



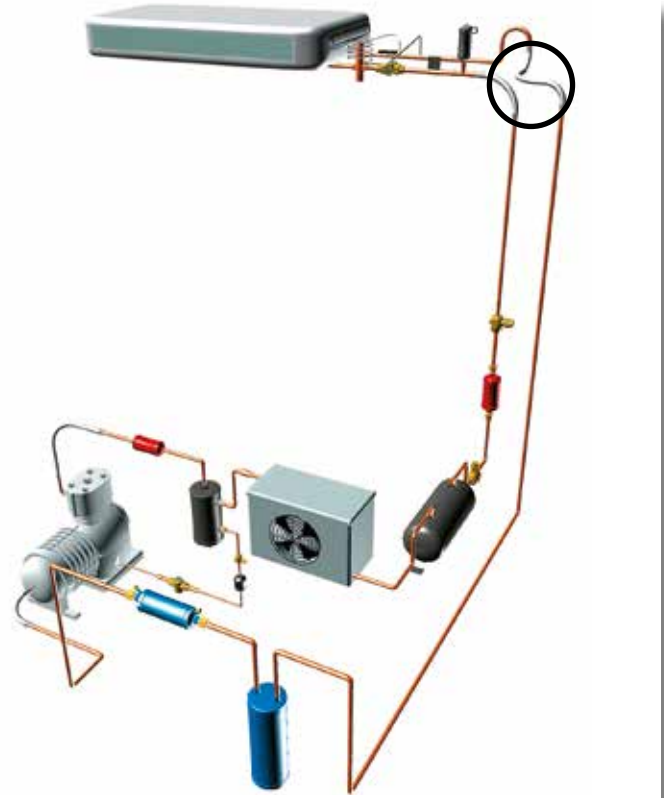
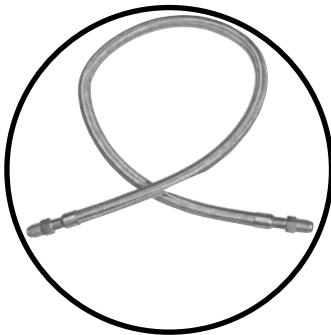
Stainless steel hoses, nickel-plated steel connections

CTCY-EN – 24.1-6 / 02-2018

→ TSCYS


■ Applications

- Flexible joining between fixed or mobile elements of refrigerating and air conditioning installations.
- Disconnection of installation's components, in order to eliminate all vibration transmissions.
- Elimination of stresses linked to dimensional piping variations (thermal expansion, retraction).
- Particularly recommended for:
 - Construction of mobile refrigerated display
 - Installations requiring the dismantling of removable parts in order to facilitate their cleaning
 - Any installation, refrigeration or air conditioning, which includes a mobile part
 - Replacement of the traditional copper piping in particular cases (operation of brazing difficult to make, search of time-saving, ...)



■ Functional features

- Products are compatible with CFCs, HCFCs, HFCs, CO₂, as well as with their associated oils and additives. Products are designed for use of non-hazardous refrigerants from group 2 of PED 2014/68/EU. To use CARLY components with fluids of the hydrocarbon group 1 – Propane R290, Butane R600, Isobutane R600a, Propylene R1270 – with HFOs and for a RANKINE organic cycle application, contact CARLY technical department.
- Product classification in CE categories is performed using the PED 2014/68/EU table, corresponding to a nominal diameter-based selection.
- Flexible wavy stainless steel metallic hoses constituted of spiral waves from a tube welded end to end and covered with a stainless steel wire braid.
- Nickel-plated steel connections, for the standards models: to screw SAE and to solder ODF.
- Standard lengths: 1 metre, and 1.50 metre.
- Cleaning and drying before individual packaging under heat sealed plastic tubular film.

 **Possible customization on request, even for unit needs:**

- Specific lengths
- Stainless steel connections, for better resistance to corrosive environments (e.g. railway and maritime application, ...)
- Specific flanges or connections

■ CARLY advantages

- Maximal working pressure: 46 bar.
- Specifically designed in order to resist frost and major temperature shifts, from - 40 °C to + 140 °C.
- Principle for connecting the components together (stainless steel hose + air-tightness ring + braid + connection) by stainless steel TIG weld. Contrary to a braze, this weld eliminates all risks of deteriorating the flexible hose by heat transfer during connection to the installation's piping.
- Very high mechanical resistance to corrosion.
- Long brazed or welded connections, in order to facilitate connection to installation.
- Unity helium air-tightness inspection.



