



applied system technologies™

total solutions for  
air, vacuum &  
inert gas systems



INFINITY



## Infinite Advantages. Infinite Possibilities.

Imagine a solid metal piping system that offers superior strength within a lightweight design. A system that's easy to install, yet ensures high performance and versatility. At Applied System Technologies, that's just what we did to create Infinity - the first all-metal, quick-connect piping system at an affordable price.

Heralded for its innovative design, Infinity offers the performance of heavy, traditional steel piping, at the cost of systems using plastic. Its revolutionary lock-and-seal design ensures a totally safe, leak-free system for all compressed air, vacuum, and inert gas applications.

### Getting Down to Brass Facts

The heart of Infinity is solid brass, nickel-plated fittings that make the system easy to use and install. Infinity's powder-coated aluminum pipes are so light, they can be handled and installed by one person. Yet when coupled with solid brass fittings, the system yields unbeatable performance and reliability.

### Making Connections That Last

Unlike plastic piping systems which fail with age and wear, Infinity provides reliability and durability that can only be achieved through an all-metal system - plus some unique advantages.

- Fittings can be disconnected and reconnected for reuse.
- Leak-free connectors provide an immediate, unbreakable seal.
- Lightweight piping remains unaffected by contaminants in the air.

### Installation That's a Snap

Infinity offers the easiest, fastest installation available. There's no welding, gluing or threading, and very little skill is needed for a professional installation. In fact, a simple pipe cutter and de-burring pipe reamer are the only tools required.

"Having a totally metal design provides an integrity that cannot be matched by any other system."

### Ready for Anything

With six different piping sizes, Infinity is a sure fit for virtually any industrial and OEM application, including aerospace, automotive, chemical processing, electronics, engineering, food and beverage, packaging, pharmaceuticals, and textiles. Our standard, color-coded design affords three separate systems that can be easily identified by staff members:

- Blue for compressed air
- Grey for vacuum
- Black for inert gasses



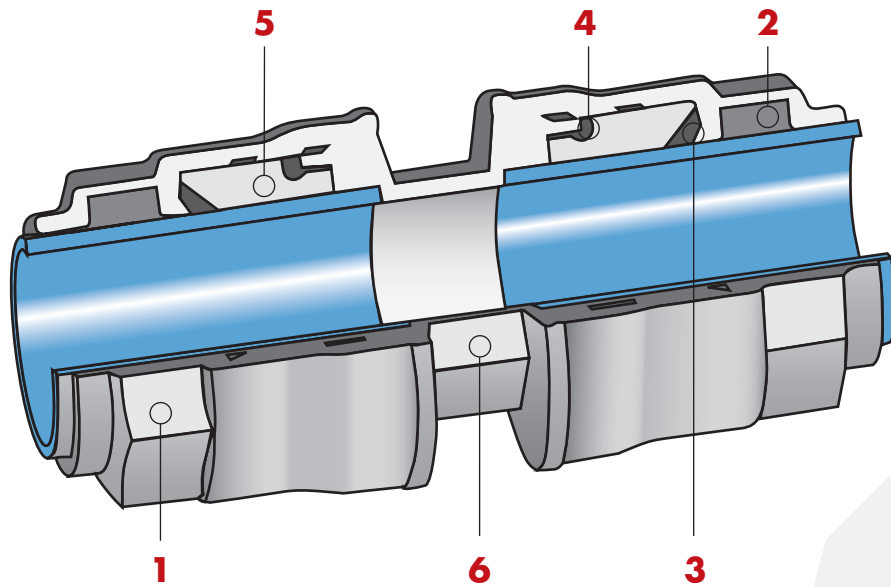
### Simply the Best

Most importantly, Infinity is backed by over five decades of Applied System Technologies' experience and outstanding service. Regardless of your system application, no other system offers more advantages or possibilities than Infinity.

Solid metal, solid performance, solid value. Infinity - for a world under pressure.



## Technical Characteristics



### Component part and materials

- 1 Nut: Nickel-Plated Brass

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- 2 Seal: High Nitrile

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- 3 Clamping Washer: Inox AISI 304

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- 4 O-Ring Seal Made in NBR

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- 5 Safety Ring: Technopolymeric

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- 6 Body: Nickel-Plated Brass

### Threads

- Male threads taper in conformity with ISO

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- Female threads in conformity with ISO 228

### Pressures

- Minimum pressure -0.99 bar (-29.6Hg)

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- Maximum pressure 15 bar (220psi)

### Temperatures

- Minimum temperature -20°C (-4°F)

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- Maximum temperature +80°C (176°F)

