

**KAESER**  
**COMPRESSORS**

*Built for a lifetime.™*



# SmartPipe™

Product Catalog and Installation Guide

[kaeser.com](http://kaeser.com)

# SmartPipe™

## Compressed Air Piping

*Piping selection directly affects the three key elements of every compressed air system: flow, pressure, and air quality. Poor choices in pipe materials, diameter, and layout cause flow restrictions, often resulting in significant pressure drop. Pressure drop is a main cause of increased energy consumption and under-performing tools and equipment.*

*Choices in piping also directly impact installation costs. Heavier materials increase fatigue and slow work, especially in overhead installations. Also consider the types of fittings to be used. Some connection types cause pressure drop, need special tools, and take more time to install.*

## SmartPipe™ System Benefits

*Kaeser's SmartPipe is a modular compressed air distribution system that offers both lower installation costs and lower long term operating costs.*

*It is an excellent choice for compressed air and inert gas distribution for pressures up to 188 psig (13 bar) (consult factory for higher pressures) in temperatures from -4°F to +140°F (-20°C to 60°C). SmartPipe is also ideal for vacuum up to 98.7% (29.6" Hg).*

## What's so smart about SmartPipe?

### Ease of Installation

Fast to install and easy to modify, Kaeser SmartPipe is the most versatile compressed air distribution system available. Our combination of lightweight materials and connectors dramatically reduces labor and installation time, especially in overhead installations.

SmartPipe is ideal for installations requiring the highest quality air, because it is aluminum it will not rust or corrode. Further, it has no rough surfaces or interior restrictions that accumulate contaminants. The smooth interior with full bore design allows laminar flow to your dryers and filters for efficient removal.



*Cutaway of 5 year old SmartPipe. Inside remains smooth and clean with no contaminant build up to cause pressure loss.*

### Optimum flow and air quality

SmartPipe's smooth calibrated aluminum construction has a low coefficient of friction, providing the best possible laminar flow. Full bore fittings further minimize pressure drop for optimum flow and energy efficiency. Leak free connectors prevent air loss and wasted energy.

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# Technical Specifications

**SmartPipe is designed for use with compressed air, vacuum, and inert gases. Please consult factory for use with other fluids.**

## Pressure and Temperature Ranges

- Normal working pressure and temperature: 188 psi, -4°F to ±140°F
- Maximum operating pressure and temperature: 232 psi, -4°F to ±115°F
- Storage temperature: -40°F to +176°F
- Max vacuum: 98.7% (29.6" Hg)
- Consult factory for higher pressures or temperatures

## Aluminum Pipe Specification

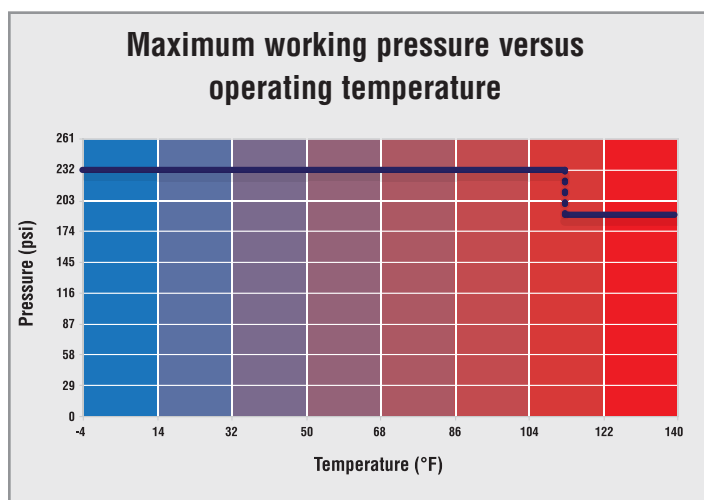
- 6063-T5 aluminum grade
- Extruded pipe conforms to standards EN755.2, EN755.8 and EN573.3
- Smooth bore ID for optimal flow rate performance
- Powder coat in BLUE (RAL5012/BS1710) with QUALICOAT CERTIFIED lacquer finish exterior
- Consult factory for availability of other colors

## Flexible Hose Specification

- Resistant to mineral and synthetic oils
- Maximum working pressure for flexible hose: 145 psi
- Fire resistant, conforms to ISO 8030 standards for compressed air flexible hose and to EN12.115 standard for vacuum flexible hose

## Pipe Sizes

Outside Ø (in.)	Outside Ø (mm)	Inside Ø (in.)	Inside Ø (mm)	Wall Thickness Ø (in.)
5/8	16.5	1/2	13	1/16
7/8	25	13/16	21	
1-1/2	40	1-7/16	37	
2	50	1-13/16	46	
2-1/2	63	2-5/16	59	
3	76	2-13/16	72	
4	101	3-13/16	97	
6-5/8	168	6-3/8	161.2	1/8



# Sizing

Select the SmartPipe diameter for your application based on required flow and pressure drop.

Estimated Values: Closed loop system at 100 psi with a 5% pressure drop.

Flow Rate (cfm)	Main Ring Length (feet)						Compressor (hp)
	500	1000	2000	3000	4000	5000	
10	16.5	16.5	16.5	25	25	25	<15
25	25	25	25	25	25	25	
50	25	25	40	40	40	40	
75	25	40	40	40	40	40	15 - 40
100	40	40	40	40	40	40	
150	40	40	40	50	50	50	
250	40	40	50	50	63	63	41 - 125
350	50	50	63	63	63	63	
500	63	63	63	76	76	76	
750	63	63	76	76	100	100	126 - 250
1000	76	76	76	100	100	100	
1250	76	76	100	100	100	100	
1500	100	100	100	100	100	100	251 - 500
1750	100	100	100	100	100	100	
2000	100	100	100	100	100	168	
2250	100	100	100	168	168	168	501 - 1000
2500	168	168	168	168	168	168	
2750	168	168	168	168	168	168	
3000	168	168	168	168	168	168	
3250	168	168	168	168	168	168	
3500	168	168	168	168	168	168	
4000	168	168	168	168	168	168	
4500	168	168	168	168	168	168	1001 - 1400
5000	168	168	168	168	168	168	
5500	168	168	168	168	168	168	

## Example

An application requires a Kaeser BSD 60 @ 110 psi with the appropriate clean air treatment. The application process cannot tolerate a pressure drop of more than 2.5 psi in the main header when the main header pressure is 100 psi.

Kaeser BSD 60 @ 110 psi = 290 cfm (FAD)

Main header total pipe length (including equivalent length for all fittings) = 1000 ft.

Main header pressure = 100 psi

Pipe size selected from the chart = 63 mm diameter pipe.

## Note:

- To calculate the pressure drop at the point of use, add up the equivalent pipe length for all connectors and air treatment equipment.
- It is important to keep in mind the maximum pipe velocity for each section of the compressed air distribution system.
  - Not to exceed 15 ft/s (5 m/s) pipe velocity in the compressor room
  - Not to exceed 30 ft/s (10 m/s) pipe velocity in main header
  - Not to exceed 45 ft/s (15 m/s) pipe velocity in the branch lines

# Safety

## Fire Resistance

All SmartPipe components are non-flammable with no propagation of flame.

- Pipe-to-pipe and male connectors, ball valves, and butterfly valves conform to UL94HB standard
- Fixture clips conform to UL94V-2 standard
- Flexible hoses conform to ISO 8030 norm for compressed air applications, and to EN 12115 norm for vacuum applications
- Pipe powder coat finish is classified M0



## Electrical Conductivity

In areas of potential risk, the grounding and electrical continuity of metallic components are obligatory. The SmartPipe system can be used in such environments by undertaking the appropriate precautions according to your local codes.

## CE Conformity

SmartPipe conforms to European standard 97/23 CEE-§3.3 (equipment under pressure).



# Certification

SmartPipe meets the requirement of ASME B31.1 which stipulates the minimum requirements for the design, materials, fabrication, installation, test, and inspection of power and auxiliary piping systems for industrial plants.

SmartPipe is manufactured under an ISO 9001 Version 2000 Quality Management System.

SmartPipe is certified TÜV as a pledge of safety and quality.

SmartPipe also conforms to European standard 97/23 CEE- §3.3 regarding equipment under pressure and is registered with Canadian Technical Standards & Safety Authority.

Kaeser warrants its SmartPipe products to be free of defects in material and workmanship for a period of two (2) years from the date of purchase of the products.

QUALICOAT certification is a guarantee of the quality of the lacquer finish applied to the SmartPipe aluminum pipe.



# Component Material Specifications

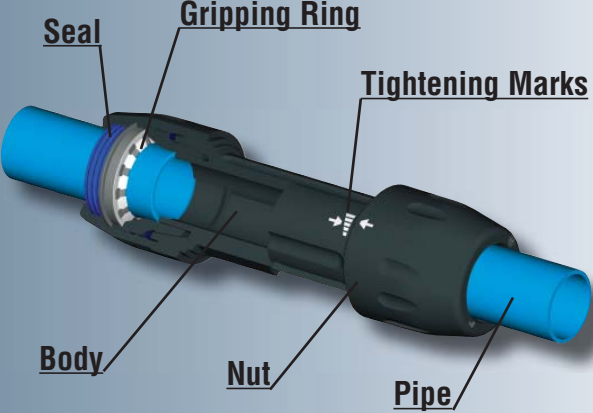
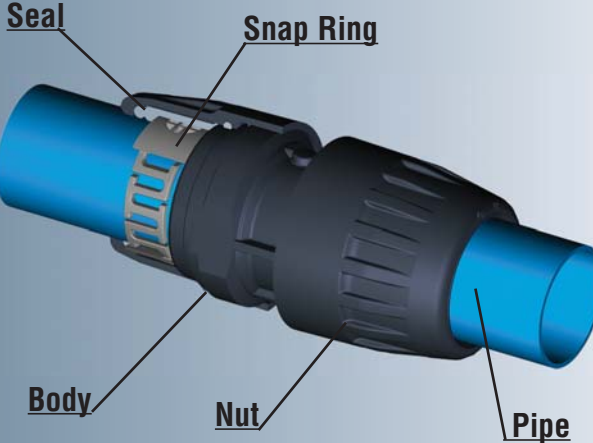
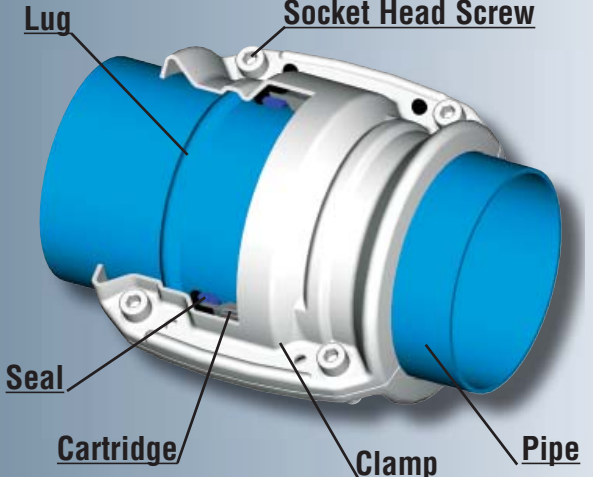
Part No. Prefix	Ø 1/2" (16.5 mm) to Ø 1-1/2" (40 mm)	Ø 2" (50 mm) to Ø 2-1/2" (63 mm)	Part No. Prefix	Ø 3" (76 mm) to Ø 6" (168 mm)	
<b>AN1013A</b>	Powder coated aluminum		<b>ANTA16</b>	Powder coated aluminum	
<b>AN1016A</b>			<b>ANER01</b>	Zinc steel & rubber	
<b>AN1001E Air</b>	Hose & Coating: Black SBR; Reinforcement: Synthetic braiding		<b>ANEX01</b>	Stainless steel	
<b>AN1001E Vacuum</b>	Hose & Coating: Black SBR/NBR; Reinforcement: Spiral steel wire		<b>ANEW05</b>	Seal: NBR	
<b>AN4002 - AN4012</b>	Polyamide with fiberglass	Body: Polyamide with fiberglass; Nut: Treated aluminum	<b>ANFP01</b>	Hose & connector: Black SBR/NBR; Reinforcement: Spiral steel wire	
<b>AN4088 - AN4099</b>	Body: Treated brass; Nut: Engineering grade plastic	—	<b>ANRA02 - ANRA04 - ANRA12</b>	Treated aluminum	
<b>Anti Whiplash Strap</b>	Steel				
<b>AN6602 - AN6604</b>	Polyamide with fiberglass	Treated aluminum	<b>ANRA25 - ANRA31 - ANRA66</b>	Treated aluminum	
<b>AN6605</b>	Body: Treated brass; Nut: Polymer HR / NBR	Body: Treated brass; Nut: Treated aluminum / NBR	<b>ANRP01</b>	Body & Pushing Ring: Polyamide with fiberglass; Seal: NBR	
<b>AN6606</b>	Polyamide with fiberglass	Aluminum	<b>ANRR01</b>	Clamp: Treated steel (6" treated alu- minum); Cartridge: Polyamide with fiberglass; Seal: NBR	
<b>AN6609</b>	Body: Treated brass; Nut: Polymer HR / NBR	Body: Treated brass; Nut: Treated aluminum / NBR	<b>ANRR21</b>	Treated brass	
<b>AN6611</b>	Treated brass	—	<b>ANRR63</b>	Body: Treated iron; Seal: NBR	
<b>AN6612</b>	Polyamide with fiberglass	Treated aluminum	<b>ANRX02</b>	Stainless steel 304	
<b>AN6621</b>	Treated brass	—	<b>ANRX04</b>		
<b>AN6625</b>	Polyamide with fiberglass	Treated aluminum	<b>ANRX12</b>		
<b>AN6636 - AN6638 -AN6640</b>	Body: Treated brass; Nut: Polymer HR / NBR	—	<b>ANRX20</b>		
<b>AN6642</b>	Treated brass	—	<b>ANRX24</b>		
<b>AN6651</b>	Body: Treated brass; Nut: Polyamide with fiberglass	—	<b>ANRX25</b>		
<b>AN6653</b>	Body: Treated brass; Nut: Polymer HR	—	<b>ANRX30</b>		
<b>AN6663</b>	Body: Polyamide with fiberglass; Insert: Brass		<b>ANRX63</b>		
<b>AN6662</b>	Polyamide with fiberglass	Polymer HR	<b>ANRX64</b>		
<b>AN6666</b>	Body: Treated brass; Nut: Polyamide with fiberglass	Treated aluminum	<b>ANRX66</b>		
<b>AN6675 - AN6679 - AN6689</b>	Body: Treated brass; Nut: Polymer HR / NBR	—	<b>ANVR02</b>		Body: Iron Disc & shaft: Stainless steel
<b>AN6676</b>	Polyamide with fiberglass	Body: Treated aluminum; Nut: Polymer HR	<b>Bracket</b>		Zinc steel - rubber EPDM
<b>AN6684</b>	Body: Treated brass; Nut: Polyamide with fiberglass				
<b>AN6688 - AN6691</b>	Treated brass				
<b>AN6694 - AN6696</b>	Body: Treated brass; Nut: Polymer HR; Seal: NBR				
<b>ANEA98</b>	Body: Treated iron; Ball valve: Plated brass				
<b>ANRA68 - ANRA69</b>	Polyamide with fiberglass				
<b>Clip - Spacer</b>					
<b>AN0169 Adapter</b>	Steel				
<b>Composite Coupler</b>	Body: Polymer HR/Zamac; Sleeve: Polymer HR; Spring & Ball Bearings: Stainless Steel; Seal: Nitrile; Probe: Treated Steel				
<b>Hose Reel</b>	Metal case; Fixing: Metal				

Note: All SmartPipe pipe, fittings, and valves are guaranteed silicone free.



# SmartPipe Technology


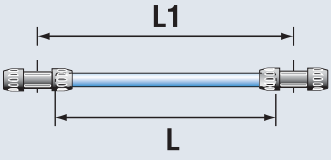
The innovative technology of SmartPipe combines lightweight yet durable aluminum piping with reliable and leak free fittings. These components are designed for easy and rapid assembly. The result is a complete compressed air distribution system that costs less to install and is easy to change, but meets the highest industrial standards.

<p><b>Ø 1/2"</b> <b>(16.5 mm)</b></p> <p><b>Ø 7/8"</b> <b>(25 mm)</b></p> <p><b>Ø 1-1/2"</b> <b>(40 mm)</b></p>	<p>With sizes up to 40 mm, simply push the pipe into the pre-tensioned connectors up to the connection mark. The internal gripping ring of each fitting is automatically engaged and the connection is sealed and secure.</p>	
<p><b>Ø 2"</b> <b>(50 mm)</b></p> <p><b>Ø 2-1/2"</b> <b>(63 mm)</b></p>	<p>50 mm and 63 mm piping employs a double clamp ring that is slid onto the pipe end before the connector. The collar nut on the connector is tightened around the snap ring for a solid connection.</p>	
<p><b>Ø 3"</b> <b>(76 mm)</b></p> <p><b>Ø 4"</b> <b>(100 mm)</b></p> <p><b>Ø 6"</b> <b>(168 mm)</b></p>	<p>76, 100, and 168 mm SmartPipe sections are assembled with a simple connection cartridge that clamps down over lugs at the pipe ends. The cartridge is tightened with four socket head fasteners.</p>	


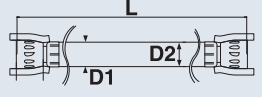
# Ø 16.5, 25, 40

## Rigid Aluminum Pipe and Flexible Hose

### SmartPipe Aluminum Pipe


Ø OD (mm)	Ø OD (in.)	Part No.	L1 (ft.)	L	Wt.	Product Photo	Dimensional Drawing
16.5	1/2	AN1013A17040	15	14' 9½"	1.4		
25	7/8	AN1016A25040	20	19' 9¾"	4.2		
40	1½	AN1016A40040	20	19' 7½"	6.2		

### 1001E Flexible Hose

D1 (mm)	Ø D2 (in.)	Part No.	L	Min Bend Radius (in.)	For Use with SmartPipe Pipe Diameter	Wt.	Product Photo	Dimensional Drawing
38	7/8	AN1001E25001	1' 10"	4	25	1.20		
		AN1001E25003	5'			3.28		
		AN1001E25004	6' 7"			4.40		
54	1-1/2	AN1001E400002	3' 3"	16	40	4.57		
		AN1001E400004	6' 7"			7.32		
		AN1001E400005	9' 10"			8.82		

Use part number AN66989903, anti-whiplash strap  
Refer to page 64 and 68 for band radius and proper installation

### 6698 Anti-whiplash Strap

Part No.	Wt.	Product Photo
AN66989903	0.47	

Prevents whiplash should SmartPipe flexible hose be disconnected while under pressure. Conforms to ISO 4414 safety standard.


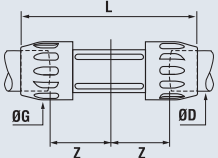


Dimensions in inches (in) and weight in pounds (lbs.) unless otherwise noted.