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■ Warning

Before selecting or installing any component, please refer to the chapter 0 - **WARNING**.

■ General assembly precautions

The installation of a component in a refrigeration system by a skilled professional, requires some precautions:

- Some are specific to each component, and in this case, they are specified in the

RECOMMENDATIONS SPECIFIC part defined hereafter ;

- Other are general to all CARLY components, they are presented in the chapter 115 – **GENERAL ASSEMBLY PRECAUTIONS**.

- The recommendations relating to the CARLY components for the subcritical CO₂ applications are also developed in chapter 115 – **GENERAL ASSEMBLY PRECAUTIONS**.

■ Recommendations specific to TSCYS stainless steel flexible hoses

- Mounting of hoses can be performed in any direction, but without twisting, over-bending, extension or axial compression stress.
- Respect the minimum radius of curvature (static and dynamic) indicated in the technical specifications table.
- The hoses must imperatively be protected against shocks, not be put directly on the ground, not lie on sharp edges and not be in contact with each other.
- In the case of a dynamic assembly, the direction of movement and the axis of

the hose should be located within a same plane.

- For the brazing operation, we recommend the use of a filler metal with a high silver content (38 %minimum) and the use of a neutral gas inside the hose in order to avoid internal corrosion phenomena.
- During the brazing operation, be careful that the scouring flux used does not come in contact with the hose and its braid.
- The nickel lining of the connections hold ready nicely during temperature increase; it is nevertheless recommended to protect

the connections after brazing with an appropriate product, against corrosion risks.

- Tightening of hoses with flare connections must imperatively be performed with two wrenches, in order to prevent piping twisting.
- All arrangements must be taken, in order to prevent water concentration that may freeze and then deteriorate the flexible hose.



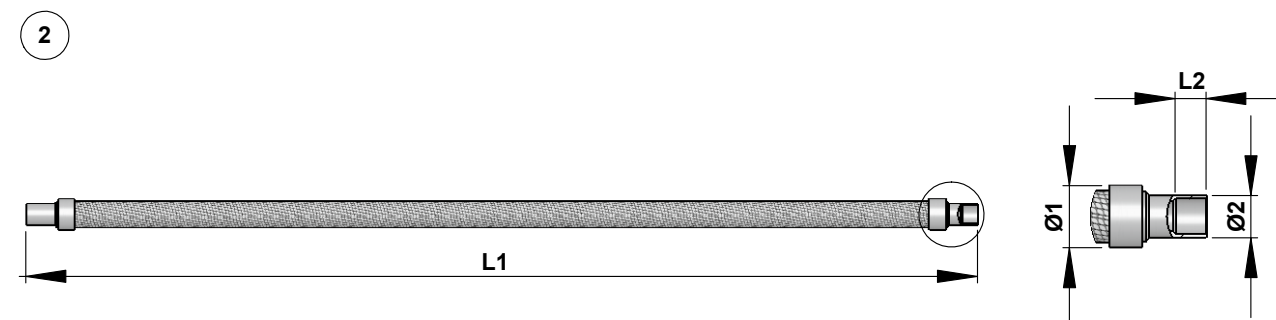
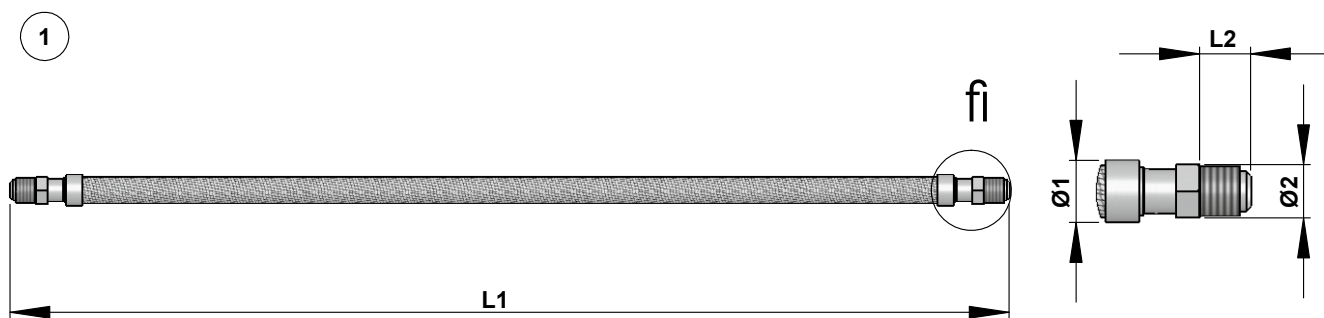
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■ Technical features

