

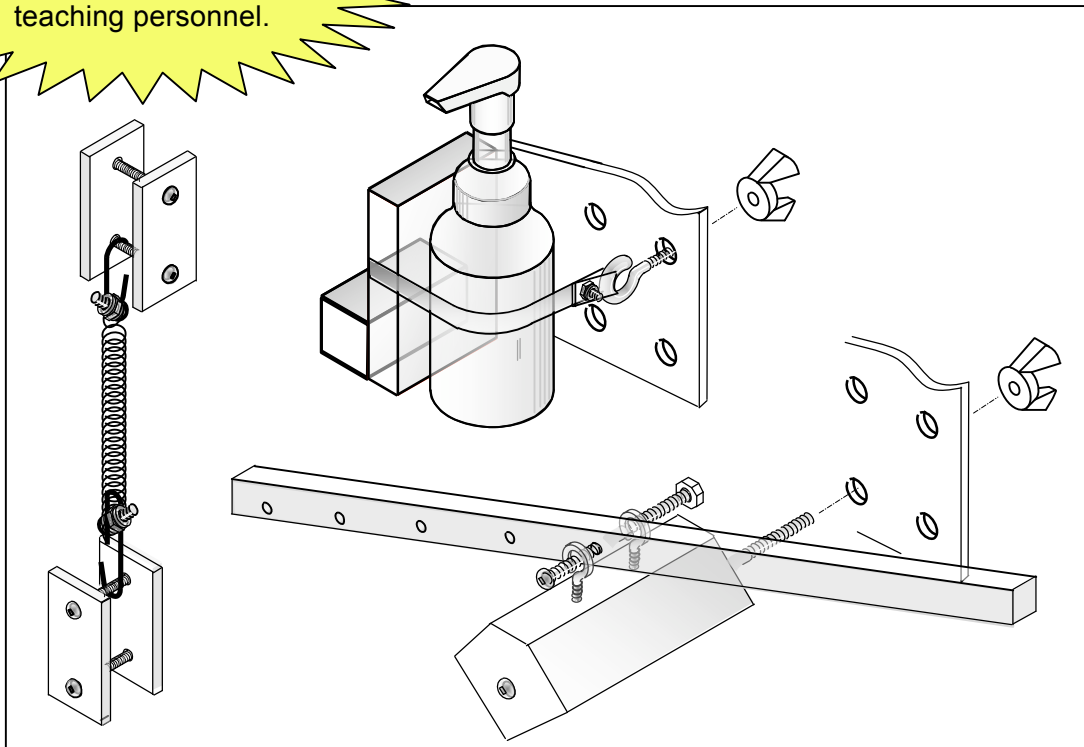


**centre de
développement
pédagogique**
*pour la formation générale
en science et technologie*

Working document

TECHNICAL FILE OF THE COMPONENTS OF THE PERFORATED PANEL

This technical file is
intended for technical or
teaching personnel.



« FIND THE SOLUTION! » LES

FABRICATION AND ASSEMBLY RANGE

ELEMENT: **ANCHOR**

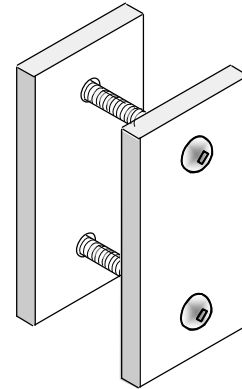
SET: **FIND THE SOLUTION!**

RANGE: **1**

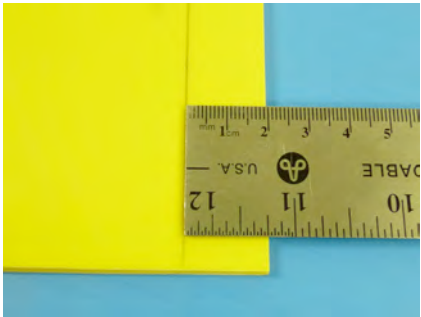

SHEET: **1 of 3**

MATERIALS:
Polystyrene and steel

NUMBER: **2**



| N° | PHASE, SUB-PHASE OR OPERATION | PHOTO OR DRAWING | MACHINE-TOOL, TOOLS |
|----|-------------------------------|------------------|---------------------|
|----|-------------------------------|------------------|---------------------|