### Compatible fluids and gases

- Compressed Air

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- Water

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- Vacuum

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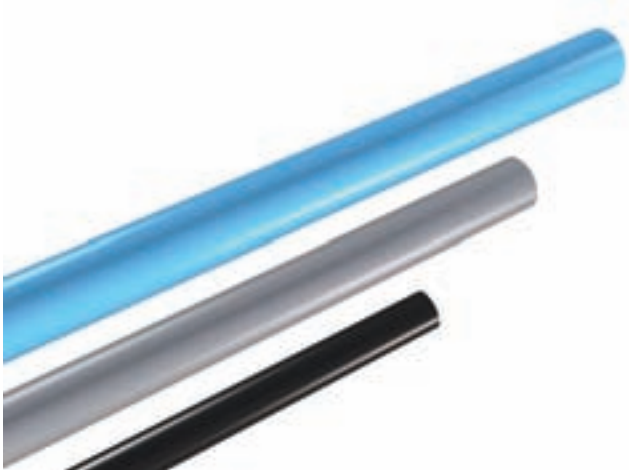
- Inert Gases

### Fire resistance

- The system does not stroke or propagate any fires



## Technical characteristics pertinent to the tubes



### 90000

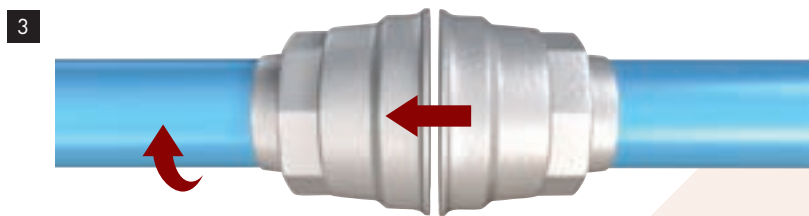
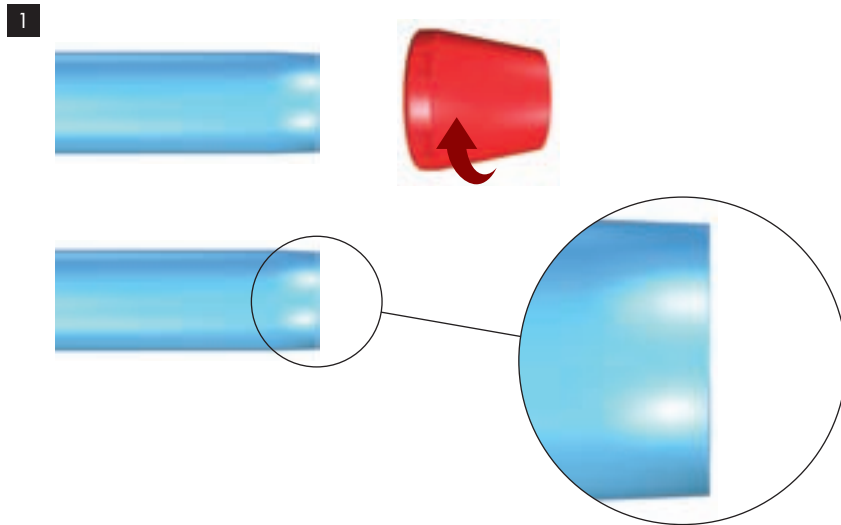
Calibrated Aluminum Piping

Outside		Pressure	Weight	Length
mm	(in.)	bar / PSI	lbs./ft.	ft.
20	(0.75")	15 / 220	0.159	16'
25	(1")	15 / 220	0.202	16'
32	(1.25")	15 / 220	0.262	16'
40	(1.5")	15 / 220	0.331	16'
50	(2")	15 / 220	0.592	16'
63	(2.5")	15 / 220	0.623	16'