| CARLY references | Connections To screw SAE pouce | Connections To solder ODF pouce | CARLY references | Connections To solder ODF mm | Drawing No | Dimensions mm | | | | | Minimal bending radius mm | |
|------------------|--------------------------------------|---------------------------------------|------------------|------------------------------------|------------|------------------|----|------|----|-------------------|---------------------------------|---------|
| | | | | | | Ø1 | Ø2 | L1 | L2 | L3 upper faces | Static | Dynamic |
| TSCYS 1002 | 1/4 | | | | 1 | 13 | / | 1000 | 15 | 14 | 27 | 80 |
| TSCYS 1002 S | | 1/4 | TSCYS 1002 MMS | 6 | 2 | 13 | 9 | 1000 | 6 | / | 27 | 80 |
| TSCYS 1003 | 3/8 | | | | 1 | 18 | / | 1000 | 18 | 17 | 38 | 129 |
| TSCYS 1003 S | | 3/8 | TSCYS 1003 MMS | 10 | 2 | 18 | 13 | 1000 | 9 | / | 38 | 129 |
| TSCYS 1004 | 1/2 | | | | 1 | 20 | / | 1000 | 20 | 22 | 45 | 139 |
| TSCYS 1004 S | | 1/2 | TSCYS 1004 MMS | 12 | 2 | 20 | 16 | 1000 | 11 | / | 45 | 139 |
| TSCYS 1005 | 5/8 | | | | 1 | 26 | / | 1000 | 23 | 24 | 56 | 160 |
| TSCYS 1005 S | | 5/8 | TSCYS 1005 MMS | 15 | 2 | 26 | 19 | 1000 | 14 | / | 56 | 160 |
| TSCYS 1502 | 1/4 | | | | 1 | 13 | / | 1500 | 15 | 14 | 27 | 80 |
| TSCYS 1502 S | | 1/4 | TSCYS 1502 MMS | 6 | 2 | 13 | 9 | 1500 | 6 | / | 27 | 80 |
| TSCYS 1503 | 3/8 | | | | 1 | 18 | / | 1500 | 18 | 17 | 38 | 129 |
| TSCYS 1503 S | | 3/8 | TSCYS 1503 MMS | 10 | 2 | 18 | 13 | 1500 | 9 | / | 38 | 129 |
| TSCYS 1504 | 1/2 | | | | 1 | 20 | / | 1500 | 20 | 22 | 45 | 139 |
| TSCYS 1504 S | | 1/2 | TSCYS 1504 MMS | 12 | 2 | 20 | 16 | 1500 | 11 | / | 45 | 139 |
| TSCYS 1505 | 5/8 | | | | 1 | 26 | / | 1500 | 23 | 24 | 56 | 160 |
| TSCYS 1505 S | | 5/8 | TSCYS 1505 MMS | 15 | 2 | 26 | 19 | 1500 | 14 | / | 56 | 160 |