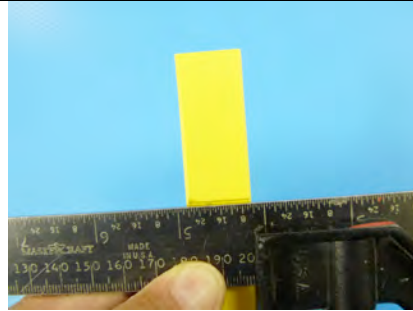
| | | | |
|----|--|--|---|
| 10 | FABRICATION | | |
| 11 | In a piece of 3mm thick polystyrene and at least 95 mm in length, trace a strip 20mm wide. |  | <ul style="list-style-type: none"> - Pencil - Ruler |
| 12 | Using a plastics knife, cut out the strip. |  | <ul style="list-style-type: none"> - Ruler or - Safety ruler - Plastics knife |
| 13 | File or scrape the edges of the strip. | | <ul style="list-style-type: none"> - Scraper or - Sand paper |

FABRICATION AND ASSEMBLY RANGE FOR THE ANCHOR

SHEET: 2 of 3

| N° | PHASE, SUB-PHASE OR OPERATION | PHOTO OR DRAWING | MACHINE-TOOL, TOOLS |
|----|-------------------------------|------------------|---------------------|
|----|-------------------------------|------------------|---------------------|

14 Cut two 45mm long strips.



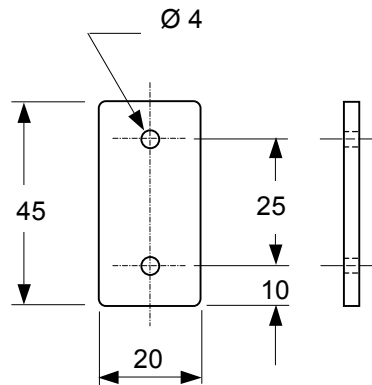
- Pencil
- Ruler
- Angle iron
- Plastics knife

15 Scrape the ends.


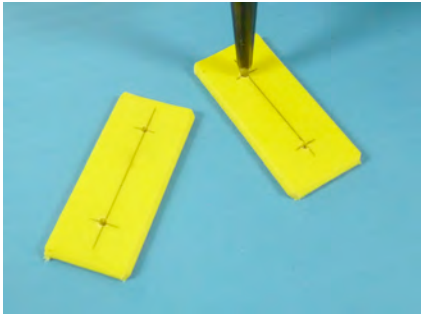
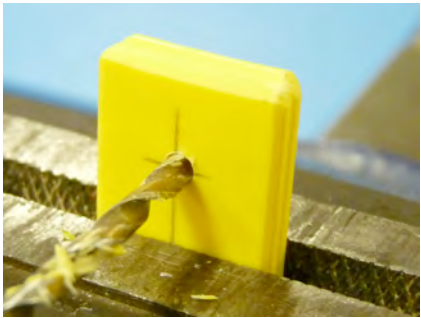




- Scraper or Sand paper

16 Using the drawing at right, trace the position of the holes.



- Pencil
- Ruler
- Angle iron

| FABRICATION AND ASSEMBLY RANGE FOR THE ANCHOR | | | SHEET: 3 of 3 |
|---|---|---|---|
| N° | PHASE, SUB-PHASE OR OPERATION | PHOTO OR DRAWING | MACHINE-TOOL, TOOLS |
| 17 | Chamfer the edges of each part. |  | <ul style="list-style-type: none"> - Sand paper |
| 18 | Point the position of the holes. |  | <ul style="list-style-type: none"> - Punch - Hammer |
| 19 | Tighten the two parts in the vise together and drill a 4mm hole. CAREFUL : Align the parts well before tightening the vise. |   | <ul style="list-style-type: none"> - Drill - 4 mm Ø bit - Bench vise |
| 20 | ASSEMBLY | | |
| 21 | Use 1" no. 6 bolts and nuts to finalise the anchorage. |  | <ul style="list-style-type: none"> - N°6 – 1 in. bolts - Nuts |

