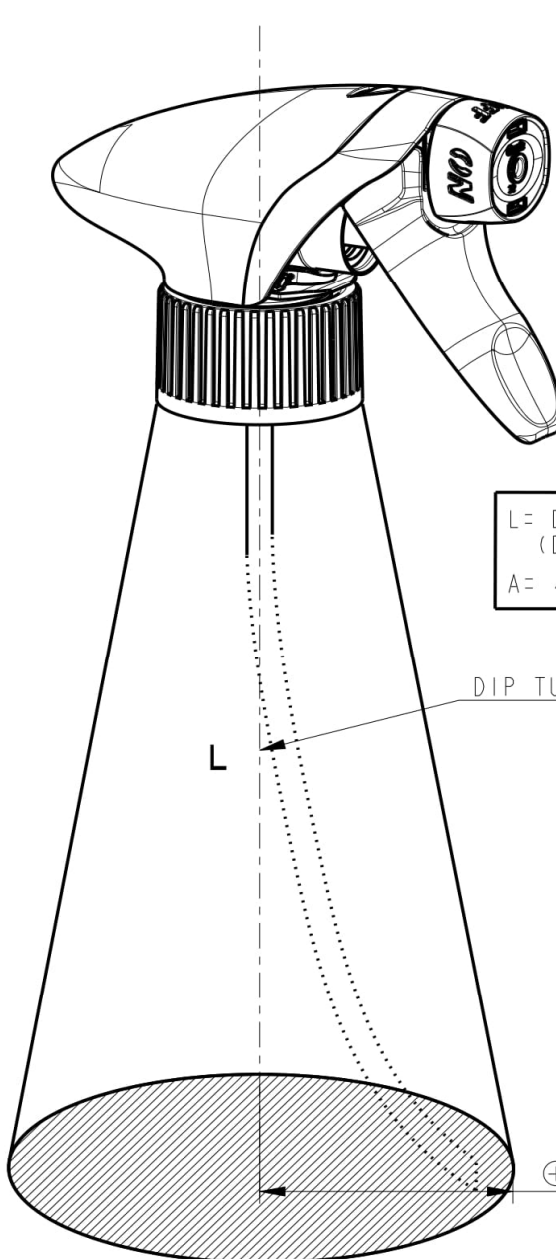




SUPPLY TECHNICAL SPECIFICATIONS

TS5 Screw S Line 28/410 G1 General

CA FT TS5 22 01 00

	1	2	3	4			
A	 L = DIP TUBE LENGTH (Defined by product code) A = 45% L DIP TUBE THEORETICAL AXIS L A			DRAWN. AC			
B				DATE 02/10/2019			
C							
D							
E							
F							
G				MODIFICATION VERS. 00 FIRST ISSUE			
CHARACTERISTICS CLASSIFICATION IMPORTANT $\oplus$ NOT DIMENSIONED CHAMFER $\approx Ch\ 0.2 \times 45^\circ$ PRESCRIBED ∇		NOT DIMENSIONED RADIUS $\approx R0.2$ ANGLE TOLERANCE 0° TO $6^\circ = \pm 20''$ ANGLE TOLERANCE $> 6^\circ = \pm 1^\circ$		DIMENSIONS IN MILLIMETERS GENERAL TOLERANCE UNI ISO 8015 UNLESS OTHERWISE NOTED DIMENSION ± 0.3 TO ± 0.05 DIMENSION > 0.5 TO ± 0.07 DIMENSION > 1 TO ± 0.1	DIMENSIONS IN BRACKETS ARE ONLY CONSTRUCTIONAL AND HAVE NOT TO BE TAKEN DURING THE MEASUREMENT, UNLESS OTHERWISE NOTED	A4	 
MODEL:		28/410 G1 SCREW COLLAR - SPRAY VERSION		DRAWN. AC			
TRIGGER TS5S		STANDARD AESTHETICS - S LINE VERSION		SCALE			
		DIP TUBE BENDING LIMITS		DATE 02/10/2019			
CODE:				MATERIAL			
S52R012A-00-SHT4		Guala <i>dispensing</i> R&D DEPARTMENT		SHRINKAGE			
		All proprietary right reserved by Gualadispensing Spinetta Marengo - Alessandria - Italy Any reproduction or diffusion is strictly forbidden.		WEIGHT			
	1	2	3	4			