

Non-pressurized vessels designed for the storage and transportation of liquid nitrogen



- ▶ Capacity of 7 to 100 litres
- ▶ Static holding time up to 180 days
- ▶ 6 year guarantee on the vacuum



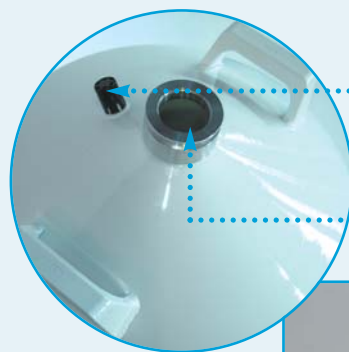
Main characteristics include

Various dispensing systems can be fitted to the TR

- ▶ Tipping handle **C**
- ▶ Tipping stand **E**
- ▶ The DL3 pressurized decanting system **D**

Quality

- ▶ Made out of aluminum and composite materials provides for low consumption and light weight
- ▶ High quality polyurethane paint for long life
- ▶ Standard neck diameter of Ø 50 mm
- ▶ Vacuum valve



Vacuum valve

Neck diameter 50 mm

Tipping handle **C**





Filling a TR using a TP

Application areas include:
Industrial, laboratories, life sciences,
medical, ...

Gamme TR

		TR11	TR21	TR26	TR35	TR60	TR100
CHARACTERISTICS							
Liquid capacity	l	12.2	21.5	26	33.6	60	99
Diameter of neck	mm	50	50	50	50	50	50
Static holding time	d ¹⁾	67	119	130	140	150	180
Daily evaporation rate	l/d ¹⁾	0.18	0.18	0.2	0.24	0.4	0.55
Weight empty	kg	7.5	11.0	13.5	15.8	21.5	29.5
Weight full	kg	17.3	28.3	34.6	43	70	110
External diameter	mm	308	388	388	468	468	510
Total height	mm	584	605	669	655	869	986
Total interior height	mm	530	535	612	580	800	933

PRODUCT REFERENCES

References to order	TR11-1	TR21-1	TR26-1	TR35-1	TR60-1	TR100-1
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MAIN ACCESSORY REFERENCES

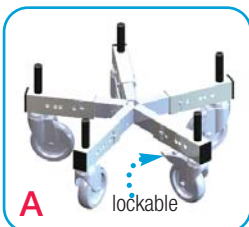
A: Roller base	ACC-ALU-29					
B: Fixation kit for the roller base (3 parts)	ACC-ALU-32					
C: Tipping handle	ACC-TR-15	ACC-TR-16	ACC-TR-16	-	-	-
D: DL3 pressurized decanting system	ACC-TR-5					
E: Tipping stand	-	ACC-TR-17	ACC-TR-17	ACC-TR-18	-	-
F: Flexible transfer hose (DN10) ²⁾	1.1 m	ACC-FL180180NL-11				
Flexible avec canne de transfert (DN10) ^{3) 4) 5)}		F + G1 ou F + G2				
G1: Transfer cane with anti-splash nozzle	ACC-FLTC-2					
G2: Transfer cane without anti-splash nozzle	ACC-FLTC-1					

1) Daily evaporation and static holding time are given for the following conditions: 20°C, 1 013 mb, and vessel is stationary with lid closed.

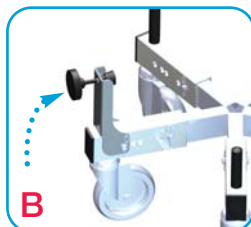
These are nominal values and may vary according to the history of the vessel and the manufacturing tolerances.

2) The flexible hoses are available in different lengths: 1.5, 2, 3 and 4 meters. If the length = 1.5 m the commercial reference = NL-15.

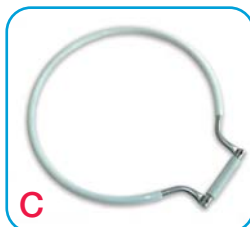
If the length = 2 m the commercial reference = NL-20. If the length = 3 m the commercial reference = NL-30. If the length = 4 m the commercial reference = NL-40.



A lockable



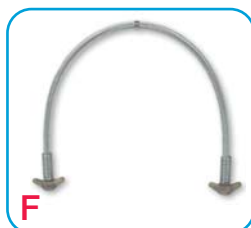
B



C



E

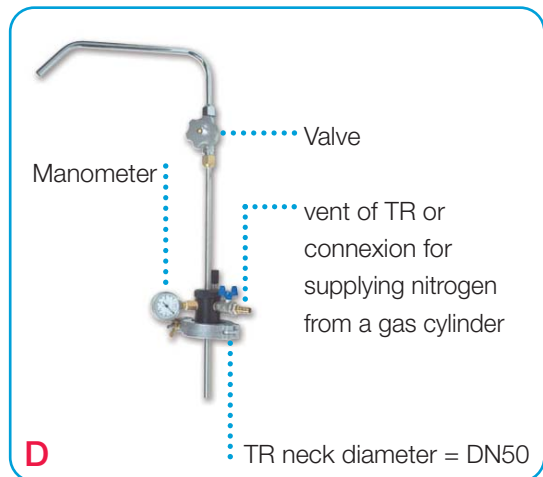


F



G1

G2



Manometer

Valve

vent of TR or connexion for supplying nitrogen from a gas cylinder

TR neck diameter = DN50

Self-pressurized (0.5 bar) liquid nitrogen storage and dispensing vessels.