# Ø 16.5, 25, 40

## Pipe-to-pipe and Threaded Connectors

### 6606 Pipe-to-pipe Connector

ØD (mm)	Part No.	ØG	L	Z	Wt.	Product Photo	Dimensional Drawing
16.5	AN66061700	1-5/16	4-3/4	1-15/16	0.16		
25	AN66062500	1-3/4	5-15/16	1-7/8	0.28		
40	AN66064000	2-5/8	8-1/8	2-1/4	0.76		


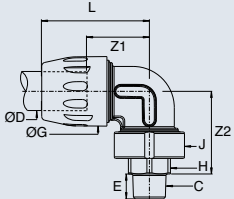
### 6602 90° Elbow

ØD (mm)	Part No.	ØG	L	Z	Wt.	Product Photo	Dimensional Drawing
16.5	AN66021700	1-15/16	2-1/4	1-1/4	0.15		
25	AN66022500	1-3/4	2-5/8	1-9/16	0.24		
40	AN66024000	2-5/8	4-3/16	2-7/16	0.71		

### 6612 45° Elbow

ØD (mm)	Part No.	ØG	L	Z	Wt.	Product Photo	Dimensional Drawing
25	AN66122500	1-3/4	2-1/4	1-1/8	0.25		
40	AN66124000	2-5/8	3-9/16	1-3/4	0.84		

### 6609 Male Threaded 90° Elbow, NPT"

ØD (mm)	C (NPT)	Part No.	E	H	ØG	ØJ	L	Z1	Z2	Wt.	Product Photo	Dimensional Drawing
16.5	1/4	AN66091714	3/8	5/8	1-5/16	1-5/16	2-1/4	1-3/16	1-5/8	0.25		
	1/2	AN66091722	9/16	15/16				2-5/16	1-1/4	1-13/16		
25	1/2	AN66092522	9/16	1-1/16	1-13/16	1-13/16	2-3/4	1-5/8	2-1/16	0.49		
	3/4	AN66092528							2-3/16	0.52		
	1	AN66092535							5/8	1-7/16		
40	1	AN66094035	5/8	1-5/8	2-5/8	2-11/16	4-3/16	2-7/16	3	1.43		
	1¼	AN66094043	7/8	2					3-3/16	1.72		
	1½	AN66094050	1							1.79		
	2	AN66094044	15/16							2-3/8		

Dimensions in inches (in) and weight in pounds (lbs.) unless otherwise noted.

# Ø 16.5, 25, 40

## Pipe-to-pipe and Threaded Connectors

### 6619 Male Threaded 45° Elbow, NPT

ØD (mm)	C (NPT)	Part No.	E	H	ØG	ØJ	L	Z1	Z2	Wt.	Product Photo	Dimensional Drawing
25	1/2	AN66192522	9/16	1-1/16	1-3/4	1-13/16	2-7/16	1-1/4	1-5/8	0.47		
	3/4	AN66192528							1-3/4	0.50		
	1	AN66192535	5/8	1-7/16					1-3/4	0.63		
40	1	AN66194035	5/8	1-5/8	2-5/8	2-11/16	3-11/16	1-3/4	2-5/16	1.43		
	1¼	AN66194043	7/8	2					2-1/2	1.64		
	1½	AN66194050	1						2-1/2	1.71		
	2	AN66194044	7/8	2-3/8					3-7/8	1-1/2	3-1/8	1.96

### 6604 Equal Tee

ØD (mm)	Part No.	ØG	H	L	Z1	Z2	Wt.	Product Photo	Dimensional Drawing
16.5	AN66041700	1-5/16	2-5/16	4-3/4	1-5/16	1-1/4	0.33		
25	AN66042500	1-3/4	2-11/16	6	1-7/8	1-9/16	0.40		
40	AN66044000	2-5/8	4	8-1/16	2-14	2-1/4	1.34		

### 6625 Vented End Cap

ØD (mm)	Part No.	E	ØG	H	L	Wt.	Product Photo	Dimensional Drawing
16.5	AN66251700	1	1-3/8	1-13/16	2-7/16	0.21		
25	AN66252500	1-5/16	1-3/4	1-7/8	3	0.21		
40	AN66254000	1-3/8	2-5/8	2-13/16	3-7/8	0.40		

16.5 mm: supplied with LF3000 6 mm plug. Models Ø 25, 40, and 63: supplied with LF 3000 5/16" (8mm) plug.


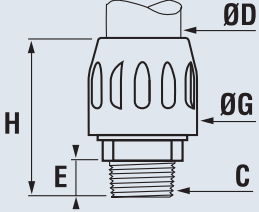
### 6666 Plug-in Reducer

ØD (mm)	ØD2 (mm)	Part No.	ØG	Z	L	Wt.	Product Photo	Dimensional Drawing
25	16.5	AN66661725	1-5/16	2	3	0.16		
40	25	AN66662540	1-3/4	2-13/16	3-7/8	0.26		


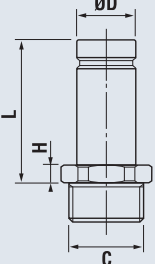
Dimensions in inches (in) and weight in pounds (lbs.) unless otherwise noted.



**6605 Male Threaded Connector, NPT**


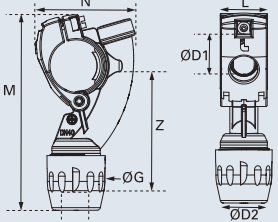
ØD (mm)	C (NPT)	Part No.	E	ØG	H	Wt.	Product Photo	Dimensional Drawing
16.5	1/4	AN66051714	3/8	1-3/8	2-1/2	0.26		
	1/2	AN66051722	5/8		2-11/16	0.26		
25	1/2	AN66052522	5/8	1-3/4	2-3/4	0.60		
	3/4	AN66052528			2-13/16	0.73		
	1	AN66052535				0.44		
40	1	AN66054035	5/8	2-5/8	4-3/8	0.51		
	1 1/4	AN66054043	7/8		0.97			
	1 1/2	AN66054050	1		4-1/2	1.36		
	2	AN66054044	15/16		4-3/8	3.11		

**6621 Male Threaded Adapter, NPT**

ØD (mm)	C (NPT)	Part No.	L	H	Wt.	Product Photo	Dimensional Drawing
16.5	1/2	AN66211722	1-11/16	3/16	0.07		
25	1/2	AN66212522	1-15/16	1/4	0.11		
	3/4	AN66212528			0.15		
	1	AN66212535					
40	1 1/4	AN66214043	2-15/16	5/16	0.34		
	1 1/2	AN66214050		3/8	0.44		

**Quick Assembly Brackets**

**6662 Quick Assembly Bracket**

ØD1 (mm)	ØD2 (mm)	Part No.	M	ØG	L	N	Z	Wt.	Product Photo	Dimensional Drawing
25	16.5	AN66622517	5-1/2	1-5/16	1-7/16	2-1/2	3-1/4	0.22		
	25	AN66622500	5-1/4	1-3/4			3	0.26		
40	16.5	AN66624017	6-1/16	1-5/16	1-1/2	3	3-1/2	0.30		
	25	AN66624025	5-15/16	1-3/4			3-1/4	0.34		


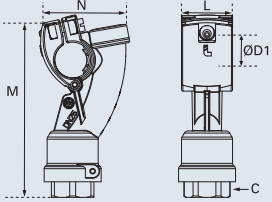
To drill SmartPipe pipe, use drilling tools AN66980201 and AN66980202.

Dimensions in inches (in) and weight in pounds (lbs.) unless otherwise noted.

# Ø 16.5, 25, 40


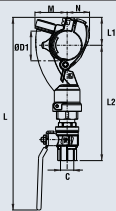
## Quick Assembly Brackets

### 6663 Quick Assembly Mini-bracket with Female Thread, NPT

Ø D1 (mm)	Part No.	C	M	L	N	Wt.	Product Photo	Dimensional Drawing
25	AN66632522	1/2	4-5/8	1-7/16	2-1/2	0.26		
40	AN66634022		3/16	1-1/2	3	0.34		

Supplied with brass plug. To drill SmartPipe pipe, use drilling tools AN6698201 and AN66980202.

### 6668 Quick Assembly Mini-bracket with Ball Valve, NPT


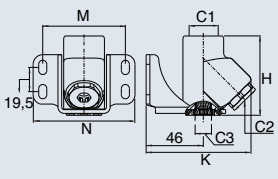
Ø D1 (mm)	Part No.	C	L	L1	L2	M	N	Wt.	Product Photo	Dimensional Drawing
25	AN66682522	1/2	10-1/6	1-1/4	6-1/8	1-9/16	15/16	0.95		
40	AN66684022		10-5/8	1-9/16	6-3/8	1-3/4	1-1/4	0.96		

## Wall Brackets

### 6640 1 Port 45° Wall Bracket, NPT

Ø OD (mm)	Part No.	C1 (NPT)	C2 (NPT)	H	Z	K	N	Wt.	Product Photo	Dimensional Drawing
16.5	AN66401722	1/2	1/4	3-1/2	2-1/2	3-5/16	3-1/4	1.16		
25	AN66402522			3-5/8						


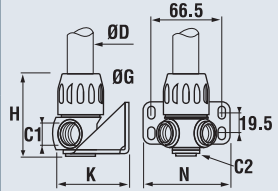
### 6642 1 Port 45° Threaded Wall Bracket, NPT

Ø OD (mm)	Part No.	C1 (NPT)	C2 (NPT)	C3 (NPT)	H	K	M	N	Wt.	Product Photo	Dimensional Drawing
16.5	AN66422222	1/2	1/2	1/4	2-1/2	3-5/16	2-5/8	3-1/4	1.06		

Dimensions in inches (in) and weight in pounds (lbs.) unless otherwise noted.

# Wall Brackets


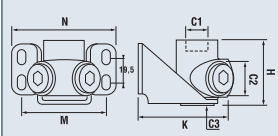
## 6684 2 Port 90° Wall Bracket, NPT

Ø OD (mm)	Part No.	C1 (NPT)	C2 (NPT)	G	H	K	N	Wt.	Product Photo	Dimensional Drawing
16.5	AN66841722	1/2	1/4	1-5/16	2-9/16	2-15/16	3-1/4	0.90		
25	AN66842522			1-3/4	3-3/16			1.10		

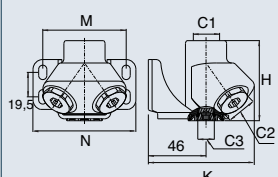
## 6689 2 Port 45° Wall Bracket, NPT

Ø OD (mm)	Part No.	C1 (NPT)	C2 (NPT)	H	Z	K	N	Wt.	Product Photo	Dimensional Drawing
16.5	AN66891722	1/2	1/4	3-1/2	2-1/2	3-5/16	3-1/4	1.47		
25	AN66892522			3-5/8				1.49		

## 6688 2 Port 90° Threaded Wall Bracket, NPT

Ø OD (mm)	Part No.	C1 (NPT)	C2 (NPT)	C3 (NPT)	H	K	M	N	Wt.	Product Photo	Dimensional Drawing
16.5	AN66882222	1/2	1/2	1/4	1-7/8	2-7/8	2-5/8	3-1/4	1.0		

## 6691 2 Port 45° Threaded Wall Bracket, NPT

Ø OD (mm)	Part No.	C1 (NPT)	C2 (NPT)	C# (NPT)	H	K	M	N	Wt.	Product Photo	Dimensional Drawing
16.5	AN66912222	1/2	1/2	1/4	2-1/2	3-5/16	2-5/8	3-1/4	1.39		


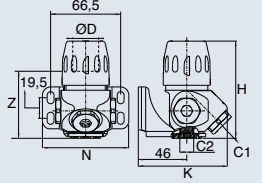
Dimensions in inches (in) and weight in pounds (lbs.) unless otherwise noted.

PARTS - Ø 16.5, 25, 40


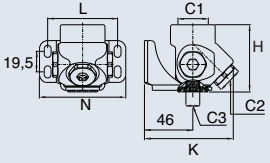
# Ø 16.5, 25, 40

## Wall Brackets

### 6696 3 Port 45° Wall Bracket, NPT

Ø OD (mm)	Part No.	C1 (NPT)	C2 (NPT)	H	Z	K	N	Wt.	Product Photo	Dimensional Drawing
25	AN66962522	1/2	1/4	3-5/8	2-1/2	3-5/16	3-1/4	1.59		

### 6636 3 Port Threaded Wall Bracket, NPT


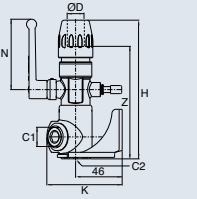
Ø OD (mm)	Part No.	C1 (NPT)	C2 (NPT)	C3 (NPT)	H	K	M	N	Wt.	Product Photo	Dimensional Drawing
25	AN66362822	3/4	1/2	1/4	2-1/2	3-5/16	2-5/8	3-1/4	1.49		

## Wall Brackets with Ball Valve

### 6679 1 Port 45°, NPT

Ø OD (mm)	Part No.	C1 (NPT)	C2 (NPT)	H	Z	K	N	Wt.	Product Photo	Dimensional Drawing
16.5	AN66791722	1/2	1/4	5-13/16	4-7/8	3-5/16	2-3/4	1.92		
25	AN66792522			6-13/16	5-5/8		4-1/4	3.37		


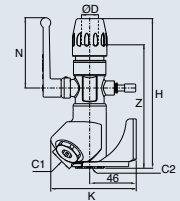
### 6675 2 Port 90°, NPT

Ø OD (mm)	Part No.	C1 (NPT)	C2 (NPT)	H	Z	K	N	Wt.	Product Photo	Dimensional Drawing
16.5	AN66751722	1/2	1/4	5-3/8	4-3/8	2-15/16	2-3/4	1.76		
25	AN66752522			6-7/16	5-3/16		4-1/4	3.21		

Dimensions in inches (in) and weight in pounds (lbs.) unless otherwise noted.



**6694 2 Port 45°, NPT**

Ø OD (mm)	Part No.	C1 (NPT)	C2 (NPT)	H	Z	K	N	Wt.	Product Photo	Dimensional Drawing
16.5	AN66941722	1/2	1/4	5-13/16	4/78	3-5/16	2-3/4	1.92		
25	AN66942522			6-13/16	5-5/8		4-1/4	3.37		

**6638 3 Port 45°, NPT**

Ø OD (mm)	Part No.	C1 (NPT)	C2 (NPT)	H	Z	K	N	Wt.	Product Photo	Dimensional Drawing
25	AN66382522	1/2	1/4"	6-13/16	5/5/8	3-15/16	4-1/4	3.82		

**Ball Valves**

**4099 Lockable Double Female, Vented**

Ø OD (mm)	Part No.	ØG	L	N	Z1	Z2	Wt.	Product Photo	Dimensional Drawing
16.5	AN40991700	1-5/16	4-3/4	2-3/4	1-1/8	1-11/16	1.3		
25	AN40992500	1-3/4	6	4-1/4	1-9/16	2-3/16	2.7		

**4002 Double Female Valve**

Ø OD (mm)	Part No.	ØG	L	N	Z	Wt.	Product Photo	Dimensional Drawing
40	AN40024000	2-5/8	8	4-13/16	2-1/4	1.32		

Dimensions in inches (in) and weight in pounds (lbs.) unless otherwise noted.

# Ø 16.5, 25, 40

## Mounting Hardware



### 6697 Fixing Clip for Rigid Pipe

ØD (mm)	C (UNC)	Part No.	H1	H	K	L	Wt.	Product Photo	Dimensional Drawing
16.5	1/4	AN66971701	1-13/16	2-7/16	1-3/16	1-3/16	0.06		
25		AN66972501		2-9/16		1-1/2	0.07		
40		AN66974001		2-7/8		2	0.08		

SmartPipe fixing clips are designed to bear a maximum weight of 44 lbs. However, to ensure good stability of the network, we recommend the use of at least 2 clips per length of pipe.

Example:

- Maximum 5 ft. space between clips for 10 ft. lengths of pipe
- Maximum 10 ft. space between clips for 20 ft lengths of pipe

Only use this clip for fixing SmartPipe rigid pipe, all other types of pipe clips are to be avoided. Fix the clip to the rigid support (U-channel, cable tray) to allow for expansion while retaining the pipe.

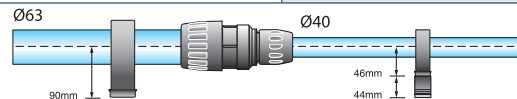
### 6653 6 Port Manifold

ØD (mm)	C (NPT)	Part No.	L	L1	L2	K	N	Z	H	M	Wt.	Product Photo	Dimensional Drawing
25	1/2	AN6653252206	18-1/4	11-13/16	1	17-5/8	2	8	2-15/16	3-3/8	5.07		
40		AN6653402206	20-11/16	12-3/16	1	18-7/16	2	8-9/16	3-1/4	4-1/8	8.55		

### 6697 Spacer

ØD (mm)	Part No.	H	H1	K	L	Wt.	Product Photo	Dimensional Drawing
11	AN66970003	2	1-3/4	1-3/8	1-3/16	0.04		

This spacer, in conjunction with a SmartPipe pipe clip, allows consistent alignment of pipes when different diameters of pipe are run concurrently in the same line.



### 0169 Threaded Rod Adapter


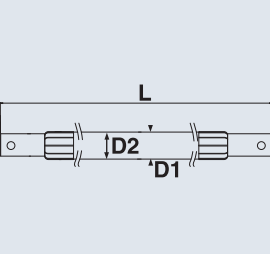

C1	Part No.	E	H	Wt.	Product Photo	Dimensional Drawing
1/4"	AN0169000500	5/8	1-3/16	0.12		

Dimensions in inches (in) and weight in pounds (lbs.) unless otherwise noted.


# Ø 50, 63

## Rigid Aluminum Pipe and Flexible Hose

SmartPipe Aluminum Pipe							
Ø OD (mm)	Ø OD (in.)	Part No.	L1 (ft.)	L	Wt.	Product Photo	Dimensional Drawing
50	2	AN1016A5004	20	19' 7 1/8"	9.68		
63	2 1/2	AN1016A6304	20	19' 7 1/8"	13.84		

1001E Flexible Hose								
D1	D2	Part No.	L	Min Bend Radius (in.)	For Use with SmartPipe Pipe Diameter	Wt.	Product Photo	Dimensional Drawing
2 1/2	2	AN1001E500009	3' 3"	11	2	6.07		
		AN1001E500004	6' 6"					
3-1/8	2 1/2	AN1001E630008	4' 7"	12	2 1/2	8.64		
		AN1001E630005	9' 10"					
		AN1001E630006	13' 1"	23.6				

Use part number AN66989903, anti-whiplash strap  
Refer to page 64 and 68 for band radius and proper installation

6698 Anti-whiplash Strap		
Part No.	Wt.	Product Photo
AN66989903	0.47	

Prevents whiplash should SmartPipe flexible hose be disconnected while under pressure. Conforms to ISO 4414 safety standard.



Dimensions in inches (in) and weight in pounds (lbs.) unless otherwise noted.


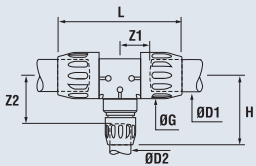
# Ø 50, 63

## Pipe-to-pipe and Threaded Connectors

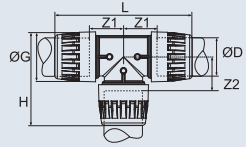
### 6606 Pipe-to-pipe Connector

ØD (mm)	Part No.	ØG	L	Z	Wt.	Product Photo	Dimensional Drawing
50	AN66065000	3-1/8	6-3/4	1	1.81		
63	AN66066300	3-9/16	6-3/4	1			

### 6604 Reducing Tee

ØD1 (mm)	D2 (mm)	Part No.	ØG	H	L	Z1	Z2	Wt.	Product Photo	Dimensional Drawing
50	25	AN66045025	3-1/8	5-7/16	9-1/8	2-3/16	4-3/8	2.54		
	40	AN66045040		6-3/16			4-1/4	2.79		
63	40	AN66046340	3-9/16	6-5/16	9-5/8	2-7/16	4-9/16	3.31		
	50	AN66046350		7	9-15/16	2-3/16	4-5/8	3.31		

### 6604 Equal Tee

ØD (mm)	Part No.	ØG	H	L	Z1	Z2	Wt.	Product Photo	Dimensional Drawing
50	AN66045000	3-3/16	6-1/8	9-1/8	2-3/16	2-3/16	2.65		
63	AN66046300	3-9/16	4-13/16	9-5/8	2-7/16	2-7/16	2.98		

### 6612 45° Elbow

ØD (mm)	Part No.	ØG	L	Z	Wt.	Product Photo	Dimensional Drawing
50	AN66125000	3-1/8	3-7/8	1-1/2	1.20		
63	AN66126300	3-9/16	4	2-3/8	1.70		

### 6602 90° Elbow

ØD (mm)	Part No.	ØG	L	Z	Wt.	Product Photo	Dimensional Drawing
50	AN66025000	3-1/8	6-1/8	2-1/4	1.77		
63	AN66026300	3-9/16	4-13/16	2-3/8	2.17		

Dimensions in inches (in) and weight in pounds (lbs.) unless otherwise noted.