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■ Technical features

| CARLY references | Nominal diameter | CARLY references | Nominal diameter | Maximal working pressure | Working pressure ⁽¹⁾ | Maximal working temperature | Minimal working temperature | Working temperature ⁽¹⁾ | CE Category ⁽²⁾ |
|------------------|------------------|------------------|------------------|--------------------------|---------------------------------|-----------------------------|-----------------------------|------------------------------------|----------------------------|
| | DN inch | | DN mm | PS bar | PS BT bar | TS maxi °C | TS mini °C | TS BT °C | |
| TSCYS 1002 | 1/4 | | | 46 | 15 | 140 | -40 | -30 | Art4§3 |
| TSCYS 1002 S | 1/4 | TSCYS 1002 MMS | 6 | 46 | 15 | 140 | -40 | -30 | Art4§3 |
| TSCYS 1003 | 3/8 | | | 46 | 15 | 140 | -40 | -30 | Art4§3 |
| TSCYS 1003 S | 3/8 | TSCYS 1003 MMS | 10 | 46 | 15 | 140 | -40 | -30 | Art4§3 |
| TSCYS 1004 | 1/2 | | | 46 | 15 | 140 | -40 | -30 | Art4§3 |
| TSCYS 1004 S | 1/2 | TSCYS 1004 MMS | 12 | 46 | 15 | 140 | -40 | -30 | Art4§3 |
| TSCYS 1005 | 5/8 | | | 46 | 15 | 140 | -40 | -30 | Art4§3 |
| TSCYS 1005 S | 5/8 | TSCYS 1005 MMS | 15 | 46 | 15 | 140 | -40 | -30 | Art4§3 |
| TSCYS 1502 | 1/4 | | | 46 | 15 | 140 | -40 | -30 | Art4§3 |
| TSCYS 1502 S | 1/4 | TSCYS 1502 MMS | 6 | 46 | 15 | 140 | -40 | -30 | Art4§3 |
| TSCYS 1503 | 3/8 | | | 46 | 15 | 140 | -40 | -30 | Art4§3 |
| TSCYS 1503 S | 3/8 | TSCYS 1503 MMS | 10 | 46 | 15 | 140 | -40 | -30 | Art4§3 |
| TSCYS 1504 | 1/2 | | | 46 | 15 | 140 | -40 | -30 | Art4§3 |
| TSCYS 1504 S | 1/2 | TSCYS 1504 MMS | 12 | 46 | 15 | 140 | -40 | -30 | Art4§3 |
| TSCYS 1505 | 5/8 | | | 46 | 15 | 140 | -40 | -30 | Art4§3 |
| TSCYS 1505 S | 5/8 | TSCYS 1505 MMS | 15 | 46 | 15 | 140 | -40 | -30 | Art4§3 |

⁽¹⁾ The working pressure is limited to the PS BT value when working temperature is lower than or equal to TS BT value.

⁽²⁾ Classification by diameter, according to PED 2014/68/EU (refer to chapter 0).

■ Weights and packaging

| CARLY references | Unit weight kg | | Packaging number of pieces | CARLY references | Unit weight kg | | Packaging number of pieces |
|--------------------|-------------------|-------------------|-------------------------------|--------------------|-------------------|-------------------|-------------------------------|
| | With packaging | Without packaging | | | With packaging | Without packaging | |
| TSCYS 1002 | 0,21 | 0,21 | 1 | TSCYS 1502 | 0,29 | 0,29 | 1 |
| TSCYS 1002 S & MMS | 0,16 | 0,16 | 1 | TSCYS 1502 S & MMS | 0,25 | 0,25 | 1 |
| TSCYS 1003 | 0,30 | 0,30 | 1 | TSCYS 1503 | 0,39 | 0,39 | 1 |
| TSCYS 1003 S & MMS | 0,25 | 0,25 | 1 | TSCYS 1503 S & MMS | 0,34 | 0,34 | 1 |
| TSCYS 1004 | 0,40 | 0,40 | 1 | TSCYS 1504 | 0,56 | 0,56 | 1 |
| TSCYS 1004 S & MMS | 0,35 | 0,35 | 1 | TSCYS 1504 S & MMS | 0,45 | 0,45 | 1 |
| TSCYS 1005 | 0,55 | 0,54 | 1 | TSCYS 1505 | 0,72 | 0,71 | 1 |
| TSCYS 1005 S & MMS | 0,41 | 0,40 | 1 | TSCYS 1505 S & MMS | 0,40 | 0,39 | 1 |