**FABRICATION AND ASSEMBLY
RANGE**

ELEMENT: **ANCHOR SUPPORT**

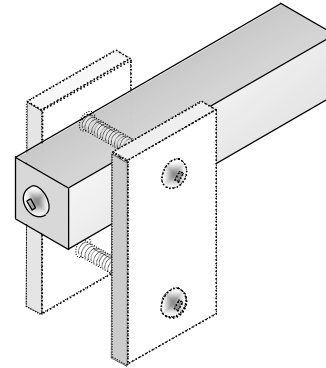
SET: **FIND THE SOLUTION!**

RANGE: **2**

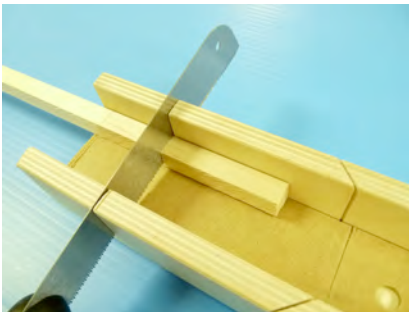


SHEET: **1 of 2**



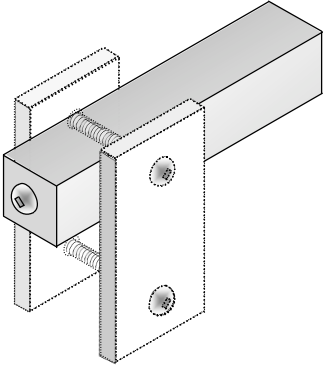
NUMBER: **1**

MATERIAL: **Pine**



| N° | PHASE, SUB-PHASE OR OPERATION | PHOTO OR DRAWING | MACHINE-TOOL, TOOLS |
|----|-------------------------------|------------------|---------------------|
|----|-------------------------------|------------------|---------------------|

| | | | |
|----|--|--|--|
| 10 | FABRICATION | | |
| 11 | In a 12mm X 12mm (½ in. x ½ in.) square pine dowel, cut a 65mm length. |  | <ul style="list-style-type: none"> - Pencil - Ruler - Mitre box - Hand saw |
| 12 | On one of the ends of the part, mark the center. This mark will be the position of the hole. |  | <ul style="list-style-type: none"> - Pencil - Ruler |
| 13 | Place the part in the vise and point the center. |  | <ul style="list-style-type: none"> - Bench vise - Punch - Hammer |

| FABRICATION AND ASSEMBLY RANGE FOR THE ANCHOR SUPPORT | | | SHEET: 2 of 2 |
|---|---|--|---|
| N° | PHASE, SUB-PHASE OR OPERATION | PHOTO OR DRAWING | MACHINE-TOOL, TOOLS |
| 14 | Place the part in a drill vise and drill a 4mm diameter hole right through it. |  | <ul style="list-style-type: none"> - Drill vise - Press drill - 4 mm Ø bit |
| 20 | ASSEMBLY | | |
| 21 | Insert a no. 8 - 32, 3 in. bolt into the part and affix it to any of the holes in the perforated panel using an appropriate washer and nut. |  | <ul style="list-style-type: none"> - Screwdriver - Pliers - N°8 – 32, 3 in. bolt. - Washer - Nut |
| 22 | The anchor will be easily placed on this support. |  | |

**FABRICATION AND ASSEMBLY
RANGE**

ELEMENT: PIVOT BLOCK

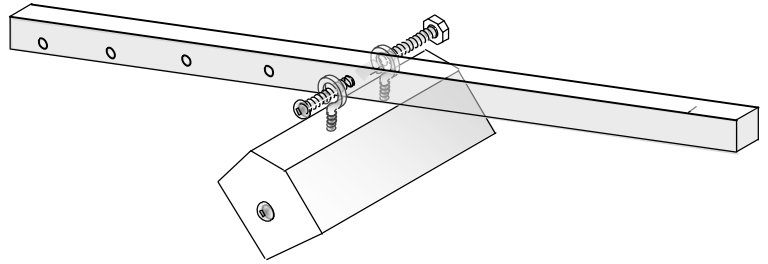
SET: FIND THE SOLUTION!