### 6609 Male Threaded 90° Elbow, NPT

ØD (mm)	C (NPT)	Part No.	E	H	ØG	ØJ	L	Z1	Z2	Wt.	Product Photo	Dimensional Drawing
50	1½	AN66095050	7/8	2	3-1/8	3-1/8	4-9/16	2-3/16	3-13/16	4.00		
	2	AN66095044	7/8	2-3/8					3-7/8	4.00		
63	2½"	AN66096341	1-1/16	3-1/8	3-9/16	3-9/16	4-7/8	2-3/8	4-3/16	4.04		
	3"	AN66096346	1-3/16	3-3/4					3-1/4	6.01		

### 6666 Plug-in Reducer

ØD (mm)	ØD2 (mm)	Part No.	ØG	L	Wt.	Product Photo	Dimensional Drawing
50	25	AN66662550	1-3/4	3-13/16	0.46		
	40	AN66664050	2-5/8	4-7/16	0.70		
	63	AN66665063	3-1/8	4-15/16	1.15		
63	40	AN66664063	2-5/8	4-7/16	1.90		

### 6625 Vented End Cap

ØD (mm)	Part No.	E	ØG	H	L	Wt.	Product Photo	Dimensional Drawing
50	AN66255000	1-7/8	3-1/8	2-5/8	4-1/4	1.0		
63	AN66256300	1-1/4	3-9/16	2-15/16	4-3/8	1.0		

### 6605 Male Threaded Connector, NPT


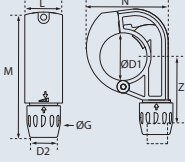
ØD (mm)	Part No.	C (NPT)	E	ØG	H	Wt.	Product Photo	Dimensional Drawing
50	AN66055050	1½	7/8	3-1/8	4-11/16	2.78		
	AN66055044	2			4-3/4	2.35		
63	AN66056344	2	13/16	3-9/16	4-11/16	2.30		
	AN66056341	2½	1		5-1/8	3.00		
	AN66056346	3	1-1/16		5-1/2	4.90		

Dimensions in inches (in) and weight in pounds (lbs.) unless otherwise noted.


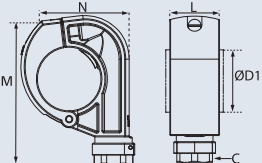
# Ø 50, 63

## Quick Assembly Brackets

### 6662 Quick Assembly Bracket


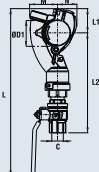
ØD1 (mm)	ØD2	Part No.	M	ØG	L	N	Z	Wt.	Product Photo	Dimensional Drawing
50	25	AN66625025	5-3/16	1-3/4	1-1/2	3-7/8	2-5/16	0.34		
63	25	AN66626325	6-9/16	1-3/4	2	4-1/4	3	0.70		

### 6663 Quick Assembly Mini-bracket with Female Thread, NPT

ØD1 (mm)	Part No.	C	M	L	N	Wt.	Product Photo	Dimensional Drawing
50	AN66635022	1/2	5-1/2	2	3-7/8	1.10		
	AN66635028	3/4						
63	AN66636322	1/2						
	AN66636328	3/4						

## Ball Valve

### 6668 Quick Assembly Mini-bracket with Ball Valve, NPT

ØD1 (mm)	Part No.	C	L	L1	L2	M	N	Wt.	Product Photo	Dimensional Drawing
50	AN66685022	1/2	9-3/4	1-13/16	5-1/4	3-7/16	1-1/4	1.07		
63	AN66686322	1/2	10-13/16	2-1/2	5-5/8	2-3/8	1-7/8	1.50		
	AN66686328	3/4	11-11/16		5-3/4			1.70		


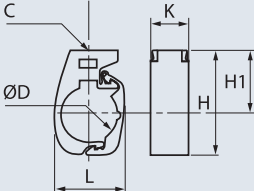
Dimensions in inches (in) and weight in pounds (lbs.) unless otherwise noted.

# Ball Valve

## 4012 Lockable Double Female Valve

ØD (mm)	Part No.	G	L	N	Z1	Z2	Wt.	Product Photo	Dimensional Drawing
50	AN40925000	3-1/8	8-13/16	6-1/8	2-3/8	1-11/16	3.37		
63	AN40126300	3-9/16	10-15/16	7-5/16	3-5/16	3-7/8	5.42		

## 6697 Fixing Clip for Rigid Pipe

ØD (mm)	C (UNC)	Part No.	H1	H	K	L	Wt.	Product Photo	Dimensional Drawing
50	3/8	AN66975001	3-9/16	5	1-3/16	2-7/8	0.15		
63	3/8	AN66976301							

SmartPipe fixing clips are designed to bear a maximum weight of 44 lbs. To ensure good stability, use at least 2 clips per 20 ft. section of pipe.  
Example:

- Maximum 5 ft. space between clips for 10 ft. lengths of pipe
- Maximum 10 ft. space between clips for 20 ft. lengths of pipe.

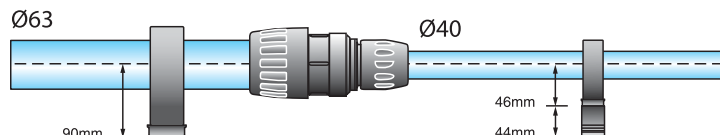
Only use this clip for fixing SmartPipe rigid pipe, all other types of pipe clips are to be avoided. Fix the clip to a rigid support (U-channel, cable tray) to allow for expansion while retaining the pipe.

# Mounting Hardware

## 6697 Spacer for Rigid Pipe

ØD (mm)	Part No.	H	H1	K	L	Wt.	Product Photo	Dimensional Drawing
11	AN66970003	2	1-3/4	1-3/8	1-3/16	0.4		

This spacer, used with a SmartPipe clip, allows consistent alignment of pipes when different diameters of pipe are used in the same run.



Dimensions in inches (in) and weight in pounds (lbs.) unless otherwise noted.


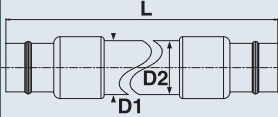
# Ø 76, 100

## Rigid Aluminum Pipe

### SmartPipe Aluminum Pipe

Ø OD (mm)	Ø OD (in.)	Part No.	L1 (ft.)	Wt.	Product Photo	Dimensional Drawing
76.3	3	ANTA16L104	20	17		
101.8	4	ANTA16L304	20	25.7		

### FP01 Flexible Hose


Ø D1 (mm)	Ø D2 (in.)	Part No.	L	Min Bend Radius	For Use with SmartPipe Pipe Diameter (mm)	Wt.	Product Photo	Dimensional Drawing
91	3	ANFP01L101	4'11"	14	76	11.4		
		ANFP01L102	6'6"			15.2		
116	4	ANFP01L302	6'6"	20	100	28.2		
		ANFP01L303	9'10"			40.5		

Use two connectors ANRR01 to connect flexible hoses ANFP01 to SmartPipe pipe.

Use part number AN66989903, anti-whiplash strap

Refer to page 64 and 68 for band radius and proper installation

### 6698 Anti-whiplash Strap

Part No.	L	Wt.	Product Photo
AN66989903	3'3"	0.47	

Prevents whiplash should SmartPipe flexible hose be disconnected while under pressure. Conforms to ISO 4414 safety standard.



Dimensions in inches (in) and weight in pounds (lbs.) unless otherwise noted.

# Pipe-to-pipe and Threaded Connectors



## RR01 Pipe-to-pipe Connector (clamp and cartridge)

Ø OD (mm)	Part No.	L	E1	E2	Wt.	Product Photo	Dimensional Drawing
76	ANRR01L100	5-3/4	4-1/16	5-3/16	2.33		
100	ANRR01L300		5-1/16	6-3/16	3.06		

## RP00 Cartridge (spare part)

Ø OD (mm)	Part No.	M	N	Wt.	Product Photo	Dimensional Drawing
76	ANRP00L100	3-1/2	2-1/16	8.3		
100	ANRP00L300	4-7/8	2-1/16	10.2		

## RX02 90° Elbow

Ø OD (mm)	Part No.	H	Z	Wt.	Product Photo	Dimensional Drawing
76	ANRX02L100	8-15/16	7-7/16	2.21		
100	ANRX02L300	10-15/16	8-11/16	3.86		

## RX12 45° Elbow

Ø OD (mm)	Part No.	L1	L2	Wt.	Product Photo	Dimensional Drawing
76	ANRX12L100	9	6	2.21		
100	ANRX12L300	10-11/16	7-1/4	3.86		

## RX04 Equal Tee

Ø OD (mm)	Part No.	L	Z1	Z2	Wt.	Product Photo	Dimensional Drawing
76	ANRX04L100	11-7/16	5-11/16	5-11/16	2.33		
100	ANRX04L300	12-3/16	6-1/8	5-5/16	3.06		

Use three connectors ANRR01 to connect equal tee ANRX04 to Smartpipe pipe.

Dimensions in inches (in) and weight in pounds (lbs.) unless otherwise noted.

# Ø 76, 100

## Pipe-to-pipe and Threaded Connectors

### RX24 Reducing Tee

Ø D1 (mm)	Ø D2 (mm.)	Part No.	L	Z1	Z2	Wt.	Product Photo	Dimensional Drawing
76	40	<b>ANRX24L140</b>	11-7/16	5-11/16	4-1/8	2.01		
	50	<b>ANRX24L150</b>	9-7/16	4-3/4	8-1/4	2.29		
	63	<b>ANRX24L163</b>	11-7/16	5-11/16	6-7/16	2.29		
100	40	<b>ANRX24L340</b>	12-3/16	6-1/8	4-5/8	3.46		
	50	<b>ANRX246350</b>	12-1/4	6-1/8	6-13/16	3.53		
	63	<b>ANRX24L363</b>	12-3/16	6-1/8	6-15/16	3.75		
	76	<b>ANRX04L3L1</b>			5-5/16	3.75		

Use two connectors ANRR01 to connect reducing tees ANRX24 to SmartPipe pipes Ø 76 and Ø 100 and to connect pipe-to-pipe connector AN6606 to SmartPipe pipes Ø 40 and Ø 63.

### RX20 Threaded Tee

ØD (mm)	Part No.	C (NPT)	L	Z1	Z2	Wt.	Product Photo	Dimensional Drawing
76	<b>ANRX20L1N04</b>	1/2	11-7/16	5-11/16	2-1/2	1.92		
100	<b>ANRX24L3N04</b>		12-3/16	6-1/8	3	6.35		

Use two connectors ANRR01 to connect threaded tee ANRX20 to Smartpipe pipe.

### RX64, RX66 Plug-in Reducer

Ø D1 (mm)	Ø D2 (mm)	Part No.	L	Wt.	Product Photo	Dimensional Drawing
76	50	<b>ANRX64L150</b>	8-11/16	2.29		
	63	<b>ANRX64L163</b>	9-1/16	2.29		
100	63	<b>ANRX64L363</b>	9-13/16	3.46		
	76	<b>ANRX66L3L1</b>	7-9/16	3.75		

Use one connector AN4401 to connect plug-in reducer ANRX64 to SmartPipe pipes Ø 76 and Ø 100 and one to connect pipe-to-pipe connector AN6606 to connect SmartPipe Ø 63.

### RX25 End Cap

ØD (mm)	Part No.	L	Wt.	Product Photo	Dimensional Drawing
76	<b>ANRX25L100</b>	3-15/16	0.71		
100	<b>ANRX25L300</b>	4-1/4	1.17		

Use one connector ANRR01 to connect end cap ANRX25 to SmartPipe pipe.

Dimensions in inches (in) and weight in pounds (lbs.) unless otherwise noted.

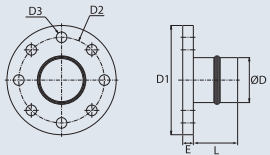


### RR21 Male Threaded Adapter, NPT

Ø OD (mm)	Part No.	C (NPT)	L	H	Wt.	Product Photo	Dimensional Drawing
76	ANRR21L1N20	2-1/2	4-15/16	13/16	2.00		
	ANRR21L1N24	3			2.35		


Use one connector ANRR01 to connect male adaptor ANRR21 to SmartPipe pipe.

### RX30, RX 31 Flange Adaptor

ØD (mm)	DN	Part No.	D1	D2	D3	E	L	Wt.	Product Photo	Dimensional Drawing
76	65	ANRX30L100	7-5/16	5-3/4	11/16	3/8	2-15/16	7.05		
	80	ANRX31L100*	7-7/8	6-5/16	3/4	1/2				
100	100	ANRX30L300	8-11/16	7-1/8	11/16	3/8	2-15/16	12.0		
		ANRX31L300*	9	7-1/2	3/4	1/2				


\*ANRX31 dimensions conform to ANSI standards

### EW05 Flange Gasket

ØD (mm)	Part No.	For use with Flange Reference	Wt.	Product Photo
76	ANEW05L100	ANRX30L100	0.06	
100	ANEW05L300	ANRX30L300	0.11	

Will fit DIN and ANSI flanges.


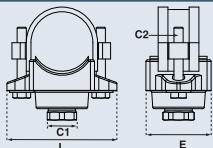
### EW06 Flange Bolt Kit

Part No.	C (UNC)	L	Wt.	Product Photo
ANEW060001	5/8	2-3/8	0.8*	

\*Kit contains eight bolts and eight nuts.

## Quick Assembly Direct Feed Brackets

### RR63 Simple Reducing Bracket

ØD (mm)	Part No.	C1 (NPT)	C2	E	L	Wt.	Product Photo	Dimensional Drawing
76	ANRR63L1N08	1	M12	2	5-3/8	4.15		
100	ANRR63L3N08			3-1/8		4.25		


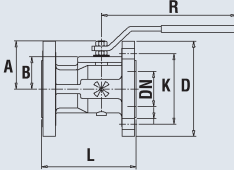
Supplied with Ø 7/8 - 1" adaptor (AN66212535). To drill SmartPipe pipe, use drilling tool ANEW090030.

Dimensions in inches (in) and weight in pounds (lbs.) unless otherwise noted.

# Ø 76, 100


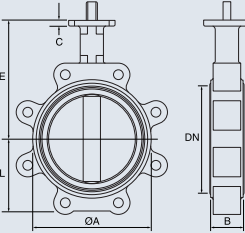

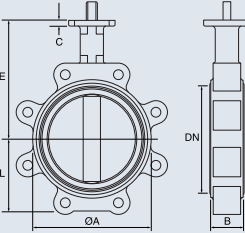
## Ball Valve

### VR01 Ball Valve

ØD (mm)	DN	Part No.	A	B	D	L	K	R	Wt.	Product Photo	Dimensional Drawing
76	65	ANVR01L100*	4	2-15/16	7-5/16	5-11/16	6-11/16	12-1/2	24.3		
100	100	ANVR01L300*	5-3/8	4-1/16	8-11/16	7	7-1/2	15	43.4		

DN Flange Adapters are required.  
76 mm ANRX30L100; 100 mm ANRX30L300

### VR03 Butterfly Valve

ØD (mm)	DN	Part No.	ØA	B	E	L	C	Wt.	Product Photo	Dimensional Drawing
76	3	AN3171303	4-3/4	1-3/4	6-5/16	2-15/16	3/8	9		
<p>Valve is not supplied with bolt kit. Bolt kit part number is ANFNWLBBZ1M for 3". Valve has a bonded seal and does not require a flange gasket. ANSI standard, class 150.</p>										
100	4	AN3171304	5-15/16	2-1/16	7-1/16	3-3/4	3/8	15		
<p>Valve is not supplied with bolt kit. Valve requires a bolt kit; part number ANFNWLBBZ1P for 4". Valve has a bonded seal and does not require a flange gasket. ANSI standard, class 150.</p>										



Dimensions in inches (in) and weight in pounds (lbs.) unless otherwise noted.

# Mounting Hardware

## ER01 Rubber Insulated Pipe Mounting Bracket

ØD (mm)	Part No.	C1 (UNC)	Wt.	Product Photo	Dimensional Drawing
76	<b>ANER01L100</b>	3/8	0.26		
100	<b>ANER01L300</b>		0.30		

To ensure good stability of the network, we recommend the use of at least 2 brackets per length of pipe.

Example:

- Maximum 5 ft. space between brackets for 10 ft. lengths of pipe
- Maximum 10 ft. space between brackets for 20 ft. lengths of pipe

Use only this bracket for fixing SmartPipe rigid pipe, all other types of pipe brackets are to be avoided. Fix the bracket to a rigid support (U-channel, cable tray) to allow for expansion while retaining the pipe.

## EX01 Pipe Mounting Bracket

ØD (mm)	Part No.	C1 (UNC)	Wt.	Product Photo	Dimensional Drawing
76	<b>ANEX01L100</b>	3/8	4.09		
100	<b>ANEX01L300</b>		4.73		

To ensure good stability of the network, we recommend the use of at least 2 brackets per length of pipe.

Example:

- Maximum 5 ft. space between brackets for 10 ft. lengths of pipe
- Maximum 10 ft. space between brackets for 20 ft. lengths of pipe

Use only this bracket for fixing SmartPipe rigid pipe, all other types of pipe brackets are to be avoided. Fix the bracket to a rigid support (U-channel, cable tray) to allow for expansion while retaining the pipe.

# Ø 168

## Rigid Aluminum Pipe

### SmartPipe Aluminum Pipe

Ø OD (mm)	Ø OD (in.)	Part No.	L (ft.)	Wt.	Product Photo	Dimensional Drawing
168.3	6	ANTA16L804	20	64.87		



Dimensions in inches (in) and weight in pounds (lbs.) unless otherwise noted.

# Ø 168

## Pipe-to-pipe and Threaded Connectors

### RR01 Pipe-to-pipe Connector (clamp and cartridge)

Ø OD (mm)	Part No.	L	E1	E2	Wt.	Product Photo	Dimensional Drawing
168	ANRR01L800	5-1/2	8-3/8	9-1/16	5.67		

### RA02 90° Elbow

Ø OD (mm)	Part No.	H	Z	Wt.	Product Photo	Dimensional Drawing
168	ANRA02L800	10-5/8	7-1/4	6.77		

Use two connectors ANRR01 to connect 90° elbow ANRR02 to SmartPipe.

### RA12 45° Elbow

Ø OD (mm)	Part No.	L1	Z	Wt.	Product Photo	Dimensional Drawing
168	ANRA12L800	12-1/4	5-3/8	5.22		

### RA04 Equal Tee

Ø OD (mm)	Part No.	L	Z1	Z2	Wt.	Product Photo	Dimensional Drawing
168	ANRA04L800	14-3/16	7-1/16	7-5/16	10.98		


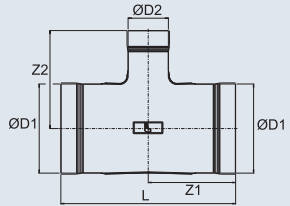
Use three connectors ANRR01 to connect equal tees ANRX04 and ANRA04 to Smartpipe pipe.

Dimensions in inches (in) and weight in pounds (lbs.) unless otherwise noted.

# Ø 168

## Pipe-to-pipe and Threaded Connectors

### RA04 Reducing Tee

Ø D1 (mm)	Ø D2 (in.)	Part No.	L	Z1	Z2	Wt.	Product Photo	Dimensional Drawing
168	4	ANRA04L8L3	13	6-1/2	7-5/16	6.99		
	3	ANRA04L8L1				6.94		
	2-1/2	ANRA04L863			8-11/16	6.83		

Use two connectors ANRR01 to connect reducing tees ANRA04 to SmartPipe pipes Ø 168, Ø 101, and Ø 76 and to connect pipe-to-pipe connectors AN6606 to SmartPipe pipes Ø 63.