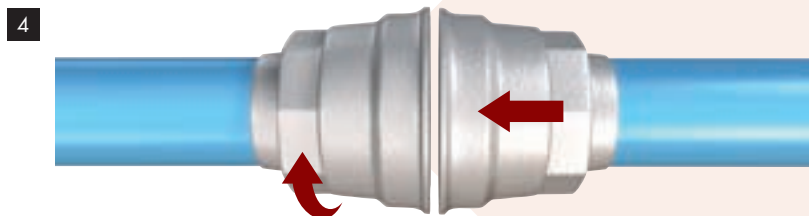
EXTRUDED ALUMINUM	UNI 9006/1 Al Mg 0.5 Si 0.4 Fe 0.2
CHEMICAL COMPOSITION	Si: 0.3 ÷ 0.6 - Mg: 0.35 ÷ 0.6 - Fe: 0.10 ÷ 0.30
DESIGNATIONS UNI EN 573 - 3	EN AW 6060
HEAT TREATMENT	BONIFICATO " T5 " / DRAINED " T5 "
SURFACE TREATMENT	Electrostatic painting
SPECIFIC WEIGHT	2.70 Kg/dm <sup>3</sup>
SPECIFIC RESISTANCE	3.25 μΩ cm
THERMAL CONDUCTIVITY	1.75 W/(cm °K)
EXPANSION COEFFICIENT	0.024 mm/(m °C)
SPECIFIC HEAT AT 100°C (212°F)	0.92 J/(g °K)
BEARING TENSILE STRESS	205 N/mm <sup>2</sup>
COEFFICIENT OF ELASTICITY	66000 N/mm <sup>2</sup>
PROPORTIONALITY DEVIATION LOAD	165 N/mm <sup>2</sup>
BRINELL HARDNESS	60 ÷ 70 HB
MELTING POINT	600°C (1112°F)
PERCENTANGE ELONGATION	10 %



# INSTALLATION OF PIPING



## IMPORTANT - Only for installation of piping diameter 50 and 63



1. Remove burrs from the outside diameter of the tube. Clean and remove any shavings.

2. Add oil on tube before inserting the fitting.

3. Fittings D20, D25, D32 and D40mm are supplied fully assembled. Insert the tube into the fitting. To make insertion easier, rotate the tube on itself while making the connection. Be sure tubing is securely inserted in the fitting.

Diameter	Torque
20	300 cN.m (26in-lbs)
25	300 cN.m (26in-lbs)
32	400 cN.m (35in-lbs)
40	650 cN.m (58in-lbs)

4. Only for tube diameters D50 and D63mm. To facilitate installation, fittings are supplied with unscrewed nuts. Once the tube is inserted into the fitting, tighten the nuts to the torque specified below.

Diameter	Torque
50	65 N.m (48 ft-lbs)
63	65 N.m (48 ft-lbs)

## SIZING A COMPRESSED AIR SYSTEM

To determine the required diameter of a pipe required for your system, it is important to know three basic parameters:

- WORKING PRESSURE**     The required system working pressure. (The common pressure used in compressed air systems is 125psi.)
- LENGTH OF PIPING**     The combined length of piping between the compressors and the most distant point of use.
- FLOW RATE**             The consumption rate of equipment that is to be connected to the piping system, or the total combined flow rate of the air compressor(s) that will feed the system.

Use the table below to match the HP/flow rate of your compressor to the correct size piping for your system.

## AIR COMPRESSOR TO PIPE SIZE SELECTION CHART



Compressor	Pipe Diameter		Typical Compressor Flow
HP	mm	(in.)	CFM @125psi
3	20mm	(0.75")	14
5	20mm	(0.75")	21
7.5	20mm	(0.75")	34
10	25mm	(1")	44
15	25mm	(1")	66
20	32mm	(1.25")	88
25	32mm	(1.25")	112
30	32mm	(1.25")	132
40	40mm	(1.5")	168
50	40mm	(1.5")	220
60	50mm	(2")	258
75	50mm	(2")	322
100	63mm	(2.5")	425
125	63mm	(2.5")	540

Pipe sizes indicated are only guidelines. Each compressor manufacturer states different equipment flow rates which should be checked against our selection chart. Always select a pipe size that allows for future expansion of your system. Our selection chart above allows for a minimum 15% expansion increase.



## FLOW RATES THROUGH INFINITY PIPING

Pipe Internal Diameter		CFM	CFM	CFM	CFM
mm	(in.)	@ 125psi	@ 150psi	@ 175psi	@ 220psi
20mm	(0.75")	36	39	42	48
25mm	(1")	76	81	88	99
32mm	(1.25")	146	158	171	189
40mm	(1.5")	266	291	310	348
50mm	(2")	476	526	565	627
63mm	(2.5")	881	965	1047	1153

Flow rates are based on a 1 psi pressure drop per 100ft run of pipe and couplings in a "straight line."

For loop systems, flow rates can be doubled.

### Example:

100ft run of 2" pipe flows 476cfm at 125psig with a pressure drop of 1psig. If a system is designed in a loop configuration, a flow of 952cfm with a pressure loss of 1psig per 200ft of piping and couplings can be achieved. The 1 psi pressure loss will only occur if the compressor system is flowing the maximum flow capacity of the piping selected.

Flows are measured at standard atmospheric conditions: 1013mbar (14.7psi) at 20°C - (68°F).