RANGE: 3




SHEET: 1 of 3



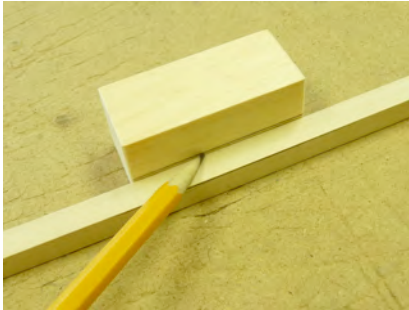
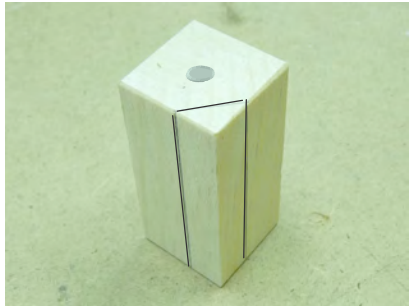
NUMBER: 1



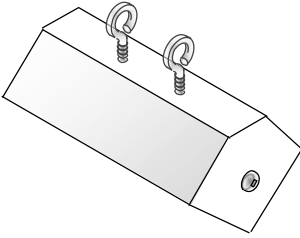
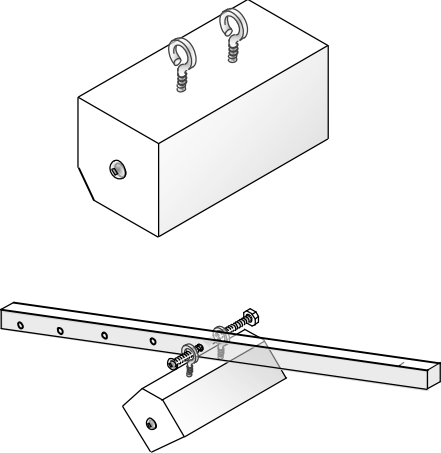
MATERIALS:
Pine and steel



| N° | PHASE, SUB-PHASE OR OPERATION | PHOTO OR DRAWING | MACHINE-TOOL, TOOLS |
|----|-------------------------------|------------------|---------------------|
|----|-------------------------------|------------------|---------------------|

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|----|---|--|--|
| 10 | FABRICATION | | |
| 11 | In a 27mm X 27mm (1 in. x 1 in.) square pine dowel, cut a 65mm length. |  | <ul style="list-style-type: none"> - Pencil - Ruler - Mitre box - Hand saw |
| 12 | Sand and chamfer the ends. |  | <ul style="list-style-type: none"> - Sand paper |
| 13 | On one of the ends of the part, mark the center. This will mark the position of the hole. |  | <ul style="list-style-type: none"> - Pencil - Ruler |

| FABRICATION AND ASSEMBLY RANGE OF THE PIVOT BLOCK | | | SHEET: 2 of 3 |
|---|---|--|--|
| N° | PHASE, SUB-PHASE OR OPERATION | PHOTO OR DRAWING | MACHINE-TOOL, TOOLS |
| 14 | Punch the center. |  | <ul style="list-style-type: none"> - Punch - Hammer |
| 15 | Place the part in a drill vise and drill a 4mm diameter hole right through it. |  | <ul style="list-style-type: none"> - Press drill - 4mm Ø bit - Drill vise |
| 16 | Using a 12mm X 12mm square dowel, trace two lines that will define the chamfer* . NOTE: A smaller chamfer will allow for greater amplitude of movement in the lever. |  | <ul style="list-style-type: none"> - Pencil - 10 mm x 10 mm square dowel |
| 17 | Trace the chamfer. * Chamfer: Flat surface obtained by flattening the edge of a solid made of rock, wood or metal. (Antidote) |  | <ul style="list-style-type: none"> - Pencil - Ruler |

| FABRICATION AND ASSEMBLY RANGE OF THE PIVOT BLOCK | | | SHEET: 3 of 3 |
|---|---|--|--|
| N° | PHASE, SUB-PHASE OR OPERATION | PHOTO OR DRAWING | MACHINE-TOOL, TOOLS |
| 18 | <p>Use the moveable part of the carpenter's square and the sanding table to chamfer the block.</p> <p>NOTE: Sand gently until the traced line.</p> |  | <ul style="list-style-type: none"> - Sliding carpenter's square - Band sander |
| 20 | ASSEMBLY | | |
| 21 | <p>Insert a N°8 - 32 - 3 in. bolt into the part and affix it to any hole of the perforated panel using the appropriate washer and nut.</p> |  | <ul style="list-style-type: none"> - Screwdriver - Pliers - N°8 - 32 - 3 in. bolt. - Washer - Nut |
| 22 | <p>For the pivot support, we will use two eyelets screwed into the block at the desired position. The position and distance between the eyelets will be determined by the part that will move in the pivot.</p> |  | <ul style="list-style-type: none"> - Eyelets |
| 23 | <p>The eyelets may be placed on any of the faces of the block, as desired.</p> |  | <ul style="list-style-type: none"> - Eyelets |