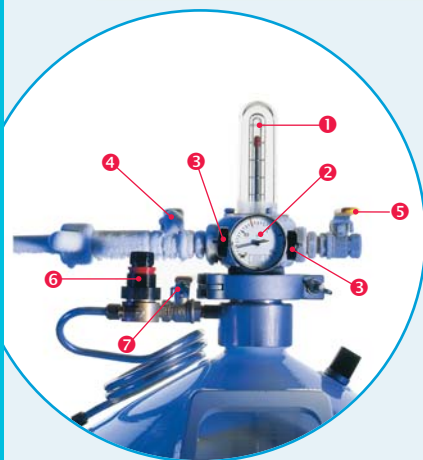
- ▶ Capacity of 35 to 100 litres
- ▶ Self-pressurized vessel
- ▶ Delivered with or without the operating head*
- ▶ Static holding time up to 75 days
- ▶ 6 year guarantee on the vacuum

* Operating head is removable

- 1 Float-type level indicator
- 2 Manometer
- 3 2 safety valves for 0.5 bar
- 4 Dispensing / liquid use valve
- 5 Venting valve

Self-pressurizing system

- 6 Pressure gauge
- 7 Pressurizing valve



Main characteristics include

Easy to use

- ▶ Direct liquid nitrogen supply with the decanting valve
- ▶ The TP35 can fit easily under a laboratory bench or workstation
- ▶ A hand rail can be easily attached to protect the operating head and make it easier to move the vessel

Easy to dispense liquid nitrogen

- ▶ Double valve option for liquid use



Quality

- ▶ Made out of aluminum and composite materials provides for low consumption and light weight
- ▶ High quality polyurethane paint for long life



Hand rail **C**

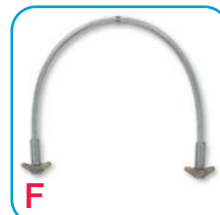
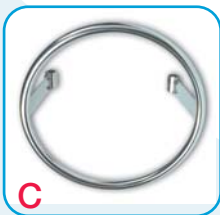
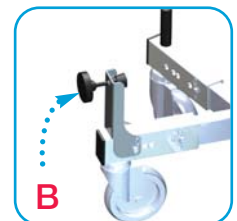
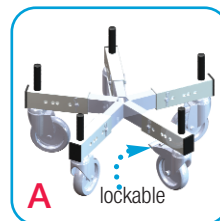
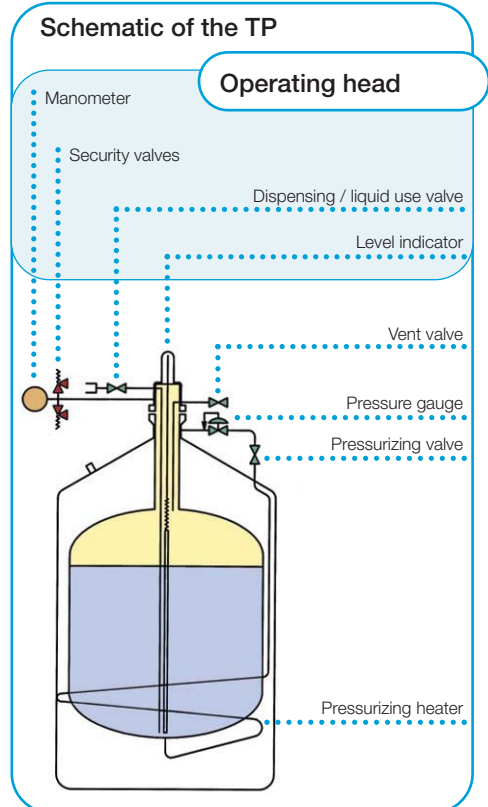
Flexible hose with dispensing cane **G**

Application areas include:
Industrial, laboratories, life sciences,
medical, ...