It is vital that the size of the piping between the compressors and the connection of the loop system can flow the full capacity of the combined compressor output.



## LINEAR EXPANSION AND CONTRACTION

All materials expand and contract under the effects of temperature change. To allow for this, use the following formula during system installation.

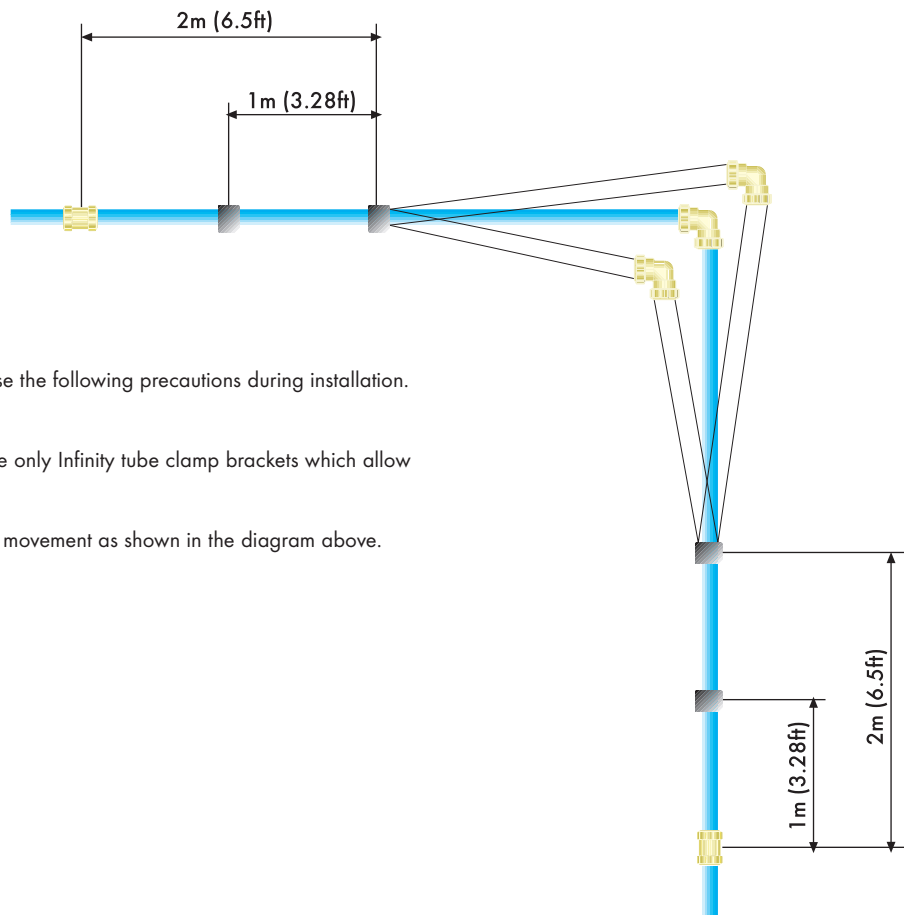
$$\Delta L = \Delta T \times L \times \alpha \text{ i.e.:$$

$\Delta L$  = Linear expansion - shrinkage in mm

$\Delta T$  = Heat variation between operating temperature and the installation @ 1°C

L = Tube length in mm

$\alpha$  = Linear expansion factor for aluminum is 0.024mm/ m °C



To compensate for heat expansion/shrinkage, use the following precautions during installation.

- When attaching tubing to a solid structure, use only Infinity tube clamp brackets which allow for expansion and contraction.
- When installing a system, be sure to allow for movement as shown in the diagram above.





## 90000 – AIR Compressed Air Piping - Blue



Bore size		Pressure	Flow rate @ 125psi	Weight	Length	Part Number
mm	(in.)	psi	cfm	lbs./ft.	ft.	
20	(0.75")	220	36	0.159	16	9000-20-AIR-BLUE
25	(1")	220	76	0.202	16	9000-25-AIR-BLUE
32	(1.25")	220	146	0.262	16	9000-32-AIR-BLUE
40	(1.5")	220	266	0.331	16	9000-40-AIR-BLUE
50	(2")	220	476	0.592	16	9000-50-AIR-BLUE
63	(2.5")	220	881	0.623	16	9000-63-AIR-BLUE

## 90000 – VACUUM Vacuum Piping - Grey



Bore size		Pressure	Flow rate @ 125psi	Weight	Length	Part Number
mm	(in.)	psi	cfm	lbs./ft.	ft.	
20	(0.75")	220	36	0.159	16	9000-20-VAC-GREY
25	(1")	220	76	0.202	16	9000-25-VAC-GREY
32	(1.25")	220	146	0.262	16	9000-32-VAC-GREY
40	(1.5")	220	266	0.331	16	9000-40-VAC-GREY
50	(2")	220	476	0.592	16	9000-50-VAC-GREY
63	(2.5")	220	881	0.623	16	9000-63-VAC-GREY