FABRICATION RANGE

ELEMENT: **LEVER**

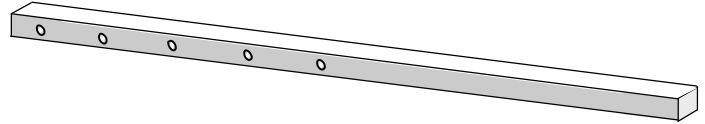
SET: **FIND THE SOLUTION!**

RANGE: **4**

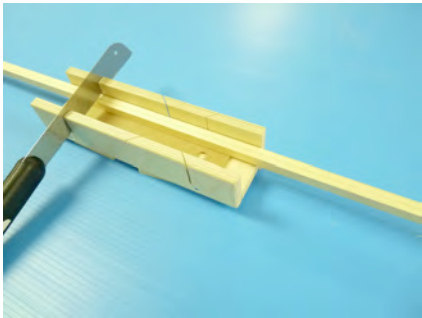

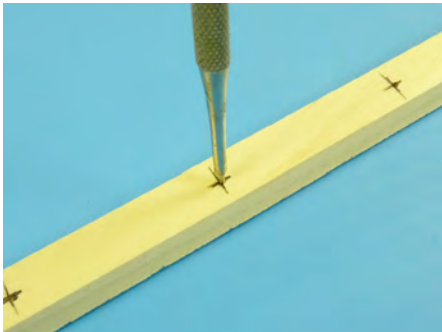
SHEET: **1 of 2**

NUMBER: **1**

MATERIAL: **Pine**



| N° | PHASE, SUB-PHASE OR OPERATION | PHOTO OR DRAWING | MACHINE-TOOL, TOOLS |
|----|-------------------------------|------------------|---------------------|
|----|-------------------------------|------------------|---------------------|

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|----|---|--|--|
| 10 | FABRICATION | | |
| 11 | In a square 12mm X 12mm (½ in. x ½ in.) dowel, cut a length of 420 mm. |  | <ul style="list-style-type: none"> - Pencil - Ruler - Mitre box - Hand saw |
| 12 | Starting from one extremity of the lever, trace the centers of five holes, spaced 50mm apart, placing the first hole 10mm from the end. |  | <ul style="list-style-type: none"> - Pencil - Ruler |
| 13 | Punch the five holes. |  | <ul style="list-style-type: none"> - Punch - Hammer |

FABRICATION RANGE OF THE LEVER

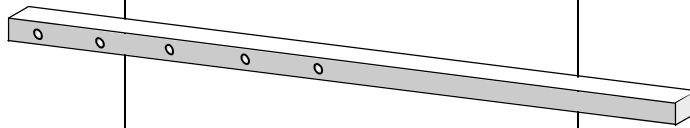
SHEET: 2 of 2

| N° | PHASE, SUB-PHASE OR OPERATION | PHOTO OR DRAWING | MACHINE-TOOL, TOOLS |
|-----------|--------------------------------------|-------------------------|----------------------------|
|-----------|--------------------------------------|-------------------------|----------------------------|

14 Drill the five holes with a diameter of 3.5mm.



- 3,5 mm Ø bit
- Press drill
- Drill vise



**FABRICATION AND ASSEMBLY
RANGE**

ELEMENT: NITINOL SPRING

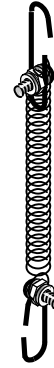
SET: **FIND THE SOLUTION!**

RANGE: 5

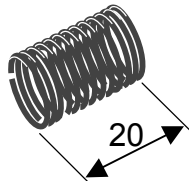
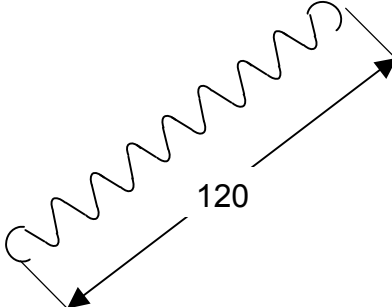
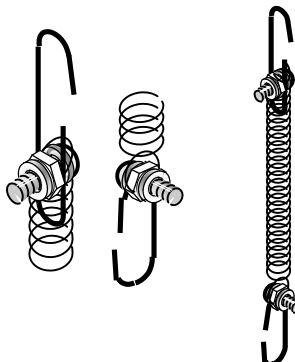
SHEET : 1 of 1