### RA66 Plug-in Reducer

Ø D1 (mm)	Ø D2 (mm)	Part No.	L	Wt.	Product Photo	Dimensional Drawing
168	101	ANRA66L8L3	8-1/4	3.31		
	76	ANRA66L8L1	9-13/16	3.06		

Use one connector ANRRAN01 to connect plug-in reducer RA66 to SmartPipe pipe.

### RA25 Vented End Cap


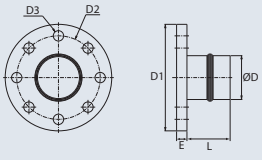
ØD (mm)	Part No.	L	Wt.	Product Photo	Dimensional Drawing
168	ANRA25L804	4-9/16	2.65		

Use one connector ANRR01 to connect end caps ANRA25 to SmartPipe pipe.

Dimensions in inches (in) and weight in pounds (lbs.) unless otherwise noted.




### RA31 Flange Adaptor


ØD (mm)	DN	Part No.	D1	D2	D3	E	L	Wt.	Product Photo	Dimensional Drawing
168	5-5/16	ANRA31L800	11	9-7/16	7/8	2	3-15/16	7.56		

\*ANRA31 dimensions conform to ANSI standards

### EW05 Flange Gasket

ØD (mm)	Part No.	For use with Flange Reference	Wt.	Product Photo
168	ANEW05L800	ANRA31L800	0.18	

### EW06 Flange Bolt Kit

Part No.	C (UNC)	L	Wt.	Product Photo
ANEW060005	M20	3-1/8	0.20	

\*Kit contains eight bolts and eight nuts.

## Quick Assembly Direct Feed Brackets

### RR63 Simple Reducing Bracket


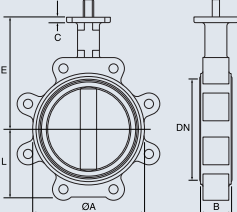
ØD (mm)	Part No.	C1 (NPT)	C2	E	L	Wt.	Product Photo	Dimensional Drawing
168	ANRR63L8N12	1-1/2	16	3-9/16	9-1/4	7.50		
	ANRR63L8N16	2		4-1/16				

Dimensions in inches (in) and weight in pounds (lbs.) unless otherwise noted.

# Ø 168

## Valves

### VR03 Butterfly Valve

ØD (mm)	DN	Part No.	ØA	B	E	L	C	Wt.	Product Photo	Dimensional Drawing
168	6	AN3171306	8-1/16	2-1/16	8-1/16	5	3/8	24.91		

*Valve is not supplied with bolt kit. Bolt kit part number is ANFNWLBZ1U. Valve has a bonded seal and does not require a flange gasket. ANSI standard class 150.*

## Mounting Hardware

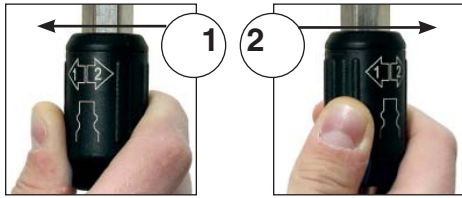
### ER01 Rubber Insulated Pipe Mounting Bracket

ØD (mm)	Part No.	C1 (UNC)	Wt.	Product Photo	Dimensional Drawing
168	ANER01L800	3/8	0.26		

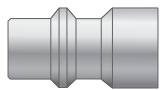
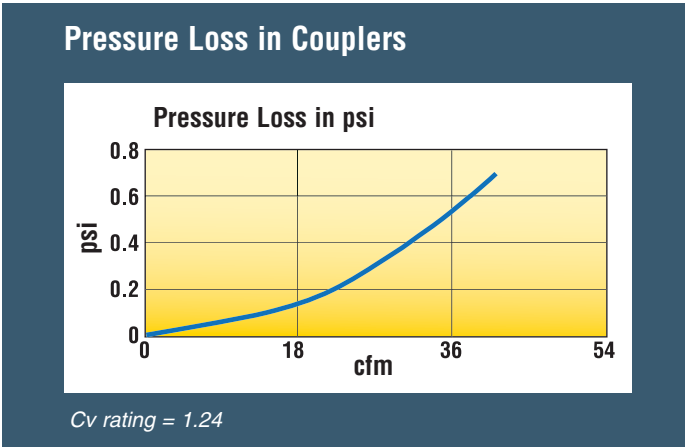


Dimensions in inches (in) and weight in pounds (lbs.) unless otherwise noted.

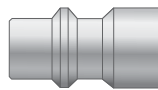
# Composite Quick-Connect Couplers and Plugs



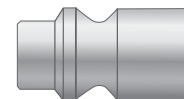
SmartPipe couplers are designed for easy one-handed connection and disconnection. To connect, simply press the plug into the coupler port. To disconnect, twist the coupler sleeve once to the left to vent pressure, then once to the right to release the plug. These couplers comply with ISO 4414 and EN 983 safety standards.



**ISO B 1/4**  
ISO 6150 B  
AFNOR NF 4-053  
US.MIL.C4109  
CEJN 310  
RECTUS 23-24



**ISO B 3/8**  
ISO 6150 B  
AFNOR NF 4-053  
US.MIL.C4109  
CEJN 430  
RECTUS 30



**ARO B 1/4**  
ARO 210  
CEJN 300  
ORION 44510  
PARKER 50  
RECTUS 14-22

## ISO B 1/4 Body

Male NPT		
Product Photo	Part No.	NPT
	ANCP05U1N02	1/4
	ANCP05U1N03	3/8
	ANCP05U1N04	1/2

Male Plug NPT		
Product Photo	Part No.	NPT
	ANCA84U1N02	1/4"
	ANCA84U1N03	3/8"

Female Plug NPT		
Product Photo	Part No.	NPT
	ANCA83U1N02	1/4"
	ANCA83U1N03	3/8"

Dimensions in inches (in) and weight in pounds (lbs.) unless otherwise noted.

# Composite Quick-Connect Couplers and Plugs

## ISO B 3/8 Body

Male NPT		
Product Photo	Part No.	NPT
	ANCP05U2N02	1/4
	ANCP05U2N03	3/8
	ANCP05U2N04	1/2


Male Plug NPT		
Product Photo	Part No.	NPT
	ANCA84U2N02	1/4"
	ANCA84U2N03	3/8"

Female Plug NPT		
Product Photo	Part No.	NPT
	ANCA83U2N02	1/4"
	ANCA83U2N03	3/8"

## ARO 1/4 Body

Male NPT		
Product Photo	Part No.	NPT
	ANCP05A1N03	3/8
	ANCP05A1N04	1/2


Male Plug NPT		
Product Photo	Part No.	NPT
	ANCA84A1N02	1/4"
	ANCA84A1N03	3/8"

Female Plug NPT		
Product Photo	Part No.	NPT
	ANCA83A1N02	1/4"
	ANCA83A1N03	3/8"

Dimensions in inches (in) and weight in pounds (lbs.) unless otherwise noted.

# Installation Tools


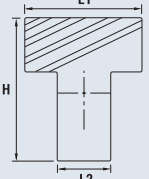
## 6698 Tool Case

For SmartPipe	Part No.	H	L	I	Wt.	Product Photo
Ø 16.5 - 25 - 40 - 50 - 63	<b>AN66980005</b>	12-7/8	11-3/8	4-5/32	13.0	

This tool case simplifies using and transporting tools. It contains all the tools necessary for completing a SmartPipe installation.


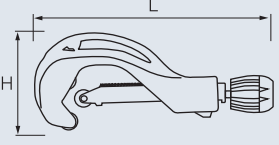
- Drilling fixtures AN66980103 and AN669801
- Drilling tools AN66980201
- Cutter for pipe AN66980301
- Chamfer tool AN66980401
- Deburring tool AN66980402
- Set tightening spanners (2) AN66980503
- Marking tool AN66980403

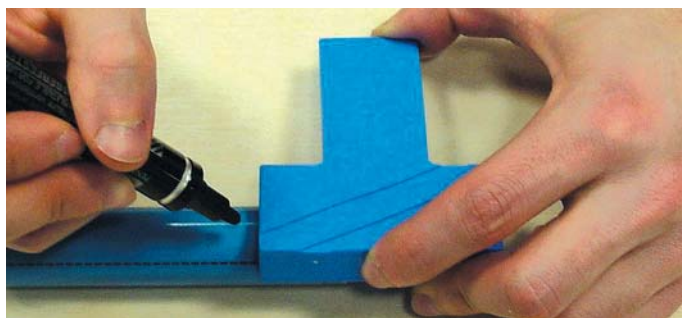
## 6698 Marking Tool for Aluminum Pipe

For SmartPipe	Part No.	H	L1	L2	Wt. (oz.)	Product Photo	Dimensional Drawing
Ø 16.5 - 25 - 40	<b>AN66980403</b>	3-7/16	2-7/8	1-1/4	0.38		

The marking tool enables connection guidelines to be marked on cut lengths of SmartPipe pipes. These marks indicate the insertion limits of the pipe into the fitting in order to ensure good airtight connection and security of grip.

## 4A51 Pipe Cutter

For SmartPipe	Part No.	L	H	Wt. (oz.)	Product Photo	Dimensional Drawing
Ø 16.5 - 25 - 40 - 50 - 63	<b>AN4A515</b>	9-1/16	3-13/16	28.8		
Ø 76 - 100	<b>AN4A516</b>					
Ø 168	<b>AN1X0Y6</b>	23-5/8	11-13/16	31.5		



Dimensions in inches (in) and weight in pounds (lbs.) unless otherwise noted.

PARTS - Ø 16.5, 25, 40


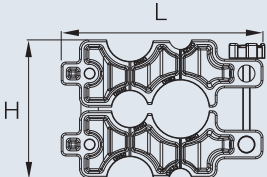
PARTS - Ø 50, 63

PARTS - Ø 76, 100

PARTS - Ø 168


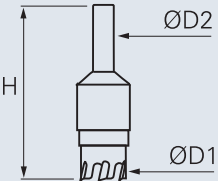
# Installation Tools

## 6698 Drilling Fixture for Rigid Aluminum

For SmartPipe	Part No.	H	L	Wt.	Product Photo	Dimensional Drawing
Ø 25 - 63	AN66980103	6	8-5/8	3.81		


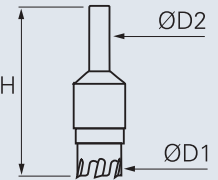
After drilling, deburr and clean the pipe.

## 6698 Drilling Tool for Rigid Aluminum Pipe

For SmartPipe	Part No.	ØD1	ØD2	H	Wt.	Product Photo	Dimensional Drawing
Ø 25	AN66980202	5/8	7/16	2-7/8	0.33		


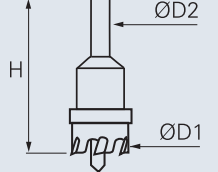
Drilling tool AN66980202 allows the installation of Ø 25 SmartPipe brackets. Can be used with all types of drills.

## 6698 Drilling Tool for Rigid Aluminum Pipe

For SmartPipe	Part No.	ØD1	ØD2	H	Wt.	Product Photo	Dimensional Drawing
Ø 40- 63	AN66980201	7/8	1/2	2-3/4	0.33		

Drilling tool AN66980201 allows the installation of Ø 40 and Ø 63 SmartPipe brackets. It is also used to create the two holes needed for double-clamp ring connectors when cutting to length Ø 63 SmartPipe pipe.

## 6698 Drilling Tool for Rigid Aluminum Pipe

For SmartPipe	Part No.	ØD1	ØD2	H	Wt.	Product Photo	Dimensional Drawing
Ø 76 - 168	ANEW090030	1-3/16	1/2	2-3/4	0.43		

Drilling tool ANEW090030 allows the installation of Ø 76 and Ø 100 SmartPipe direct feed brackets. After drilling, it is important to deburr and clean the pipe.

Dimensions in inches (in) and weight in pounds (lbs.) unless otherwise noted.




### 6698 Deburring Tool for Aluminum Pipe

Part No.	L	Wt.	Product Photo	Dimensional Drawing
AN66980402	5-1/2	0.01		

### 6698 Chamfer Tool for Aluminum Pipe


For SmartPipe	Part No.	H	Wt.	Product Photo	Dimensional Drawing
Ø 16.5 - 25 - 40	AN66980401	2-1/2	0.80		

### Spanner Wrenches for Ø 63 mm Fittings

For SmartPipe	Part No.	Wt.	Product Photo
Ø 50 - 63	AN66980503	1.68 ea.	

*This set includes two tightening spanners.*

### Portable Tool Kit

Part No.	V	Wt.	Product Photo
ANEW010002	14	20.9	

*This case contains: 1 - portable tool, 1 - 14V battery, and 1 - battery charger. It does not include forming jaws.*



Dimensions in inches (in) and weight in pounds (lbs.) unless otherwise noted.

PARTS - Ø 16.5, 25, 40

PARTS - Ø 50, 63


PARTS - Ø 76, 100

PARTS - Ø 168

# Installation Tools

Ø 76, 100, 168 Only

Forming Jaws for Portable Tool								
ØD	Part No.	E1	E2	L1	L2	Wt.	Product Photo	Dimensional Drawing
76	ANEW02L100	4	2-1/16	6	1-13/16	5.7		
100	ANEW02L300		2-3/4			6.2		
168	ANEW02L800		2-3/4			9.0		

14V Battery for Portable Tool			
Part No.	V	Wt.	Product Photo
ANEW030001	14	1.48	

## Minimum number of lugs

Ø 76	Ø 100	Ø 168
<b>5</b>	<b>6</b>	<b>8</b>

**IMPORTANT! DO NOT OVERLAP THE LUGS.**

Dimensions in inches (in) and weight in pounds (lbs.) unless otherwise noted.

# Installation Guidelines

The following pages provide detailed guidance for assembling and installing SmartPipe components. Below are general planning and installation guidelines:

SmartPipe has been specially designed for compressed air and vacuum applications. It may also be used for inert gases such as argon and nitrogen. Consult Kaeser regarding use with other gases/fluids.

SmartPipe installation should be performed in accordance with good safety practices regarding working at heights, eye and ear protection, ventilation, static electricity, etc.

When modifying an existing SmartPipe installation (disassembling, adding drops, etc.), make sure the system is depressurized before doing any work.

Flexible hose is recommended on the compressor pad to absorb vibrations (especially with piston compressors) and facilitate maintenance. It should also be used to correct for misaligned piping, bypass obstacles, and allow for expansion/contraction.

The diameter of the pipe will influence pressure drop and the operation of point-of-use equipment. Select the diameter according to the required flow rate and acceptable pressure drop at the point of use. Refer to the sizing chart under Technical Specifications earlier in this guide. Also, to avoid excessive pressure loss, plan the system with minimal bends, bypasses, and in-line pipe reductions.

Plan for expansion/contraction and deflection prior to assembly. Follow guidelines provided below.

Position drops as close as possible to the point of use. This minimizes the use of hoses which can be tripping hazards and common sources of air leaks and pressure drops.

Once an installation or modification is complete, make sure all connections are full and tight before pressurizing the system.

**Do not** bury SmartPipe underground or immerse/encase SmartPipe in concrete, foam, or other solid material.

**Do not** use SmartPipe as structural support for other equipment or hang anything from SmartPipe.

**Do not** use SmartPipe to electrically ground any other equipment.

**Do not** expose SmartPipe to caustic or corrosive chemicals.

**Do not** weld SmartPipe.

**Do not** bend SmartPipe except in certain situations. Please contact Kaeser for further information.

**Do not** connect rigid SmartPipe to the compressor. Use flexible hose to absorb vibrations and always use anti-whiplash strap.

**Do not** use SmartPipe where the compressed air temperature is above 140°F.

**Do not** use pipe wrench to tighten fittings on 16.5, 25, or 40 mm pipe.



# Safety Instructions

- The SmartPipe installation is to be used only for compressed air and inert gases; for other compatible fluids, please consult the factory.
- The SmartPipe installation may be attached to a ceiling only if the clips are fixed to a solid base or to 3/8" threaded rod hangers. The base must allow a proper alignment of fixing clips in order to ensure their stability and efficiency when normal expansion and contraction occur. Refer to ASME B31.3 and local codes.
- The SmartPipe installation must be protected against mechanical and other shocks and impacts, and particular care must be taken to protect tubes and other components in areas where fork lift trucks, other moving vehicles, moving equipment, or other activity creates a risk of contact with the SmartPipe system.
- SmartPipe rigid tubes must not be bent, welded, twisted, or deformed, as this decreases the strength and integrity of the pipe system.
- SmartPipe tubes and connectors must not be subjected to greater numbers of rotations than are specified in the installation guide.
- The effects of expansion and contraction in the particular application must be considered, to avoid having components become deformed, leading to failure.
- All of the technical characteristics of the SmartPipe system must be taken into account in the installation and assembly for the particular application. The technical characteristics are found in the SmartPipe catalog and the Installation Guide.
- All SmartPipe assembly, installation, and service must be done by properly trained personnel familiar with the products, their characteristics, their limitations, the hazards involved, OSHA and other applicable safety requirements, and the assembly and installation requirements.
- The SmartPipe installation must meet all safety standards in OSHA or any other applicable regulations, requirements or standards.
- Air pressure in the system must not exceed 232 psi. Higher pressures increase the risks of breakage and leaks. Consult the factory for specific applications.
- The SmartPipe system may not be used in an environment with ambient temperatures in excess of 140° F. Such temperatures may cause leakage in seals.
- The air pressure must be turned off during assembly, installation, repair, service, or replacement.
- The SmartPipe system should be pressure tested after installation is complete, but before the system is put into operation. Likewise, the system should be pressure tested after any servicing or repairs, and after any abnormal circumstances, such as extreme temperatures or physical shock.
- All procedures and descriptions in the Installation Guide must be followed.



**WARNING: Installation and assembly must be completed as set forth in the Installation Guidelines. Failure to comply precisely with these instructions can cause unsafe operating conditions and serious personal injury or death. Compressed air systems involve inherent hazards, and if pieces are not properly assembled and installed, end pieces could blow off, creating the potential for serious injury to those in the area, and pipe and joint breakage and air leaks may occur, exposing those in the area to the risk of injury from air under pressure or from falling or moving pipes or other parts of the system. Take particular care with installation of end caps and wall brackets.**

# Piping

## General

SmartPipe aluminum pipe is supplied ready for use. No particular preparation (cutting, deburring, chamfering, etc.) is required unless the tube is cut.

Thanks to the rigidity of SmartPipe aluminum pipe, temperature-related expansion/contraction is reduced to a minimum. The SmartPipe network retains its straightness, and hence its performance, over time (reduction of pressure drop caused by surface friction).

SmartPipe aluminum pipe is calibrated and fits perfectly with all SmartPipe components. Each connection is automatically secured and seated, which minimizes corrosion to the internal surface.

SmartPipe has a protective powder coating (Qualicoat certified) and is thus protected from external corrosion, its color allows the network to be immediately identified and gives a clean and uniform appearance.