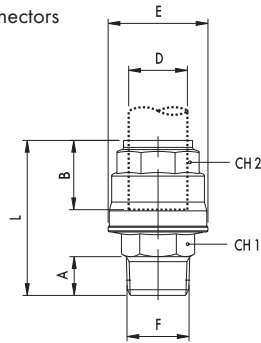
## 90000 – GAS Inert Gases Piping - Black



Bore size		Pressure	Flow rate @ 125psi	Weight	Length	Part Number
mm	(in.)	psi	cfm	lbs./ft.	ft.	
20	(0.75")	220	36	0.159	16	9000-20-GAS-BLACK
25	(1")	220	76	0.202	16	9000-25-GAS-BLACK
32	(1.25")	220	146	0.262	16	9000-32-GAS-BLACK
40	(1.5")	220	266	0.331	16	9000-40-GAS-BLACK
50	(2")	220	476	0.592	16	9000-50-GAS-BLACK
63	(2.5")	220	881	0.623	16	9000-63-GAS-BLACK



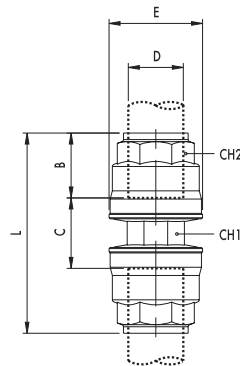
**90011** Male Thread Connectors



D	F	A	B	E	L	CH1	CH2	Part Number
20	0.5"	14	32.5	34.5	56	22	30	90011-20-08
25	0.75"	16.5	38.5	42.5	66	27	35	90011-25-12
32	1"	19	46	52	76.5	34	45	90011-32-16
40	1.5"	21.5	52	63	89.5	45	55	90011-40-24
50	1.5"	21.5	63.5	73	105	50	65	90011-50-24
63	2"	24	75.5	92	124	65	70	90011-63-32

\* Threads in npt.  
Other dimensions are measured in mm.

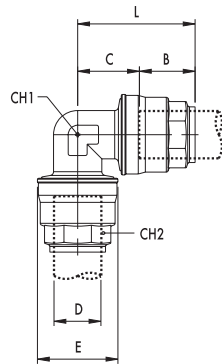
**90040** Straight Unions



D	B	C	E	L	CH1	CH2	Part Number
20	32.5	12.5	34.5	76.5	21	30	90040-20
25	38.5	13.5	42.5	90.5	26	35	90040-25
32	46	14.5	52	106.5	32	45	90040-32
40	52	21	63	125	41	55	90040-40
50	63.5	21.5	73	148.5	50	65	90040-50
63	75.5	25	92	176.5	65	70	90040-63

\* All dimensions are measured in mm.

**90130** 90° Union Elbows



D	B	C	E	L	CH1	CH2	Part Number
20	32.5	18	34.5	51	21	30	90130-20
25	38	23	42.5	61.5	26	35	90130-25
32	46	28	52	74.5	34	45	90130-32
40	52	34	63	86.5	41	55	90130-40
50	63.5	40.5	73	104	50	65	90130-50
63	75.5	52	92	127.5	65	70	90130-63

\* All dimensions are measured in mm.

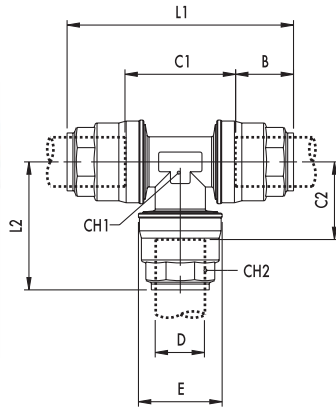
**90140** 45° Union Elbow



Tube mm	Inches	Part Number
20	.75	90140-20
25	1	90140-25
32	1.25	90140-32
40	1.5	90140-40
50	2	90140-50
63	2.5	90140-63



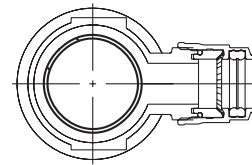
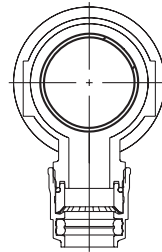
## 90230 Equal Tee