NUMBER: 1

MATERIALS : Various



| N° | PHASE, SUB-PHASE OR OPERATION | PHOTO OR DRAWING | MACHINE-TOOL, TOOLS |
|----|-------------------------------|------------------|---------------------|
|----|-------------------------------|------------------|---------------------|

| | | | |
|----|---|--|--|
| 10 | FABRICATION | | |
| 11 | Take a 20mm nitinol spring and stretch it out to the maximum. |  | <ul style="list-style-type: none"> - Two pairs of pliers |
| 12 | Once stretched, the spring should measure about 120mm Form a hook at each end. |  | <ul style="list-style-type: none"> - Long nosed pliers |
| 20 | ASSEMBLY | | |
| 21 | Cut a paper clip in half. Form two hooks that will be affixed using a N°6 - 32 ½ in. bolt, a washer and a nut. |  | <ul style="list-style-type: none"> - Screwdriver - Pliers - N°6 - 32 ½ in. bolt - Washers - Nuts - 1¾ in. paper clip |

**FABRICATION AND ASSEMBLY
RANGE**

ELEMENT: **BOTTLE SUPPORT**

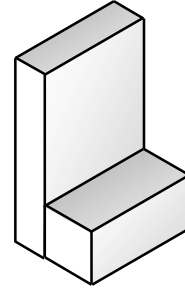
SET: **FIND THE SOLUTION!**

GAMME : **6**




FEUILLE : **1 de 2**



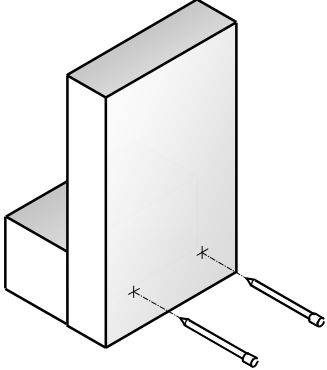
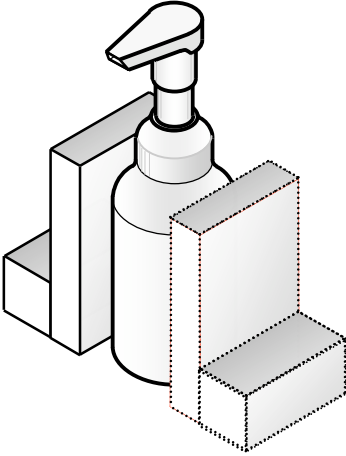
MATÉRIAU : **Pin**

NOMBRE : **1**



| N° | PHASE, SUB-PHASE OR OPERATION | PHOTO OR DRAWING | MACHINE-TOOL, TOOLS |
|----|-------------------------------|------------------|---------------------|
|----|-------------------------------|------------------|---------------------|

| | | | |
|-----------|--|--|--|
| 10 | FABRICATION | | |
| 11 | In a plank 16mm thick by 65mm wide, cut a 110mm piece. |  | <ul style="list-style-type: none"> - Pencil - Ruler - Carpenter's square - Band saw or Panel saw |
| 12 | Sand and chamfer the ends. |  | <ul style="list-style-type: none"> - Sand paper |
| 13 | In a 25mm X 25mm section of pine moulding, cut a 65mm piece. |  | <ul style="list-style-type: none"> - Pencil - Ruler - Carpenter's square - Band saw or Panel saw |

| FABRICATION AND ASSEMBLY RANGE OF THE BOTTLE SUPPORT | | | SHEET: 2 of 2 |
|--|--|--|-----------------------------|
| N° | PHASE, SUB-PHASE OR OPERATION | PHOTO OR DRAWING | MACHINE-TOOL, TOOLS |
| 14 | Sand and chamfer the ends. |  | - Sand paper |
| 20 | ASSEMBLY | | |
| 21 | Glue the two pieces together as shown. |  | - Carpenter's glue |
| 22 | Hold them together using two 1¼ in. finishing nails. |   | - Hammer - 1¼ in. nails. |
| | <p>NOTE: The support will be adjustable for all shapes of distributors. It may be placed to the right or left of the distributor.</p> | | |