Ø 16.5



*Deburred and chamfered pipe*

Ø 25



Ø 40



Ø 50



Ø 63



*Pipe pre-drilled at each end with two 22 mm diameter holes, deburred and chamfered*

Ø 76



*Pipe lugged at each end, deburred and chamfered*

Ø 100



*Pipe lugged at each end, deburred and chamfered*

Ø 168



*Pipe lugged at each end, deburred and chamfered*

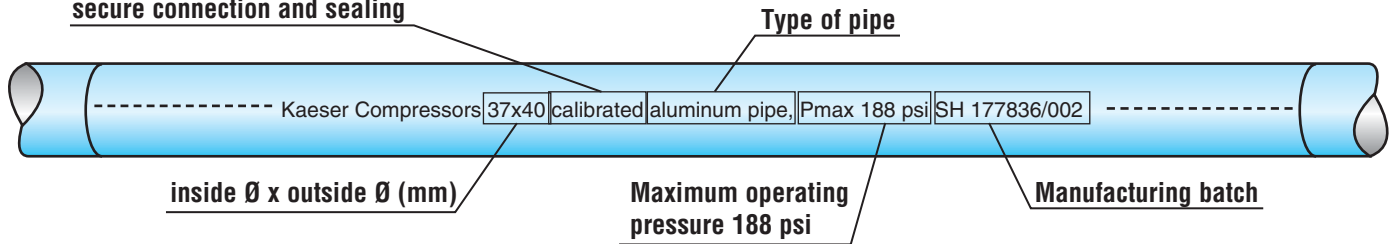
# Piping

## Marking

The transported fluid can be instantly identified by the color of the pipe

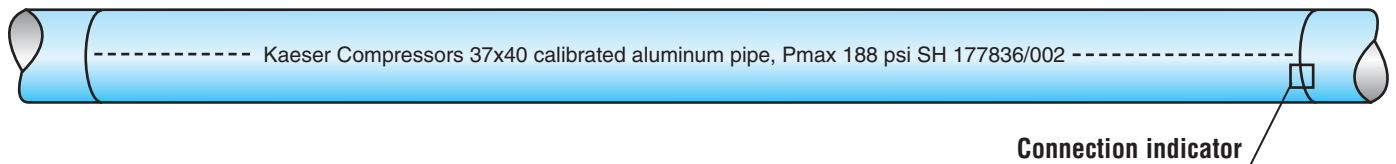
ex: Blue pipe -- compressed air network

**Pipe calibration ensures  
secure connection and sealing**



## Connection indicator

Only on Ø 16.5 - Ø 25 - Ø 40 aluminum pipe



## Drilling locator

### Mark lines for correct drilling

Only on Ø 16.5 - Ø 25 - Ø 40 - Ø 50 - Ø 63 aluminum pipe

Drilling locators are used to correctly position SmartPipe brackets onto the pipe.

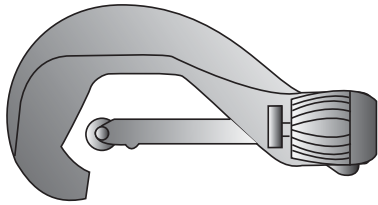
There are two locators on each pipe. The second locator is used to position a second bracket perpendicular to the first.





Ø 16.5, 25, 40

## Tools



Pipe cutter for aluminum pipe  
ref. AN66980301



Chamfer tool for aluminum pipe  
ref. AN66980401



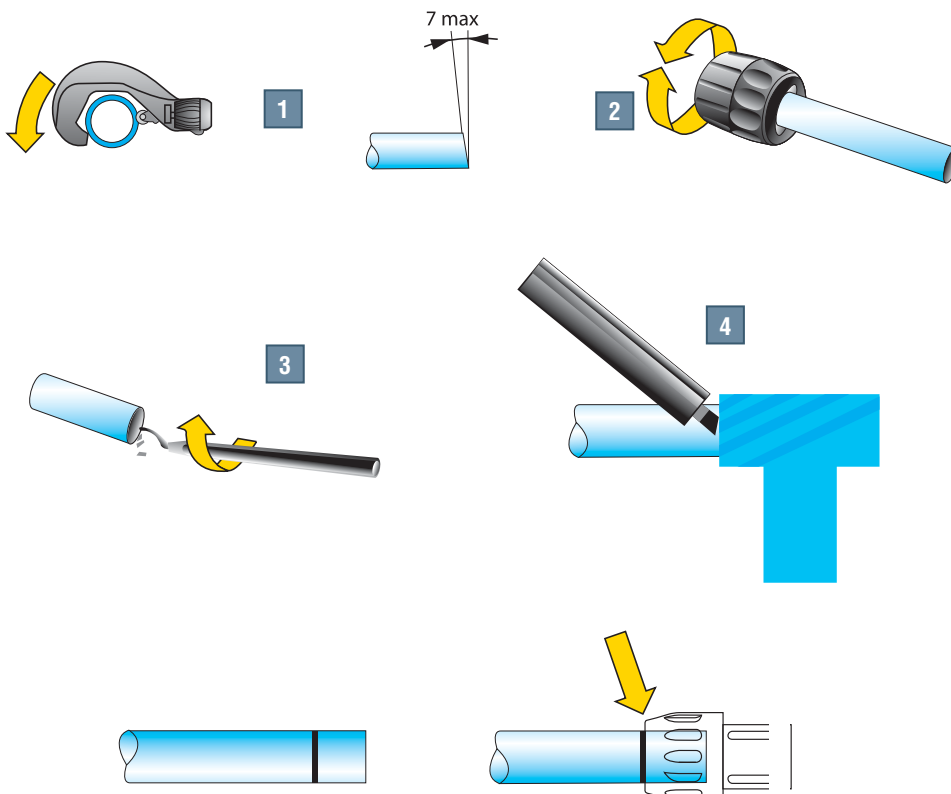
Deburring tool for aluminum pipe  
ref. AN66980402



Marking tool for aluminum pipe  
ref. AN66980403

## Procedure

- 1 Cutting the pipe:
  - place the pipe in the pipe cutter
  - position the blade onto the pipe
  - rotate the pipe cutter around the pipe while gently tightening the wheel
- 2 Carefully chamfer the outer edges
- 3 Deburr the inner end of the pipe
- 4 Trace the connection indicator using the marking tool



## Insertion Lengths

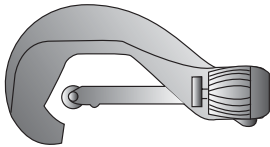
Pipe		End Cap 6625 Series
Ø	mm	mm
16.5	25	39
25	27	42
40	45	64

The insertion lengths for Ø 16.5, 25, and 40 connectors are 25 mm, 27 mm, and 45 mm respectively with the exception of the end cap, 6625 series, for which the insertion lengths are 39 mm, 42 mm, and 64 mm respectively. To ensure a secure connection, push the pipe into the fitting until it stops.

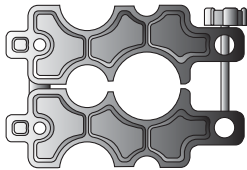
# Piping

Ø 50, 63

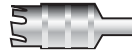
## Tools



Pipe cutter for aluminum pipe  
ref. AN66980301



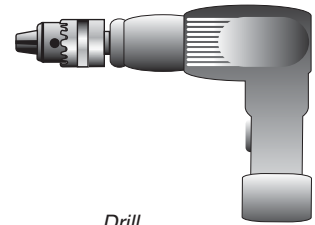
Drilling jig for aluminum pipe  
ref. AN66980102



Drilling tool for  
aluminum pipe  
ref. AN66980201



Deburring tool for  
aluminum pipe  
ref. AN66980402

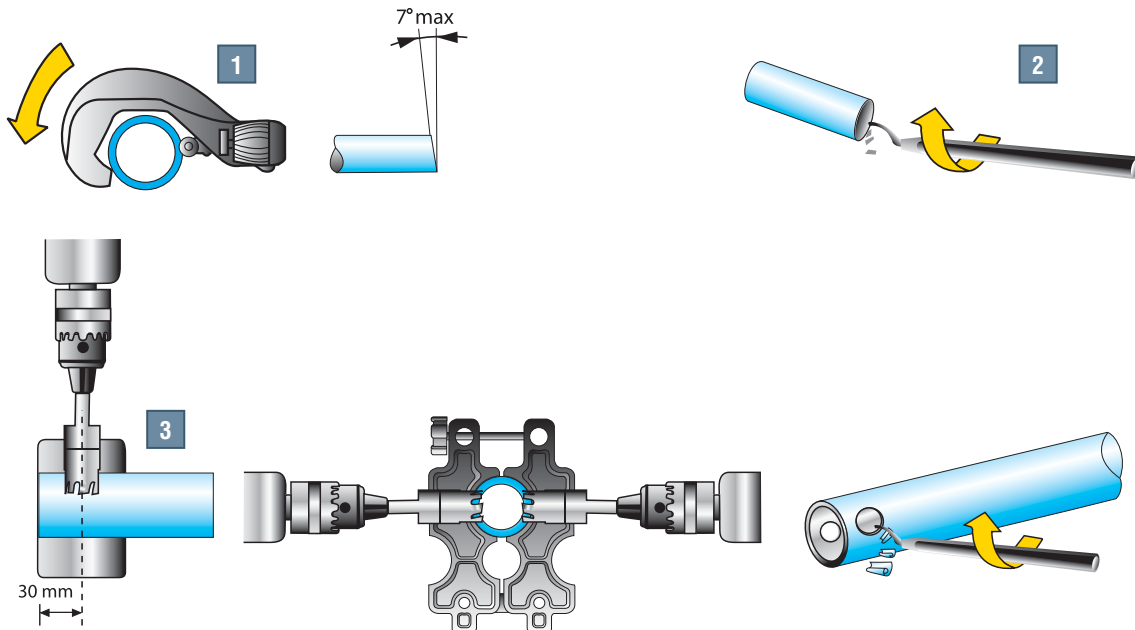


Drill

## Procedure

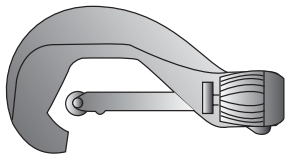
- 1** Cutting the pipe:
  - place the pipe in the pipe cutter
  - position the blade onto the pipe
  - rotate the pipe cutter around the pipe while gently tightening the wheel
- 2** Deburr the inner and outer end of the pipe
- 3** Drill the two clamp holes using the drilling jig and the Ø 22 mm drilling tool. Loosen the jig, release the

pipe, then deburr both holes. Ensure that all outer and inner surfaces are smooth and clear of burrs and potential sharp edges.

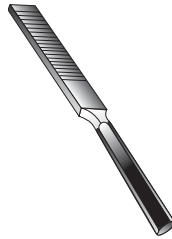


Ø 76, 100, 168

## Tools



Pipe cutter for aluminum pipe  
ref. AN66980301



File



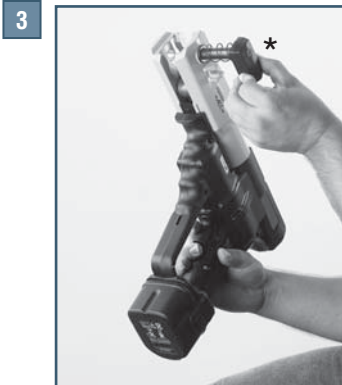
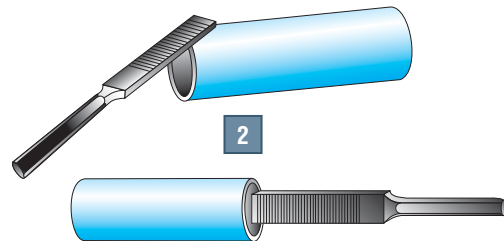
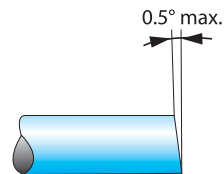
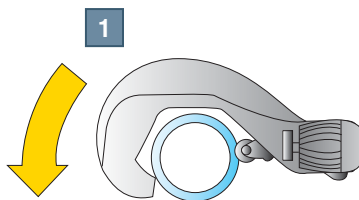
Portable tool kit ref. ANEW010002  
(110V)



Pipe forming jaw set ret.  
ANEW02L100 (Ø 76) OR  
(anew02I300 (Ø 100))

## Procedure

- 1** Cutting the pipe:
  - place the pipe in the pipe cutter
  - position the blade onto the pipe
  - rotate the pipe cutter around the pipe while gently tightening the wheel
- 2** Carefully deburr inner and outer edges of the pipe with a file
- 3** Create the lugs for Ø 76, Ø 100, or Ø168 pipe



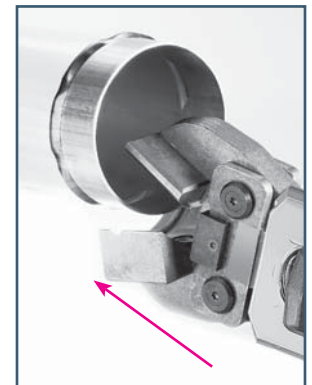
Open the retaining pin at the front of the machine by pressing the jaw release button\*



Place the jaws in the housing



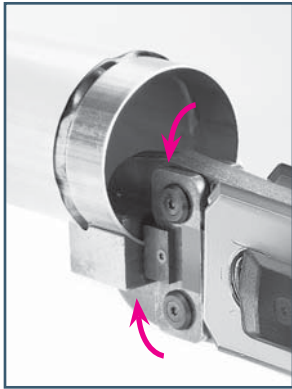
Lock in position by closing the retaining pin



Manually open the jaws of the clamp and insert the aluminum pipe into the clamp as far as it will go

# Piping

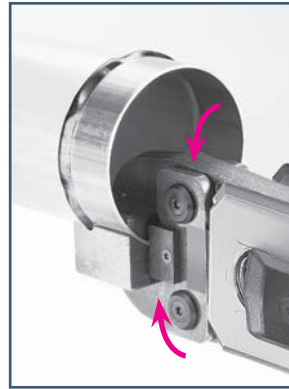
3 Continued



Manually open the jaws of the clamp and insert the aluminum pipe into the clamp as far as it will go



Release the jaws. Press the trigger and crimp the tube until a 'snap' sound is heard



Renew the operation until the required minimum number of lugs for each diameter is achieved.

**Note:** To calibrate, run the jaw through its full cycle without the pipe.

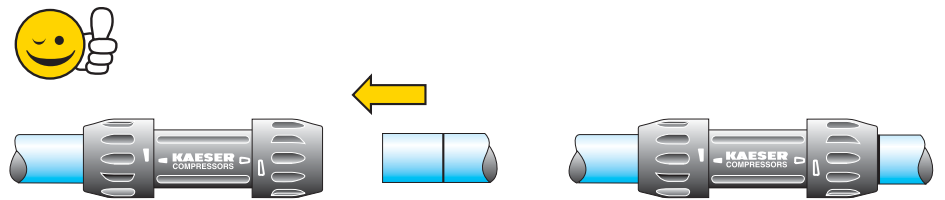
## Minimum number of lugs

Ø 76	Ø 100	Ø 168
<b>5</b>	<b>6</b>	<b>8</b>

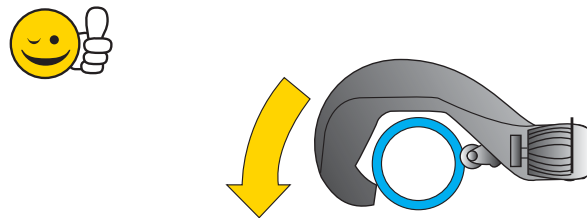
**IMPORTANT! DO NOT OVERLAP THE LUGS.**

# Piping Do's

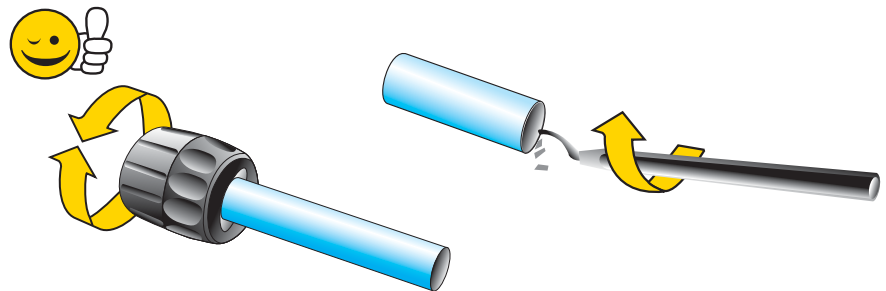
Connection:  
*Push to connect.*



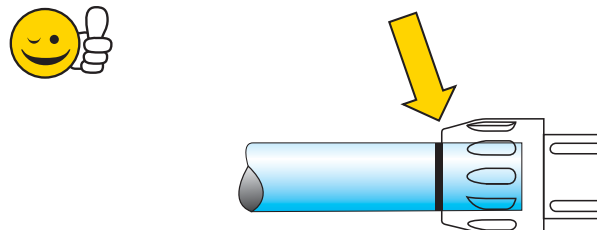
Use a pipe cutter.



Carefully chamfer and deburr the pipe after cutting or drilling.

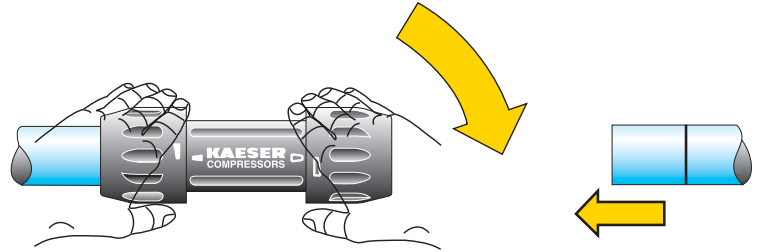


Check that the pipe is correctly positioned in the connector.

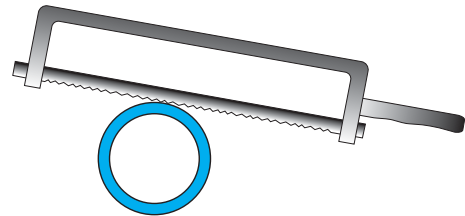


# Piping Don'ts

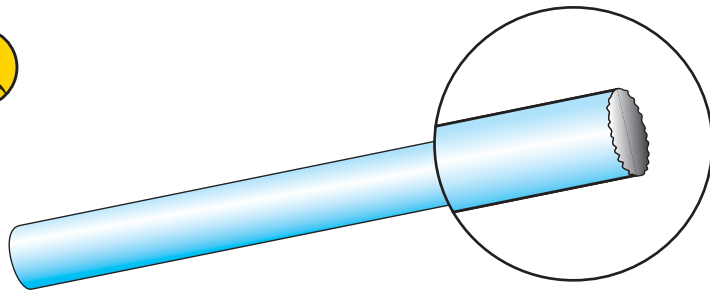
Connection:  
*Don't loosen before connection*



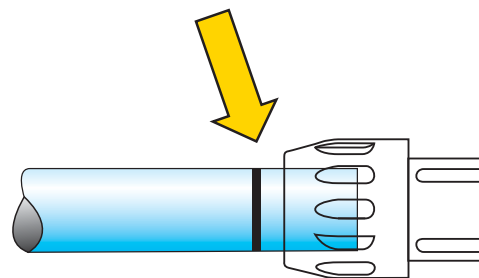
Don't cut pipe with a saw.



Don't leave pipe end rough after cutting it.



Don't push the pipe in only part way.



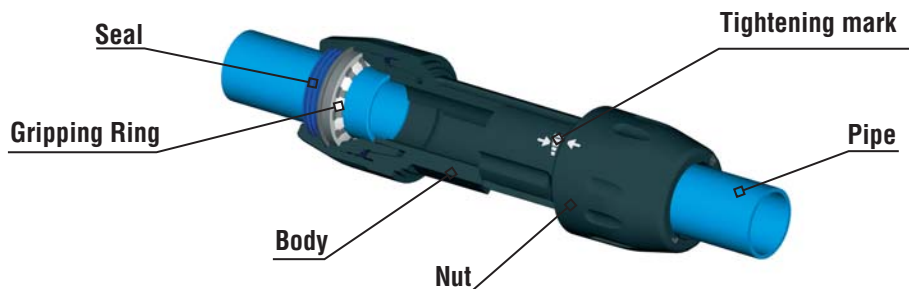


# Connectors

## General

Ø 16.5, 25, 40

Instant connection by means of a gripping ring



The Ø 16.5 - Ø 25 - Ø 40 connectors instantly connect to SmartPipe aluminum pipe. Simply insert the pipe into the connector up to the connector insertion mark. The internal gripping ring is then automatically secured and the connection is complete.