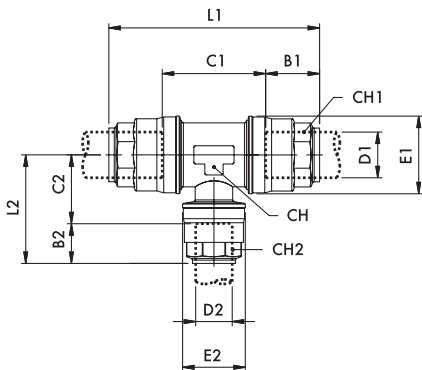
D	E	B	C1	C2	L1	L2	CH1	CH2	Part Number
20	34.5	32.5	32.5	21.5	98	54.5	21	30	90230-20
25	42.5	38	37.5	26	113.5	65	26	35	90230-25
32	52	46	46.5	31.5	138.5	77	34	45	90230-32
40	63	52	55.5	38	159.5	90	41	55	90230-40
50	73	63.5	69	44.5	196	108	50	65	90230-50
63	92	75.5	87	55.5	238.5	131	65	70	90230-63

\* All dimensions are measured in mm.

## 90235 Outlet/Reducing Tee Fitting



The particular internal geometric shape allows a fitting to be used vertically, as well as horizontally. During horizontal installation, please keep the two internal holes turned up toward the upper side.



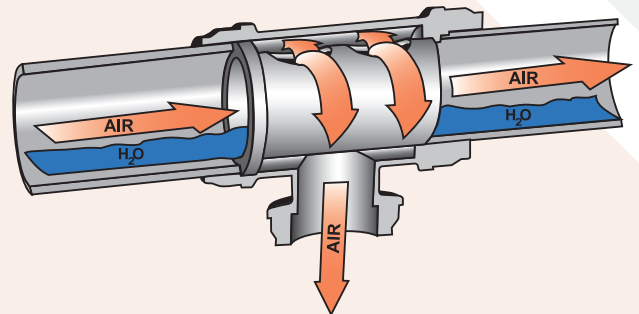
D1	D2	B1	B2	C1	C2	E1	E2	L1	L2	CH	CH1	CH2	Part Number
20	20	32.5	32.5	32.5	21.5	34.5	34.2	98	54.5	21	21	30	90235-20-20
25	20	38	32.5	45.5	26.5	42.5	34.5	121.5	59	35	35	30	90235-25-20
32	20	46	32.5	54.5	30.5	52	34.5	146.5	63	45	45	30	90235-32-20
32	25	46	38	54.5	31.5	52	42.5	146.5	70	45	45	35	90235-32-25
40	20	52.5	32.5	60	33.5	63	34.5	165.5	66	55	55	30	90235-40-20
40	25	52.5	38	60	34.5	63	42.5	165.5	87	55	55	35	90235-40-25
50	20	63.5	32.5	73.5	40.5	73	34.5	201	73	65	65	30	90235-50-20
50	25	63.5	38.5	73.5	41	73	42.5	201	80	65	65	35	90235-50-25
50	32	63.5	46	73.5	41	73	52	201	87.5	65	65	45	90235-50-32
63	20	77	32.5	86	48.5	92	34.5	237.5	81	80	70	30	90235-63-20
63	25	77	38.5	86	49	92	42.5	237.5	88	80	70	35	90235-63-25
63	32	77	46	86	49	92	52	237.5	95.5	80	70	45	90235-63-32

\* All dimensions are measured in mm.

## OUTLET/REDUCING TEE FITTING

The fitting is a valid alternative to the traditional swan neck, and proves itself as a fast and low-cost solution. The efficient internal system allows air to reach the point-of-use and drain toward the most convenient low point of the system, so that no moisture stays within the main circuit.

This fitting is also an alternative to a traditional goose neck (up and over) take-off point. It prevents water from dropping out of the main piping loop into the drop line. All systems should be installed with a slight gradient to allow moisture to collect at one point in the system. This point should be fitted with a drop line and terminated with a condensate drain.





**90240** Outlet, Saddle Clamp Reducer



Tube mm	Outlet mm	Out-Inches	Part Number
32	20	.75	90240-32-20
32	25	1	90240-32-25
40	20	.75	90240-40-20
40	25	1	90240-40-25
50	20	.75	90240-50-20
50	25	1	90240-50-25
63	20	.75	90240-63-20
63	25	1	9240-63-25

