

# Technical data - tanks for air gases LIN, LOX, LAR.

Size		30	60	110	200	300	490	610	800
<b>Max. allowable working pressure</b>	air gases: 18 bar, 36 bar								for LIN only
<b>Gross capacity</b>	approx. litre	3,160	6,365	11,535	20,355	30,205	49,020	61,620	80,360
<b>Net capacity</b>	approx. litre 18 bar	3,000	6,050	10,960	19,340	28,700	46,570	58,540	76,340
	36 bar	2,840	5,730	10,380	18,320	27,180	44,120	55,460	
<b>Pressure stage</b>									
18 bar, filling ratio 95 %, 1 bar	kg LIN	2,425	4,890	8,855	15,630	23,190	37,630	47,300	61,680
	kg LOX	3,425	6,910	12,530	22,090	32,885	53,180	66,850	
	kg LAR	4,185	8,440	15,290	26,980	40,040	64,965	81,660	
36 bar, filling ratio 90 %, 1 bar	kg LIN	2,300	4,630	8,390	14,800	21,970	35,650	44,810	
	kg LOX	3,250	6,540	11,850	20,920	31,050	50,390	63,340	
	kg LAR	3,970	7,990	14,480	25,560	37,920	61,550	77,370	
<b>Boil-off rate</b> 1 bar, 15°C A.T. referred to total capacity vacuum < 2 x 10 <sup>-2</sup> mbar	%/d LIN	0.67	0.58	0.44	0.31	0.30	0.21	0.20	0.19
	%/d LOX	0.42	0.37	0.29	0.20	0.19	0.13	0.12	
	%/d LAR	0.46	0.40	0.32	0.21	0.21	0.15	0.14	
<b>Discharge capacity with standard pressure building coil at 0,7 x MAWP and 8 hours operating time</b>									
18 bar	m <sup>3</sup> /h (1 bar, 15°C) LIN		150	300	300	600		600	600
	m <sup>3</sup> /h (1 bar, 15°C) LOX		190	380	380	750		750	
	m <sup>3</sup> /h (1 bar, 15°C) LAR		190	380	380	750		750	
36 bar	m <sup>3</sup> /h (1 bar, 15°C) LIN		140	140	140	280		280	
	m <sup>3</sup> /h (1 bar, 15°C) LOX		180	180	180	360		360	
	m <sup>3</sup> /h (1 bar, 15°C) LAR		180	180	180	360		360	
<b>Capacity of one safety valve at 1.1 x MAWP/cold condition</b>									
18 bar	kg/h LIN					1,090			1,070
	kg/h LOX					1,010			
	kg/h LAR					1,240			
36 bar	kg/h LIN					5,610			
	kg/h LOX					2,260			
	kg/h LAR					2,850			
<b>Insulation</b>	insulating powder (perlite), vacuum < 5 x 10 <sup>-2</sup> mbar (tank in operation), status of delivery: 5 mbar								
<b>Main material</b>	inner vessel: low temperature resistant austenitic steel outer vessel: carbon steel								
<b>Main dimensions</b>	overall diameter	1,600	1,600	2,000	2,400	2,400	3,000	3,000	3,000
	overall height	4,150	7,150	7,350	8,350	11,550	11,550	14,150	18,050
<b>Weight empty, kg</b>	18 bar type	2,510	4,910	5,940	9,840	13,920	19,300	23,370	29,650
	36 bar type	2,600	5,220	7,180	12,310	17,090	24,570	30,260	

LIN = liquid nitrogen; LOX = liquid oxygen; LAR = liquid argon

# Technical data - tanks for carbon dioxide.

Size		30	60	110	200	300	490	610
<b>Max. allowable working pressure</b>	CO <sub>2</sub> : 22 bar							
<b>Gross capacity</b>	approx. litre	3,160	6,365	11,535	20,355	30,205	49,020	61,620
<b>Net capacity</b>	approx. litre	2,940	5,920	10,730	18,930	28,090	45,590	57,310
<b>Filling ratio 93 %, 1 bar</b>	kg CO <sub>2</sub>	3,120	6,280	11,370	20,065	29,780	48,330	60,740
<b>Boil-off rate 1 bar, 15°C A.T. referred to total capacity vacuum &lt; 2 x 10<sup>-2</sup> mbar</b>	%/d CO <sub>2</sub>	0.22	0.19	0.14	0.10	0.10	0.07	0.06
<b>Discharge capacity with standard pressure building coil at 0.7 x MAWP and 8 hours operating time</b>								
<b>pressure stage 22 bar</b>	kg/h (1 bar, 15°C) CO <sub>2</sub>		70	140	140	280		280
<b>Capacity of one safety valve at 1.1 x MAWP/cold condition</b>								
<b>pressure stage 22 bar</b>	kg/h, CO <sub>2</sub>				975			
<b>Insulation</b>	insulating powder (perlite), vacuum < 5 x 10 <sup>-2</sup> mbar (tank in operation) status of delivery: 5 mbar							
<b>Main material</b>	inner vessel: low temp. resistant austenitic steel outer vessel: carbon steel							
<b>Main dimensions</b>	overall diameter	1,600	1,600	2,000	2,400	2,400	3,000	3,000
	overall height	4,150	7,150	7,350	8,350	11,550	11,550	14,150
<b>Weight empty, kg</b>	22 bar Type	2,510	4,910	6,300	10,250	14,500	20,500	24,800