Ø 50, 63

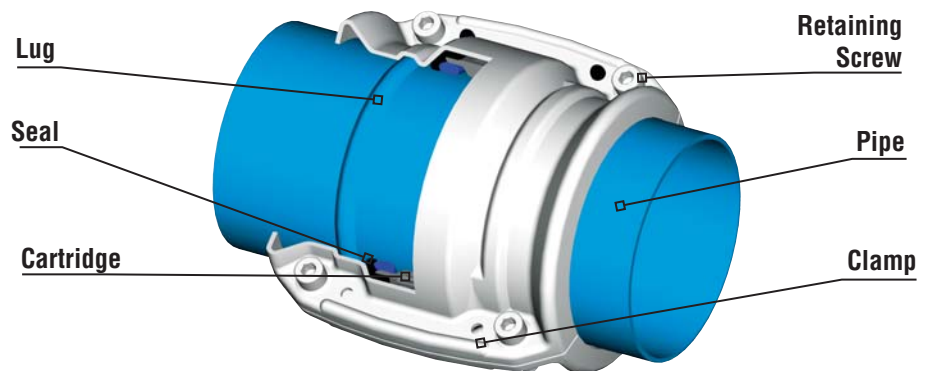
Double clamp quick-fit connection



The Ø 50 and Ø 63 connectors are quickly secured to SmartPipe aluminum pipe by means of a double clamp, which makes the connector fully integrated with the pipe. Connection is achieved by simply tightening the nut.

## Ø 76, 100, 168

### Clamp quick-fit connection



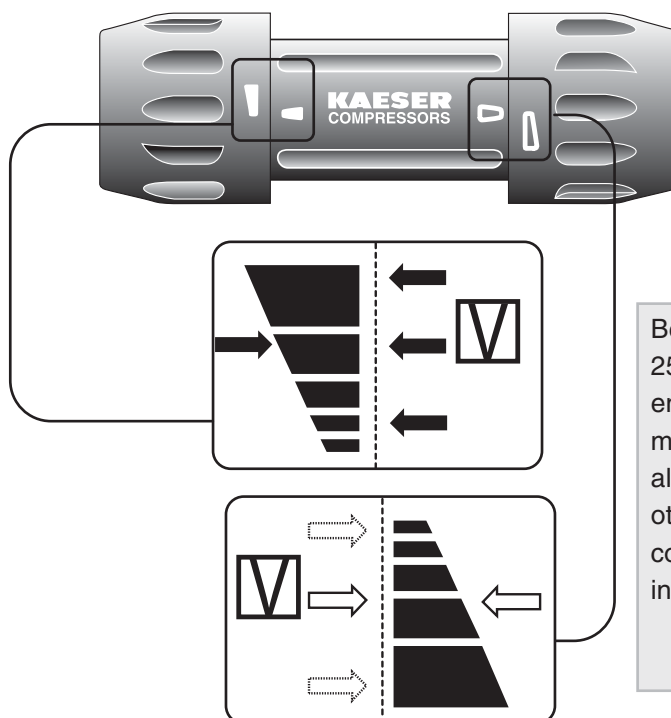
The Ø 76, Ø 100, and Ø 168 clamps secure instantly to SmartPipe aluminum pipe. Simply position the formed pipe within the SmartPipe cartridge, which acts as a seal. Close the SmartPipe clamp to secure the connection and finally tighten the four retaining screws.

## Ø 16.5, 25, 40

### Pre-assembled tightening indicators for connectors

There is no need to loosen the nuts prior to joining Ø 16.5, Ø 25, and Ø 40 connectors to SmartPipe aluminum pipe. Do not use pipe wrench to tighten fittings!

There are important visual markings on the bodies and nuts of SmartPipe Ø 16.5, Ø 25, and Ø 40 connectors. These are represented by solid and empty arrows and indicate the optimum torque. When assembling SmartPipe connectors, the nuts are tightened to a pre-defined torque on the body of the connector. This torque guarantees the seal and safety of each connection.



Before using Ø 16.5, Ø 25, or Ø 40 connectors, ensure that the arrow marks are correctly aligned with each other. Note that the connector nuts are **NOT** interchangeable.

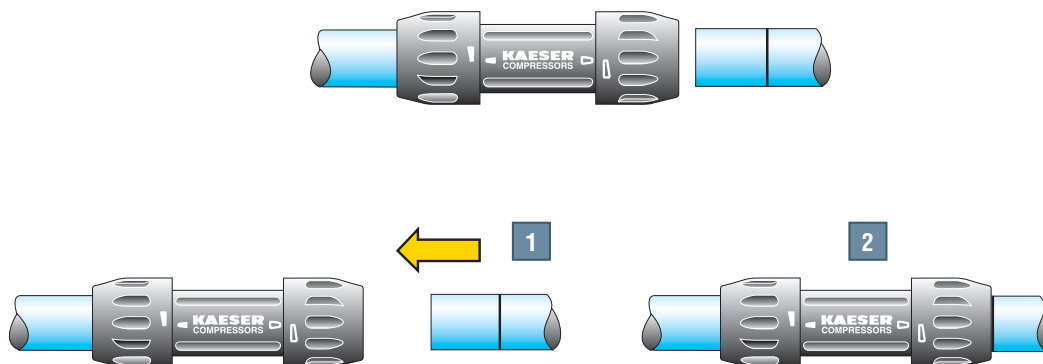
# Connectors

## Connection / Disconnection

Ø 16.5, 25, 40

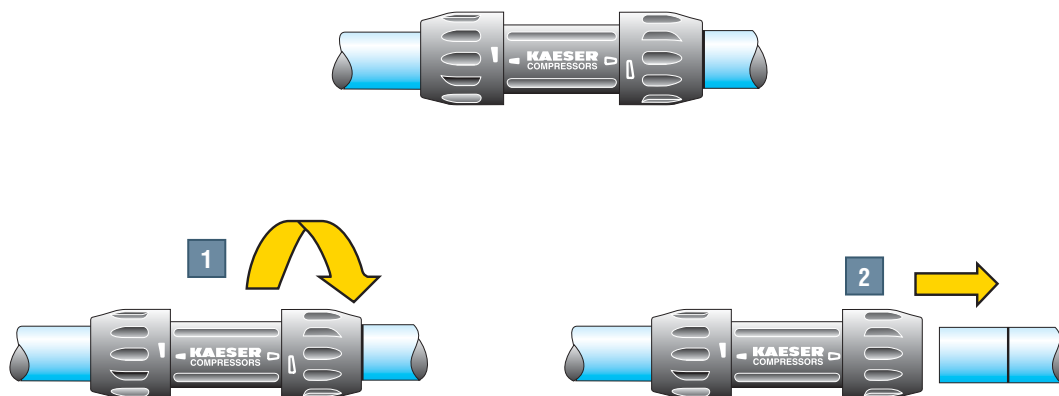
### Connection

Simply insert the pipe into the connector up to the connection mark or when pipe bottoms out.



### Disconnection

To disconnect, unscrew the nut by one half turn and remove the pipe.



*Lateral dismantling: see page 58 of this guide.*

### Note: when using end caps (AN6625 series)

The insertion length is greater for end caps than for other SmartPipe connectors. The connection mark should be applied to the pipe by means of a marker and tape measure using the following values:

- Ø 16.5: 39 mm
- Ø 25: 42 mm
- Ø 40: 64 mm

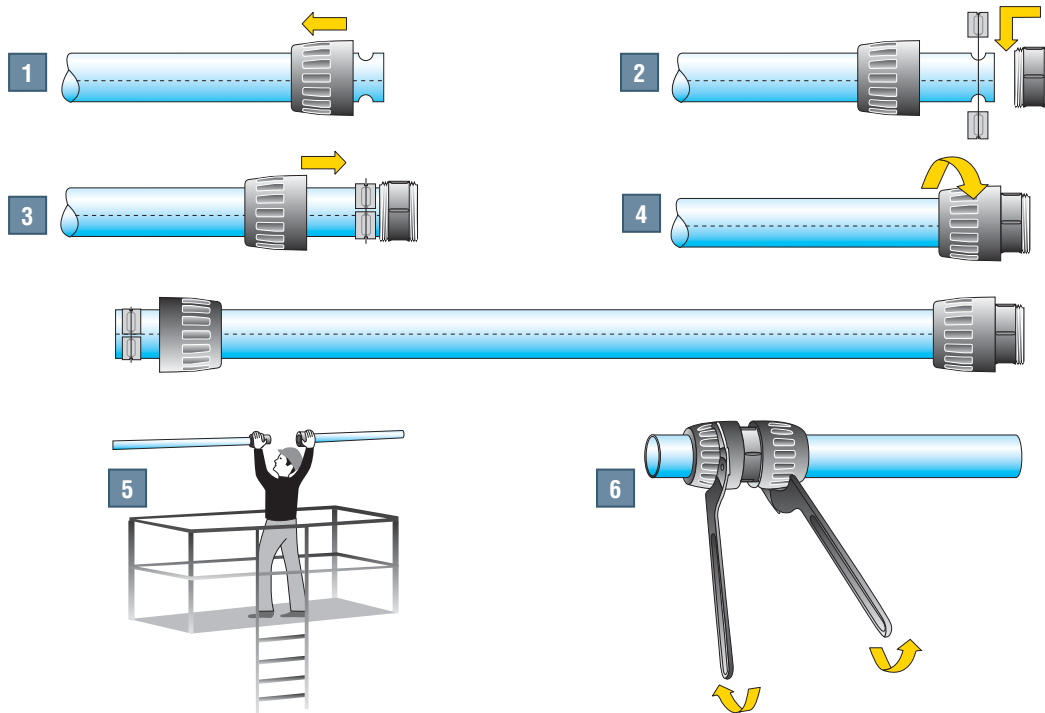
# Connectors

## Connection / Disconnection

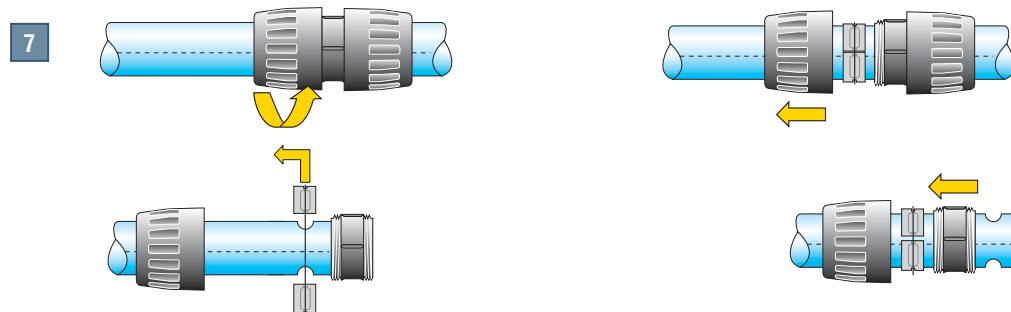
Ø 50, 63

- 1 Unscrew one of the connector nuts and fit over the pipe
- 2 Position the double clamp ring in the appropriate housings (two holes at the end of the pipe)
- 3 Bring the nut towards the body, which were previously positioned at the end of the pipe, until it stops against the double clamp
- 4 Tighten the nut by hand
- 5 Bring the two pipes together
- 6 Complete the assembly by 1/2 rotation with SmartPipe tightening spanners (ref. AN66980503)
- 7 To disconnect, perform the same operations in reverse order

### Connection



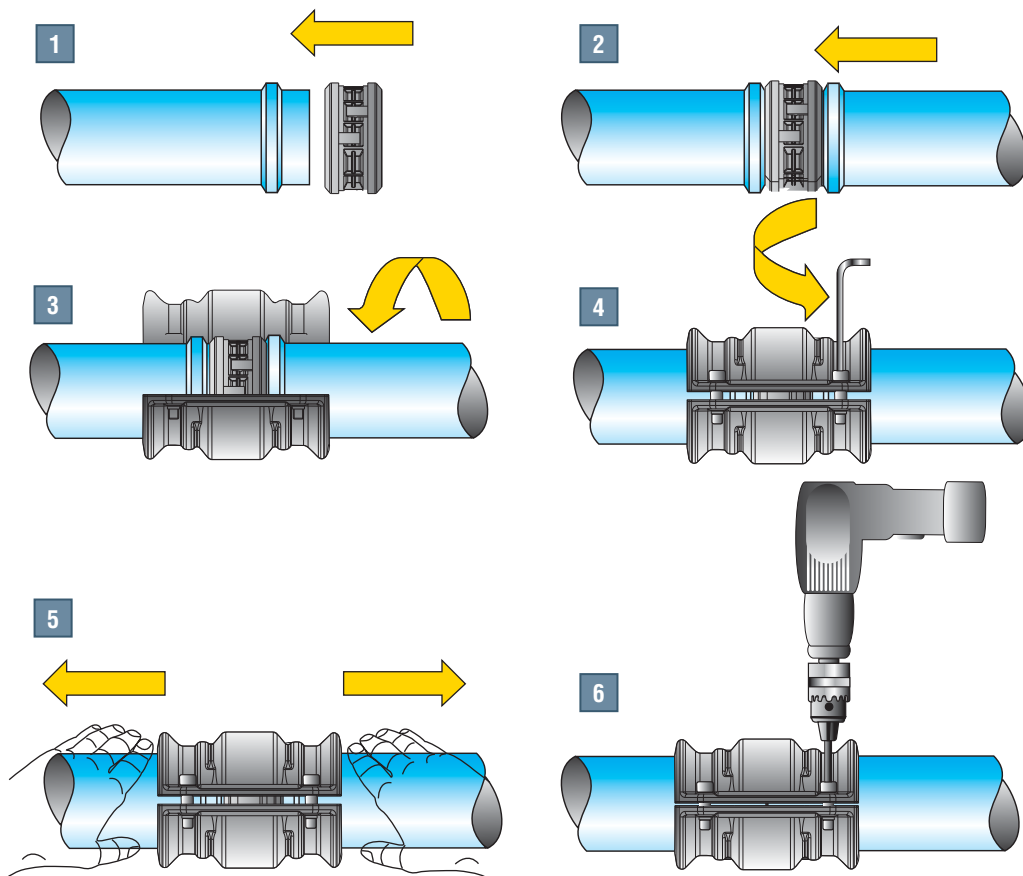
### Disconnection



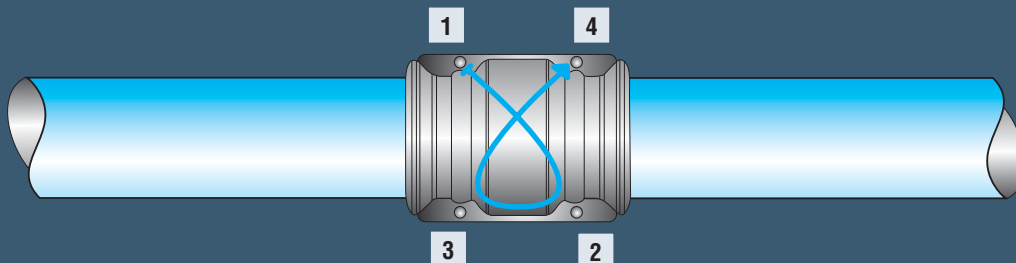
*Lateral dismantling: see page 58 of this guide.*

## Ø 76, 100, 168

- 1 Slip the cartridge over the end of the first pipe fully up to the shoulder
- 2 Bring the second pipe to the cartridge and slide fully up to the shoulder
- 3 Position the clamp over the cartridge / pipe assembly
- 4 Hand tighten the pre-fitted screws with an Allen key
- 5 Pull the pipes fully back towards the outside of the clamp
- 6 Fully tighten the clamp screws (maximum tightening torque: final closure of clamps)



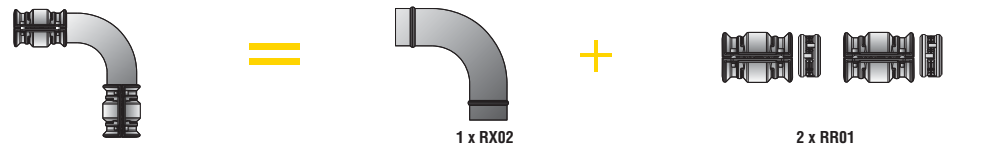
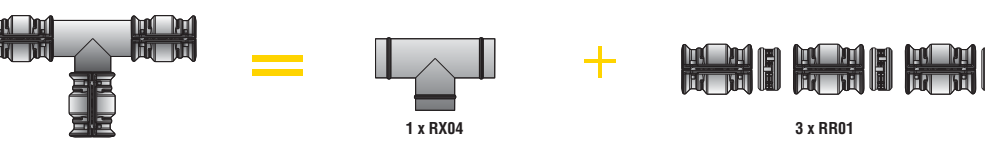
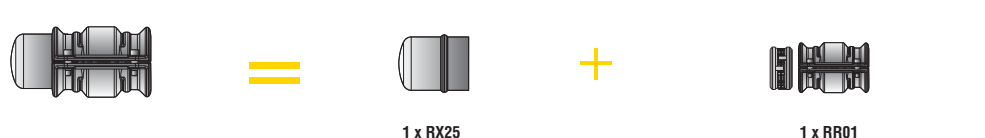
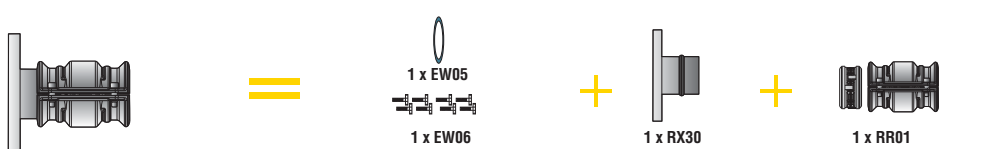

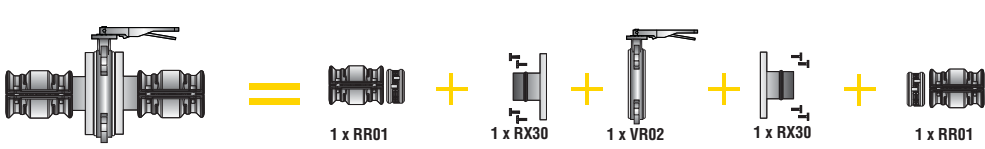
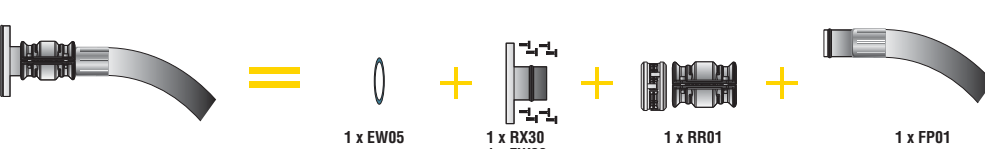
For effective clamp sealing, screw tightening should be performed on alternate sides of the clamp as shown below:



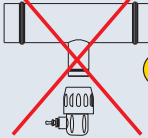
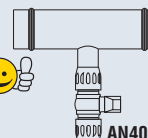
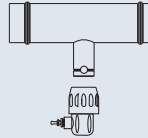
To disconnect, perform the same operations in reverse order.