TP		TP35	TP60	TP100
CHARACTERISTICS				
Liquid capacity	l	35	60	98
Diameter of neck	mm	50	50	50
Static holding time	d ¹⁾	35	60	75
Daily evaporation rate	l/d ¹⁾	1	1	1,3
Weight empty with operating head	kg	19.8	26.4	33.5
Weight full with operating head	kg	48	74.5	113.5
External diameter	mm	468	468	510
Total height with operating head	mm	853	1,080	1,213
Total interior height	mm	580	815	945
Maximum operating pressure in standard bars	bar	0.5	0.5	0.5
Maximum flow rate	l/mn ²⁾	2.4 (P=0.5b)	3.5 (P=0.5b)	5.2 (P=0.5b)

PRODUCT REFERENCES			
TP with operating head and pressure regulator	TP35-1	TP60-1	TP100-1
TP without operating head (pressure regulator included)	TP35-2	TP60-2	TP100-2

MAIN ACCESSORY REFERENCES	
A1: Roller base (height: 220 mm)	ACC-ALU-29
A1: Non magnetic roller base (height: 205 mm)	ACC-ALU-31
B: Fixation kit for the roller base (3 parts)	ACC-ALU-32
C: Hand rail	ACC-ALU-21
D: Withdrawal device with double valve	ACC-TP-21
E: Dispensing system with anti-splash nozzle	ACC-TP-17
F: Flexible transfer hose with (DN10) ⁴⁾	1.1 m ACC-FL180180NL-11
Flexible transfer hose with cane (DN10) ^{3) 4) 5)}	F + G1 ou F + G2
G1: Transfer cane with anti-splash nozzle	ACC-FLTC-2
G2: Transfer cane without anti-splash nozzle	ACC-FLTC-1



1) Daily evaporation and static holding time are given for the following conditions: 20°C, 1 013 mb, and vessel is stationary with lid closed. These are nominal values and may vary according to the history of the vessel and the manufacturing tolerances.

2) Indicative value that can vary greatly in accordance with the filling time of the vessel.

3) For dispensing liquid nitrogen in Voyageur, GT, Agil, or Arpege vessels – small volumes of nitrogen in non-pressurized vessels

4) The flexible hoses are available in different lengths: 1.5, 2, 3 and 4 meters. If the length = 1.5 m the commercial reference = NL-15. If the length = 2 m the commercial reference = NL-20. If the length = 3 m the commercial reference = NL-30. If the length = 4 m the commercial reference = NL-40.

5) Available in length from 1.1 – 4 m and for connecting to pressurized vessels or vacuum lines with a maximum of 3 bar.

The line of dewars designed for easy use of small volumes of liquid nitrogen



- ▶ The AGIL line includes 6 models with capacities from 0.5 up to 6 litres
- ▶ Stainless steel, vacuum insulated
- ▶ Pouring handles
- ▶ Cork lids (optional)
- ▶ Use for temperatures ranging from - 200 °C /+ 200 °C




Freezing embryos: the AGIL 3 is perfect for cooling down the seeding bar



Easy transportation of sample for short distances

Using AGIL

- ▶ For transportation of biological samples in liquid nitrogen in the laboratory
- *  page 14 ▶ For cooling down a manual seeding bar for freezing applications like FREEZAL
- ▶ For holding small volumes of liquid nitrogen needed on a daily basis in a laboratory



Areas of use and applications include:
Scientific, medical and pharmaceutical laboratories...

AGIL		AGIL 0.5	AGIL 1	AGIL 1/L	AGIL 2	AGIL 3	AGIL 6
FEATURES							
Volume capacity	l	0.5	1	1	2	3	6
Interior diameter	mm	65	85	100	100	185	185
Daily evaporation at 20°C without lid	l/d ²	1	0.9	1.6	1.1	3.1	2.9
Static autonomy at 20°C with out lid	h ¹⁾	12	26	15	43	23	49
External diameter	mm	87	107	122	122	200	200
Weight empty	kg	0.56	0.95	0.80	1.35	1.78	2.40
Total height	mm	203	231	177	312	190	300
PRODUCT REFERENCES							
AGIL (without cork lid)		AGIL05-2	AGIL1-2	AGIL1L-2	AGIL2-2	AGIL3-2	AGIL6-2
PRODUCT ACCESSORIES							
A: Cork Lid		ACC-AGIL-1	ACC-AGIL-2	ACC-AGIL-3	ACC-AGIL-4		
B: Protective eye glasses				ACC-SECU-2			
C: Protective gloves (size 8)				ACC-SECU-15			
Protective gloves (size 9)				ACC-SECU-16			
Protective gloves (size 10)				ACC-SECU-17			
Protective gloves (size 11)				ACC-SECU-18			

1) Daily evaporation rate and static autonomy are based on 20°C working environment, 1013 mb, the dewar being stationary and with a lid. These values can vary depending on the working environment and condition of the dewar.
2) AIR LIQUIDE reserves the right to change the information in this document without prior notice.



Main features

Quality / Functionality

- ▶ Made in stainless steel for greater durability
- ▶ Ability to work with temperatures ranging from - 200 °C /+ 200 °C. The use of liquid oxygen is not permitted

Easy to use

- ▶ Pouring handles
- ▶ Compact dewars easy to use and perfectly designed for use in laboratories



The AGIL can be filled using a TR