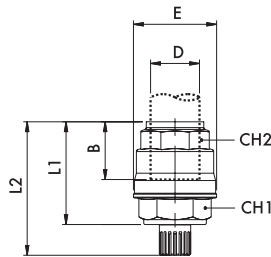
**90241** Cutting Tool, Saddle Clamp

Tube mm	Part Number
32-40	90241-32-40
50-63	90241-50-63

**90242** Drilling Jig, Saddle Clamp

Tube mm	Part Number
32	90242-32
40	90242-40
50	90242-50
63	90242-63

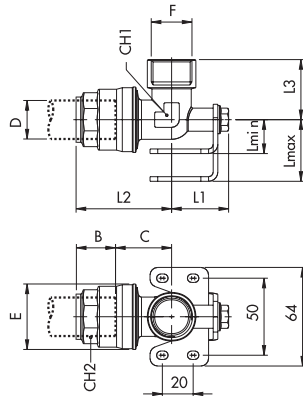
**90260** Drain Assembly



D	B	E	L1	L2	CH1	CH2	Part Number
25	38	42.5	57.5	72	32	35	90260-25
32	46	52	67.5	82	38	45	90260-32
40	52	63	77	91.5	50	55	90260-40
50	63.5	73	86.5	101	55	65	90260-50
63	75.5	92	100.5	115	65	70	90260-63

\* All dimensions are measured in mm.

**90601** Outlet Elbow c/w Mtg Bracket

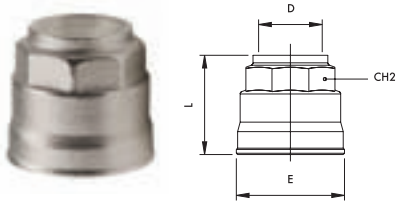


D	F	B	C	E	L1	L2	L3	Lmax	Lmin	CH1	CH2	Part Number
20	0.5"	32.5	18.5	34.5	35	51	35	40	22	21	30	90601-20-08
25	0.5"	38	23	42.5	37	62	39	40	22	26	35	90601-25-08
32	0.5"	46	28	52	41	74.5	48.5	40	22	34	45	90601-32-08

\* Threads in npt.  
Other dimensions are measured in mm.



**90610** Plug - Cap End Fitting



D	L	E	CH2	Part Number
20	33	34.5	30	90610-20
25	39	42.5	35	90610-25
32	46.5	52	45	90610-32
40	53	63	55	90610-40
50	62	73	65	90610-50
63	74.5	92	70	90610-63

\* All dimensions are measured in mm.

**90620** Reducer, Fiting Body to Tube



Body	Outlet mm	Out-Inches	Part Number
25	20	.75	90620-25-20
32	20	.75	90620-32-20
32	25	1	90620-32-25
40	20	.75	90620-40-20
40	25	1	90620-40-25
40	32	1.25	90620-40-32
50	25	1	90620-50-25
50	32	1.25	90620-50-32
50	40	1.5	90620-50-40
63	40	1.5	90620-63-40
63	50	2	90620-63-50

**90626** Stem Adapter



Body mm	Inches	Part Number
20	0.5"	90626-20-08

**90700** Ball Valve, Tube to Tube



Tube mm	Inches	Part Number
20	.75	90700-20
25	1	90700-25
32	1.25	90700-32
40	1.5	90700-40
50	2	90700-50
63	2.5	90700-63

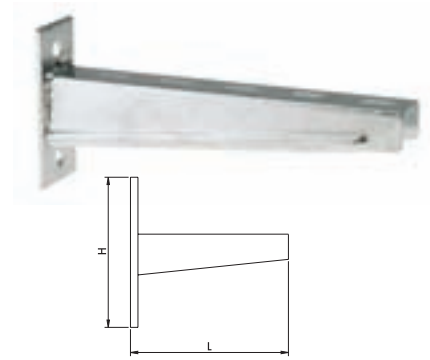
**90820** Hanging - Clamping Bracket



D	H	Part Number
20	M6 / M10 (5/16") / (3/8")	90820-20
25	M6 / M10 (5/16") / (3/8")	90820-25
32	M6 / M10 (5/16") / (3/8")	90820-32
40	M6 / M10 (5/16") / (3/8")	90820-40
50	M6 / M10 (5/16") / (3/8")	90820-50
63	M6 / M10 (5/16") / (3/8")	90820-63

\* All dimensions are measured in mm.

**90830** Cantilever Bracket



H	L	Part Number
120 (4.72")	210 (8.2")	90830

\* All dimensions are measured in mm.

**90830** Wire Hanging System



20 - 63 mm	Part Number
10 ft. lengths x pk of 10	90830-10
15 ft. lengths x pk of 10	90830-15

\* All dimensions are measured in mm.