# Practical Examples

## Various Ø 76, Ø 100, and Ø 168 configurations

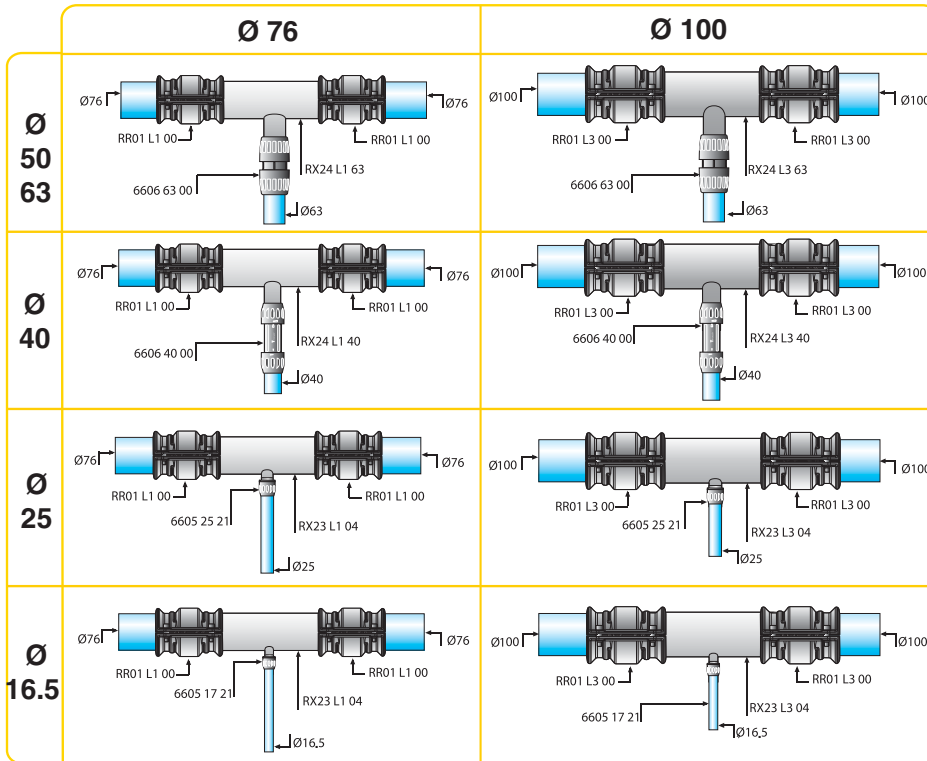
<p>Changing direction with a 90° elbow</p>	 <p>1 x RX02      2 x RR01</p>
<p>Changing direction with a tee piece</p>	 <p>1 x RX04      3 x RR01</p>
<p>Connecting an end cap</p>	 <p>1 x RX25      1 x RR01</p>
<p>Connecting a circular flange and a connector</p>	 <p>1 x EW05 1 x EW06      1 x RX30      1 x RR01</p>
<p>Reduction from Ø 100 to 76</p>	 <p>Ø 100      Ø 76      1 x RR01 L3 00      1 x RX66 L3 L1      1 x RR01 L1 00</p>
<p>Connecting a valve</p>	 <p>1 x RR01      1 x RX30      1 x VR02      1 x RX30      1 x RR01</p>
<p>Connecting a flexible hose and a circular flange</p>	 <p>1 x EW05      1 x RX30 1 x EW06      1 x RR01      1 x FP01</p>



<p><del>ANRX24L140 ANRX24L340</del></p>  <p>AN66254000</p>	<p>ANRX24L140 ANRX24L340</p>  <p>AN40024000</p>	<p>ANRX24L163 ANRX24L363</p>  <p>AN66256300</p>
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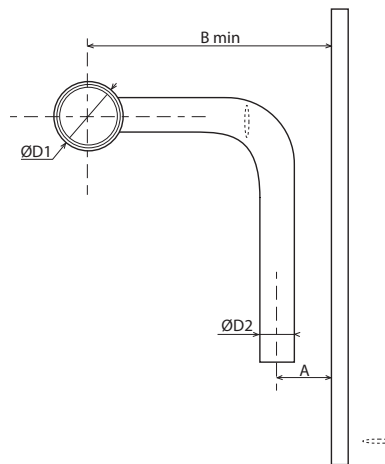


# Connecting Ø 76 or 100 piping to Ø 63, 40, 25, 16.5 piping



Minimum pipe center-to-center mounting distances for Ø 76 and 100 tees

ØD1(mm)	ØD2(mm)	A(mm)	Bmin(mm)
100	100	90	470
100	76	80	410
100	63	90	327
100	40	46	225
100	25	46	215
100	16.5	46	200
76	76	80	420
76	63	90	314
76	40	46	212
76	25	46	202
76	16.5	46	187



Minimum pipe center-to-center mounting distances for Ø 76 and 100 brackets

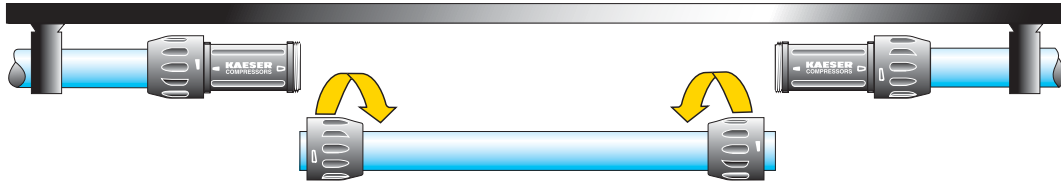
ØD1(mm)	ØD2(mm)	A(mm)	Bmin(mm)
100	25	46	250
76	25	46	240

# Practical Examples

## Lateral Dismantling

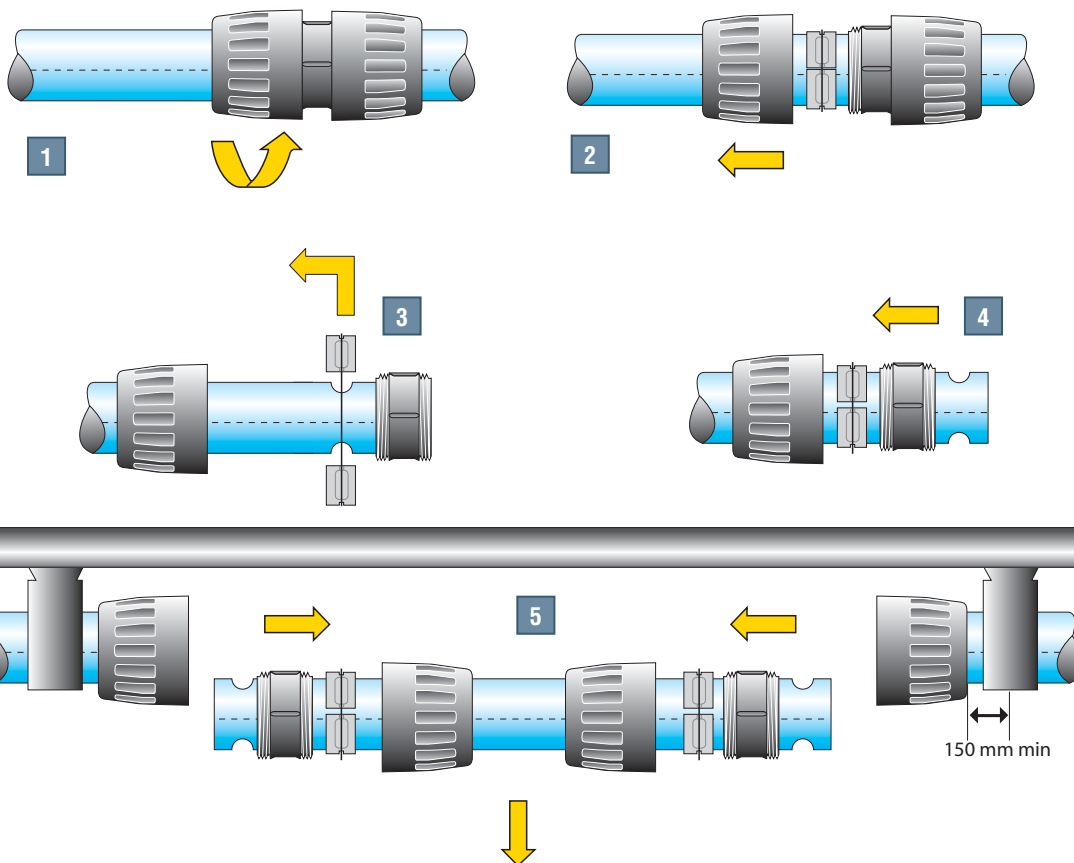
Ø 16.5, 25, 40

Loosen the nuts located on the side of the pipe to be removed and slide them along the pipe. Remove the pipe.



Ø 50, 63

- 1 Loosen the connector nuts on the ends of the pipe to be removed
- 2 Slide them along the pipe
- 3 Remove the clamp rings from their housings
- 4 Slide the clamps and the connector body along the pipe which is to be removed
- 5 Repeat the operation at the other end of the pipe and laterally remove the pipe, complete with the assembly components



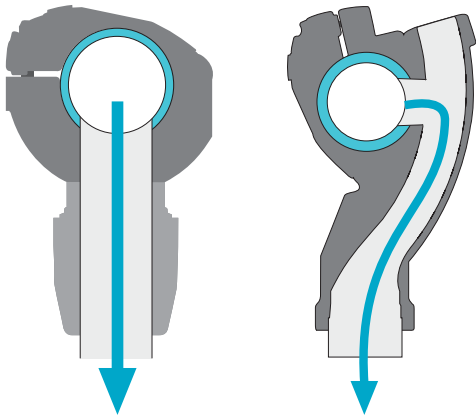
# Quick Assembly Brackets

## General

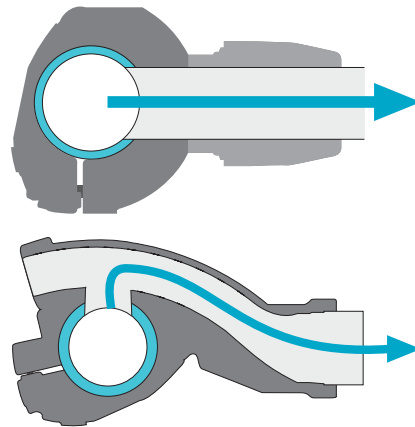
The easy addition of a new drop or bypass onto an existing length of pipe is an important consideration of any air pipe system. SmartPipe quick assembly brackets are designed for this very purpose, without the need to cut the pipe. A “swan neck” built into the brackets retains

condensate water in the main line. Thanks to its small size, the SmartPipe quick assembly bracket facilitates new additions in the tightest places and can be used for connecting horizontal branch lines and vertical drops.

### Vertical Drop



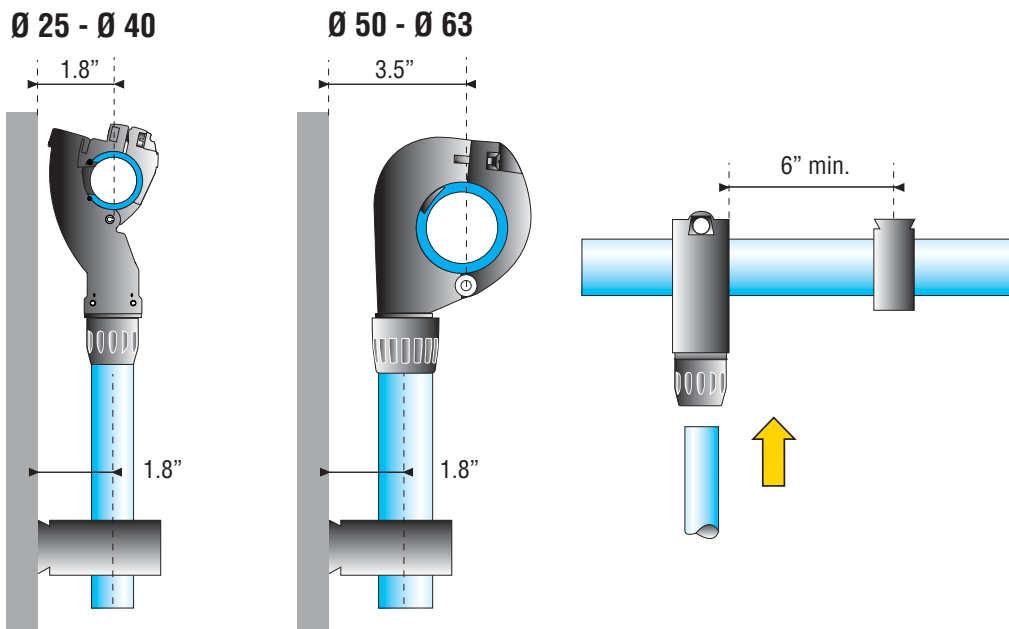
### Horizontal Branch Line



## Specific instructions for fitting a bracket

For the  $\varnothing 25$  and  $\varnothing 40$  SmartPipe quick assembly brackets, the pipe center to wall distance is equal to the bracket center to wall distance, i.e. 1.8". For the  $\varnothing 50$  and  $\varnothing 63$  SmartPipe quick assembly brackets,

the pipe center to wall distance is 3.5". Furthermore, SmartPipe clips should be fitted at a distance of at least 6" from a quick assembly bracket in order to allow for the expansion / contraction of aluminum pipe.

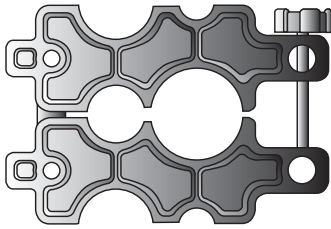


# Fitting a bracket to Ø 25 and Ø 40 pipe

## Tools required



Drilling tool for aluminum pipe ref. AN66980202 or AN66980201



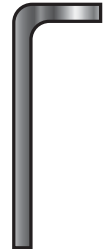
Drilling jig for aluminum pipe ref. AN66980101



Deburring tool for aluminum pipe ref. AN66980402



Permanent marker pen



Allen key/flat head screwdriver

## Procedure

- 1 Mark the pipe at the desired position for the bracket, using the same locator mark when several takeoff points need to be aligned uniformly. Place the drilling jig in a vice or on the floor. To drill a hole in Ø 40 pipe, remove the retaining bolt in the jig using an Allen key and place the pipe in the jig. The locator mark on the pipe should be aligned with the appropriate guide marks on the side of the jig. Two guide lines on either side of the jig provide a rapid indication of whether the pipe is correctly

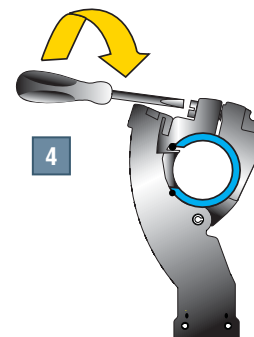
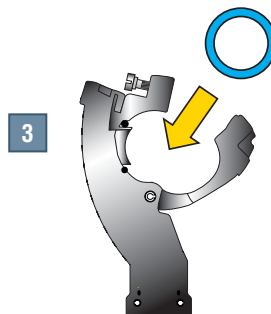
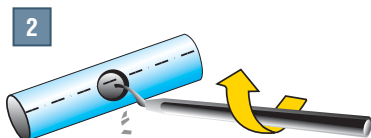
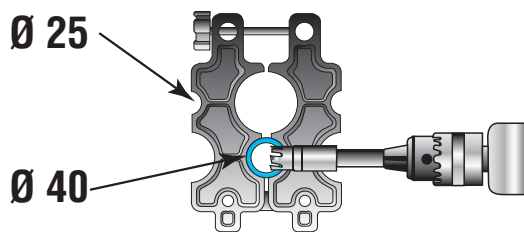
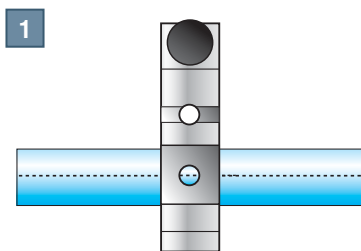
positioned (the guide lines match the locator marks on the pipe). Close the jig and drill a hole using the appropriate drilling tool:

- Ø 25: Ø 16 hole > ref. AN66980202 drilling tool
- Ø 40: Ø 22 hole > ref. AN66980201 drilling tool

Recommended rotation speed: 650 rpm

**Note: Drill without lubrication.**

- 2 Release the pipe, remove any chips, and deburr the circular hole. Repeat the operation for the number of brackets that you wish to fit.
- 3 Position the quick assembly bracket using its location pin
- 4 Tighten the screw  
**Remark:** The jig's second drilling guide corresponds to the minimum distance for fitting two adjacent brackets.

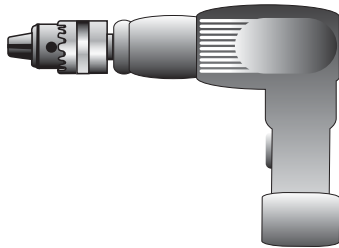


# Fitting a bracket on Ø 50 and Ø 63 pipe

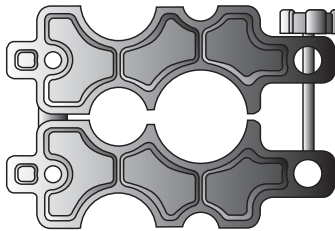
## Tools required



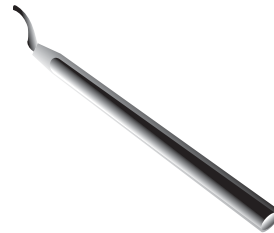
Drilling tool for aluminum pipe ref. AN66980201



Drill



Drilling jig for aluminum pipe ref. AN66980101



Deburring tool for aluminum pipe ref. AN66980402



Permanent marker pen

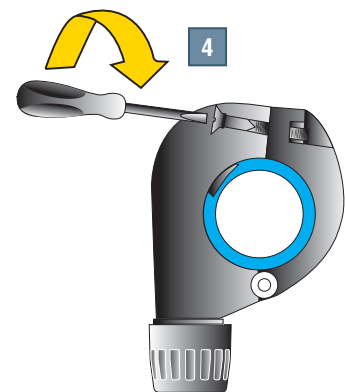
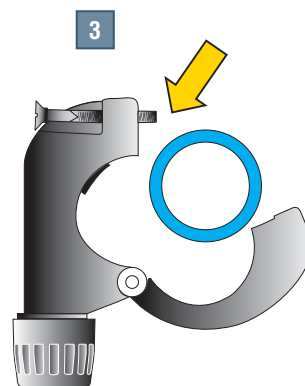
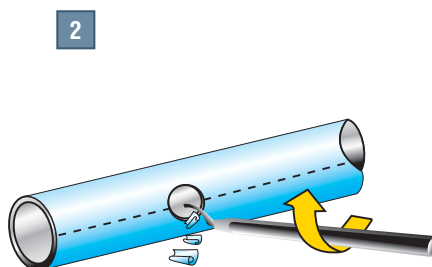
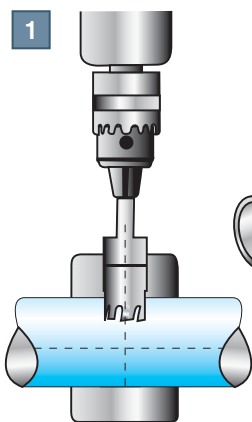
## Procedure

- 1 Mark the pipe at the desired position for the bracket. The mark should be placed on one of the locator marks so that multiple brackets are correctly aligned, when several take-off points are required. Place the Ø 63 drilling jig in a vice or on the floor and place the pipe in the jig. Ensure that the line marked on the pipe is

centered within the drilling guide: two marks on either side of the jig's upper side provide a rapid indication of the pipe's positioning. Tighten the locking clamp to secure the pipe and drill using the Ø 22 drilling tool. Recommended rotation speed: 650 rpm.

**Note: Drill without lubrication.**

- 2 Loosen the locking clamp and release the pipe, remove any chips, and deburr the hole. Repeat the operation for the number of brackets that you wish to fit.
- 3 Position the quick assembly bracket using its location hole
- 4 Tighten the screw

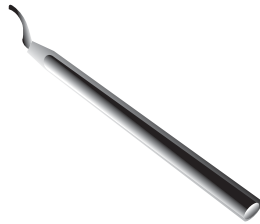


# Fitting a bracket on Ø 76, 100, and 168 pipe

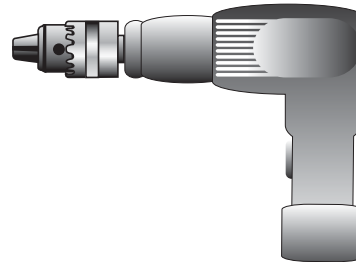
## Tools required



Drilling tool for aluminum pipe ref. ANEW090030



Deburring tool for aluminum pipe ref. AN66980402

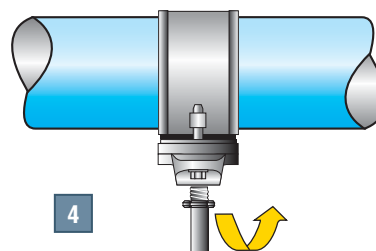
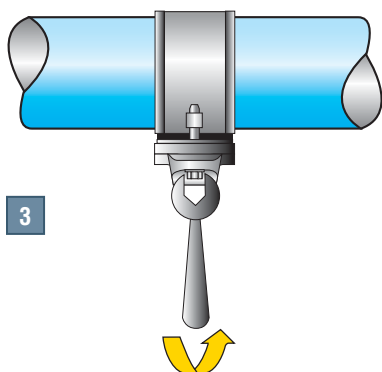
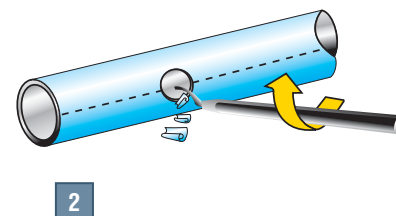
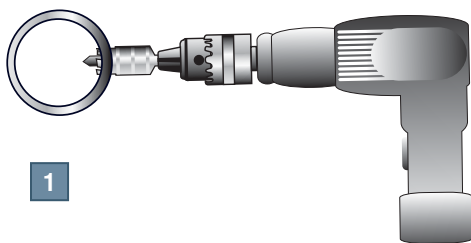


Drill

## Procedure

- 1 Drill the aluminum pipe at the desired position using drilling tool ref. ANEW090030
- 2 Carefully deburr the pipe
- 3 Position bracket ref. ANRR61 and fully tighten the two screws
- 4 Screw on male adapter ref. AN66212535

**Note:** Use adapter ref. AN66212535 in combination with bracket ref. ANRR63 to create a Ø 25 take-off point from Ø 76 or Ø 100 pipe.