FABRICATION AND ASSEMBLY RANGE

ELEMENT: **STRAP**

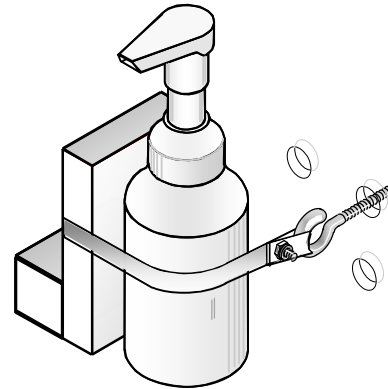
SET: **FIND THE SOLUTION!**

RANGE: **7**

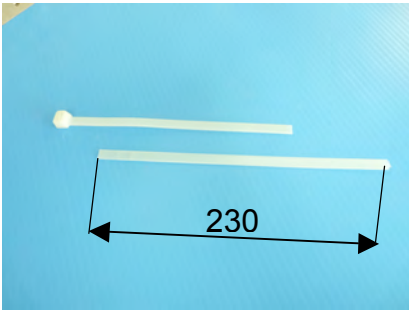

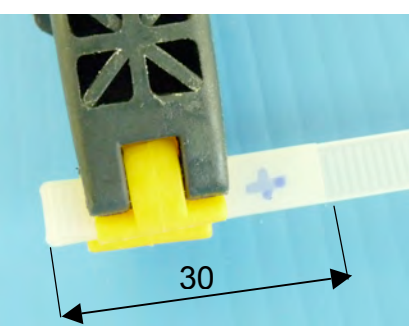
SHEET: **1 of 2**



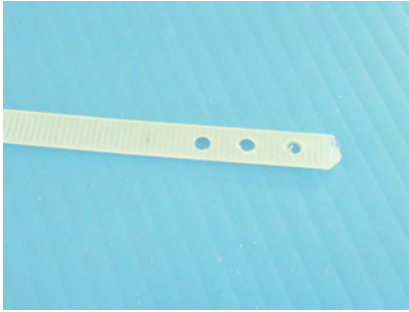
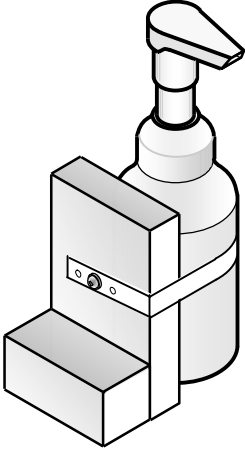
NUMBER: **1**

MATERIALS: **Various**



| N° | PHASE, SUB-PHASE OR OPERATION | PHOTO OR DRAWING | MACHINE-TOOL, TOOLS |
|----|-------------------------------|------------------|---------------------|
|----|-------------------------------|------------------|---------------------|

| | | | |
|----|---|--|--|
| 10 | FABRICATION | | |
| 11 | Cut a 230mm piece out of a 17 in. nylon « Ty-Rap » strap. |  | <ul style="list-style-type: none"> - Ruler - Retractable blade knife |
| 12 | Fold over a 40mm. length and hold it using a clamp. |  | <ul style="list-style-type: none"> - Ruler - Pencil - Clamp |
| 13 | Mark the center of the hole 30mm from the end. |  | <ul style="list-style-type: none"> - Pencil - Ruler |

| FABRICATION AND ASSEMBLY RANGE OF THE STRAP | | | SHEET: 2 of 2 |
|---|---|--|---|
| N° | PHASE, SUB-PHASE OR OPERATION | PHOTO OR DRAWING | MACHINE-TOOL, TOOLS |
| 14 | Place the strap in a vise on a wooden block. Drill a 3.5mm diameter hole. |  | <ul style="list-style-type: none"> - Workbench vise - Hand drill - 3.5 mm \varnothing bit |
| 20 | ASSEMBLY | | |
| 21 | Insert the strap into a 2 in. eyelet bolt and hold the bolt using a N°6 - 32 1/2 in. bolt, with the appropriate washer and nut. |  | <ul style="list-style-type: none"> - N°6 - 32 1/2 in. bolt - Washer - Bolt - 2 in. eyelet bolt |
| 22 | At the other end of the strap, drill three holes with a 10mm space between each hole, so as to allow for better adjustment when tightening. |  | <ul style="list-style-type: none"> - Pencil - Ruler - Drill - 3 mm \varnothing bit |
| 23 | Depending on the bottle to be used, one of the three holes will be used to affix the strap to the bottle support with a screw. |  | <ul style="list-style-type: none"> - 1/2 in. round head screw. - Washer - Screwdriver |