**90825** Wall Bracket w/ Stud



W	H	Part Number
2.75"	1.75"	90825



**80191** Quick Coupler, Universal Socket



	Part Number
1/4" NPT Male	80191-04
3/8" NPT Male	80191-06
1/2" NPT Male	80191-08

**80193** Quick Coupler, Universal Socket



	Part Number
3/8" Hose Barb	80193-06
1/2" Hose Barb	80193-08

**80221** Plug



	Part Number
1/4" NPT Male	80221-04
3/8" NPT Male	80221-06
1/2" NPT Male	80221-08

**80222** Plug



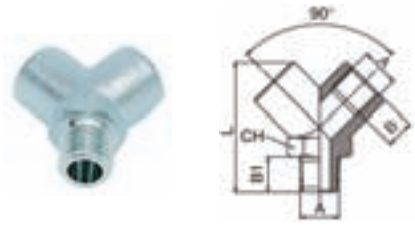
	Part Number
1/4" NPT Female	80222-04
3/8" NPT Female	80222-06
1/2" NPT Female	80222-08

**80223** Plug



	Part Number
1/4" Hose Barb	80223-04
3/8" Hose Barb	80223-06
1/2" Hose Barb	80223-08

**82600** Two-way Outlet Y Adaptor



A	B	B1	L	CH	Part Number
NPTf					
0.5"	14	17	58	26	82600-08-08

\* Threads in npt.  
Other dimensions are measured in mm.

**86300 / 86310** Ball Valves



NPT		Part Number
0.5"	Female / Female Ball Valve	86300-08-08
0.5"	Male / Female Ball Valve	86310-08-08

**90900** Electronic Drain Valves



	Part Number
1/4" NPT w/Strainer	90900-04
1/2" NPT w/Strainer	90900-08

**90870** Tube Cutter



	Part Number
20 - 63	90870

\* All dimensions are measured in mm.

**90880** Deburring Tool



	Part Number
20 - 40	90880

\* All dimensions are measured in mm.





# PRECISION SYSTEM CONTROLLERS

It's no secret that if your system is losing air, you're losing money. By precisely controlling the pressure that enters a compressed air system, Infinity's system controllers reduce costs and energy. After all, isn't that what you expect from your system controller?

## INCREASE SAVINGS

Our Precision System Controllers lower costs several ways. First, because Infinity eliminates leaks that are common in other piping systems, less compressed air is lost to the atmosphere. Since less air volume is used, you can decrease the compressor load, saving valuable kilowatts. In fact, our controllers reduce kilowatt usage by 7% for every 14psi reduction in system pressure.

Second, by reducing system pressure to the minimum needed for production demands, you increase available compressor air capacity. This helps protect production equipment from high air pressure that can cause costly system failure and productivity downtime. And by reducing the load and wear on compressors, our controllers greatly extend the life of your overall system.

## EASY INSTALLATION

Like our Infinity piping system, our Precision System Controllers install quickly, using pipe-in/pipe-out operation. Simply install your PSC downstream of the air storage tank, and set the pressure to the required level. Once installed, you can rely on zero maintenance and total protection for all downstream equipment.

## PSC- Range

Applied System Technologies offers two types of high-performance system controllers:

- High-flow 1", 1.5" and 2" units for inlet pressures of up to 145psi.
- High-pressure 1" units for reciprocating compressors that typically operate between working pressures of 150psi and 175psi.

Our high-flow units feature a unique poppet design that permits a large volume air flow, and allows a system to react instantly to demand for a constantly stable air system pressure. The high-pressure 1" controllers incorporate a more traditional design, using a spring/diaphragm arrangement to achieve constant system pressure control.



## PSC SPECIFICATIONS

PSC 1 HF
Thread connections 1" NPT female
Pressure range 0-145psi
Control range 7-100psi
Flow range 350cfm
Operating temperature 140 °F
Repeatability + - 2% of full span

PSC 1.5 HF
Thread connections 1.5" NPT female
Pressure range 0-145psi
Control range 7-100psi
Flow range 1050cfm
Operating temperature 140 °F
Repeatability + - 2% of full span

PSC 2 HF
Thread connections 2" NPT female
Pressure range 0-145psi
Control range 7-100psi
Flow range 1050cfm
Operating temperature 140 °F
Repeatability + - 2% of full span

PSC-HP 1
Thread connections 1" NPT female
Pressure range 0-150psi
Control range 7-125psi
Flow range 150cfm
Operating temperature 140 °F
Repeatability + - 3% of full span

PSC-HP 1- X
Thread connections 1" NPT female
Pressure range 0-175psi
Control range 7-145psi
Flow range 150cfm
Operating temperature 140 °F
Repeatability + - 3% of full span





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INFINITY