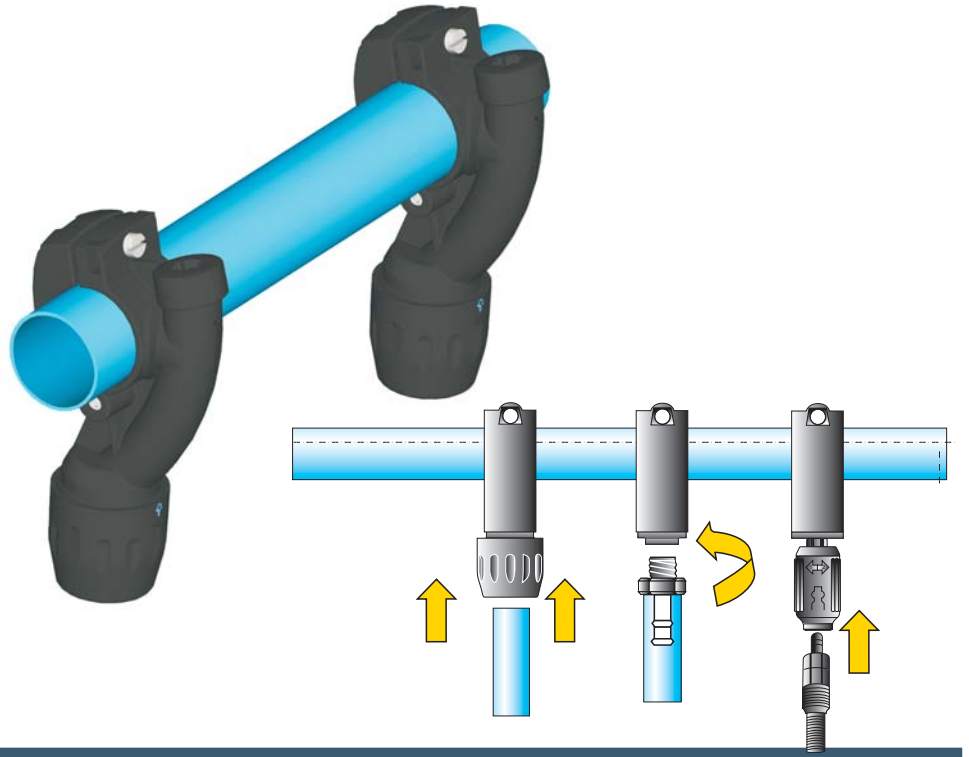




# Quick Assembly Brackets

## Practical Examples

Creating vertical and horizontal take-off points and adding a vertical bracket using the same locator mark



Adding an off-set bracket using 2 locator marks



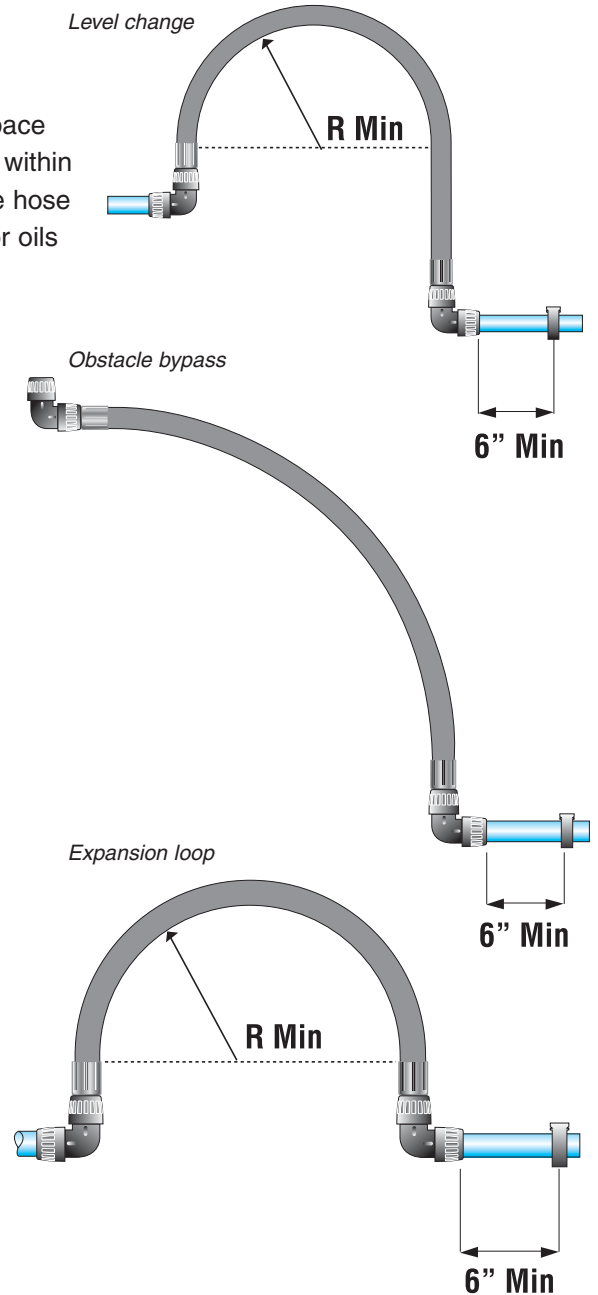
# Flexible Hose

## General

SmartPipe flexible hose can be easily connected to other SmartPipe components and can be rapidly installed without prior preparation or cutting. Thanks to its small bend

radius, it requires minimum space and avoids mechanical stress within the system. SmartPipe flexible hose is resistant to both compressor oils and fire.

Ø (in.)	Ø (mm)	Length (in.)	SmartPipe	R Min (in.)
7/8	25	22	AN1001E250001	4
		59	AN1001E250003	
		79	AN1001E250004	
		22	AN1001E25V0001	3
		59	AN1001E25V0003	
		79	AN1001E25V0004	
1-1/2	40	45	AN1001E400002	16
		79	AN1001E400004	
		118	AN1001E400005	
		37	AN1001E40V0007	6
		79	AN1001E40V0004	
		118	AN1001E40V0005	
2	50	39	AN1001E500009	11
		78	AN1001E500004	
2-1/2	63	55	AN1001E630008	12
		118	AN1001E630005	
		157	AN1001E630006	
		118	AN1001E63V05	
		157	AN1001E63V06	
		3	76	59
79	ANFP01L102			
4	100	79	ANFP01L301	18
		118	ANFP01L303	



## Safety

### Anti-whiplash straps

In order to avoid the risk of whiplash accidents, Kaeser recommends the use of anti-whiplash straps, which are placed on either side of the connection. If SmartPipe flexible

tube is exposed to tear, the anti-whiplash assembly prevents it from snaking (safety device in accordance with ISO 4414 standard).



Part No.	Weight (lb.)
AN66989903	0.47

# Network Connection

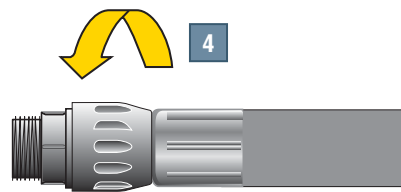
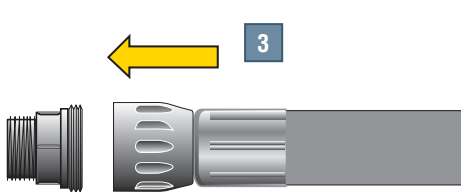
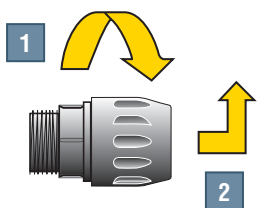
Ø 16.5, 25, 40

## Using a male stud fitting

- 1 Loosen the nut on the stud fitting
- 2 Remove it

- 3 Move the swaged end of the hose onto the exposed stud thread

- 4 Tighten the nut

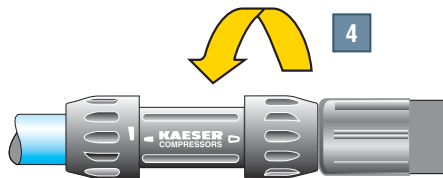
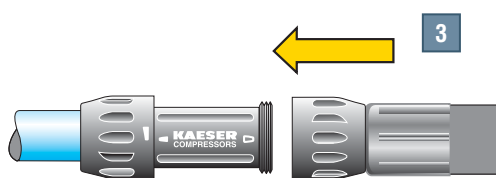
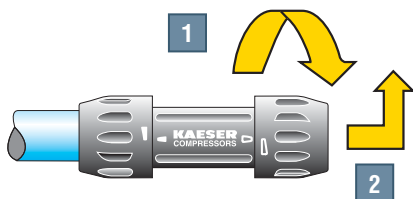


## Using a pipe-to-pipe connector

- 1 Loosen the nut on the connector fitting
- 2 Remove it

- 3 Move the swaged end of the hose onto the connector thread

- 4 Tighten the nut

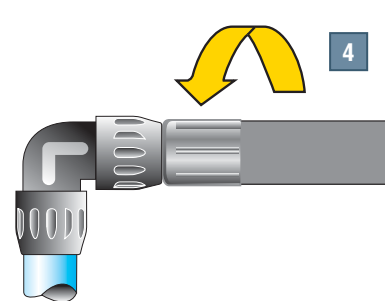
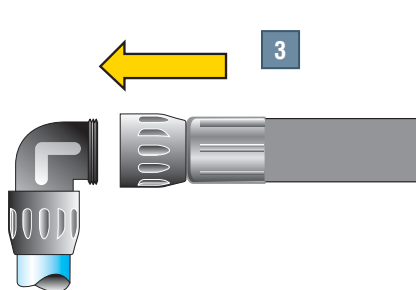
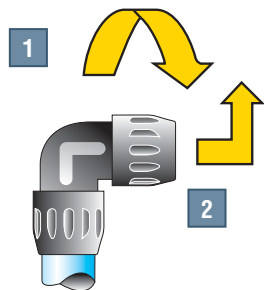


## Using a 90° elbow

- 1 Loosen the nut on the elbow
- 2 Remove it

- 3 Move the swaged end of the hose onto towards the elbow thread

- 4 Tighten the nut

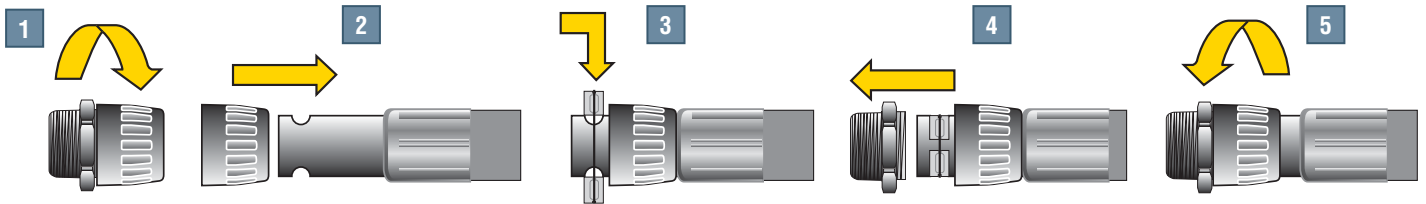


# Flexible Hose

Ø 50, 63

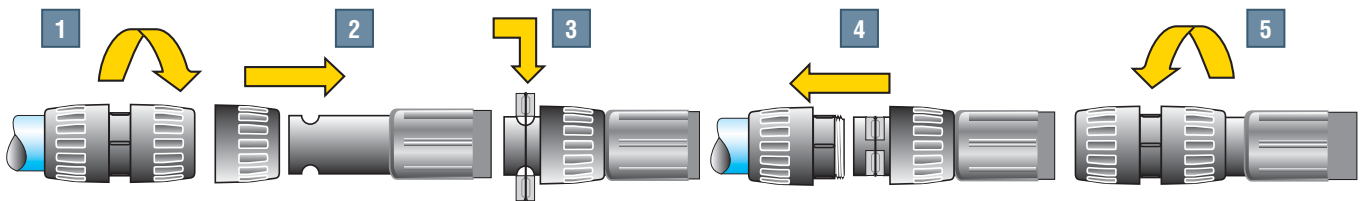
## Using a male threaded fitting

- 1 Loosen the nut on the stud fitting and remove it
- 2 Place the nut over the swaged end of the flexible hose
- 3 Place the pipe connector clamps in the housings on the hose
- 4 Slide the nut forward to the end of the flexible hose and assemble onto the male thread
- 5 Tighten the nut using the Ø 63 spanner set



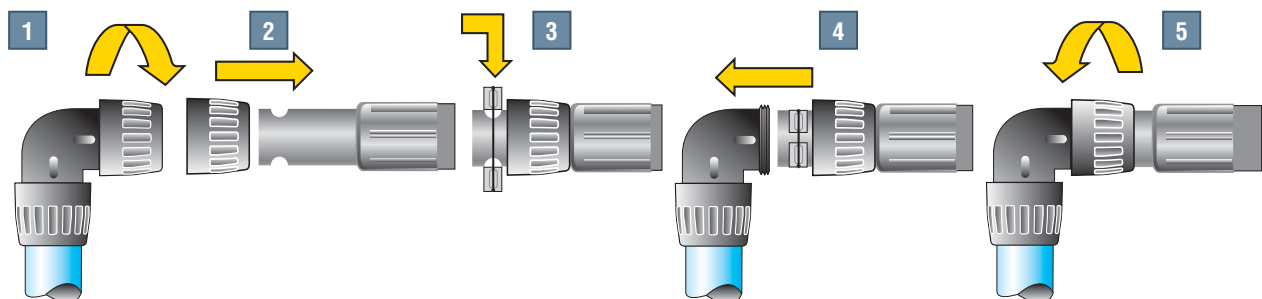
## Using a pipe-to-pipe connector

- 1 Loosen the nut on the connector and remove it
- 2 Fit it over the swaged end of the flexible hose
- 3 Place the pipe connector clamps in the housings on the hose
- 4 Slide the nut forward to the end of the flexible hose, until it touches the clamps
- 5 Tighten the nut using the Ø 63 spanner set



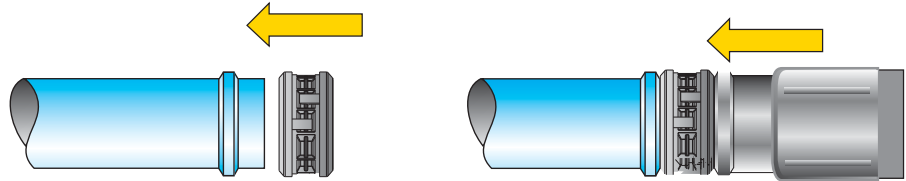
## Using a 90° elbow

- 1 Loosen the nut on the elbow and remove it
- 2 Fit it over the swaged end of the flexible hose
- 3 Place the elbow clamps in the housings on the hose
- 4 Slide the nut forward to the end of the flexible hose, until it touches the clamps
- 4 Tighten the nut using the Ø 63 spanner set

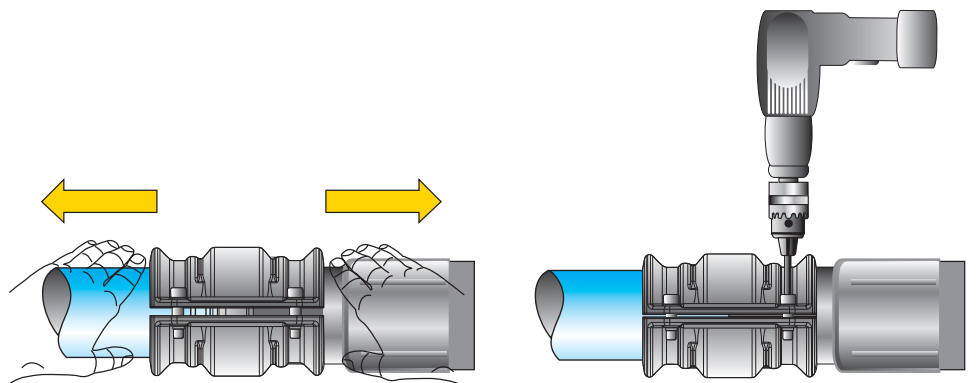
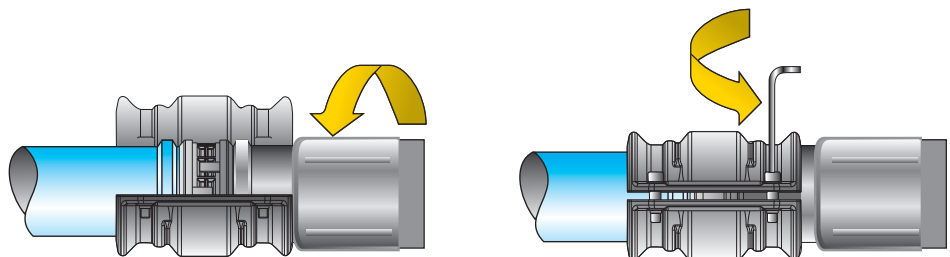


Ø 76, 100, 168

System Connection



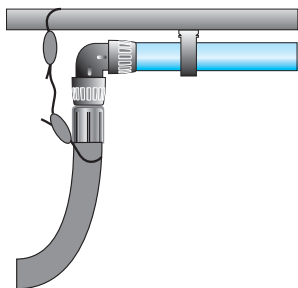
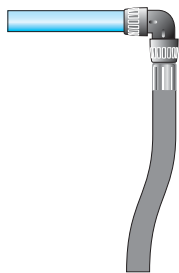
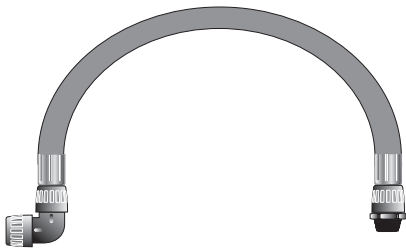
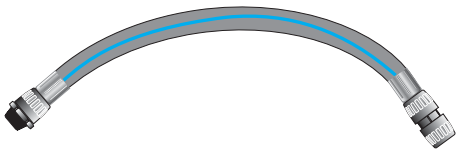
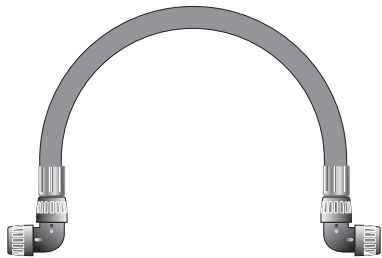
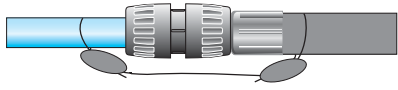
Using a steel clamp



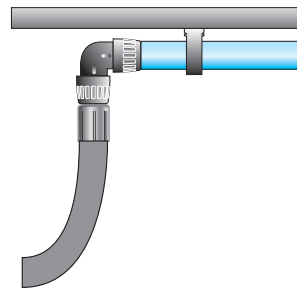
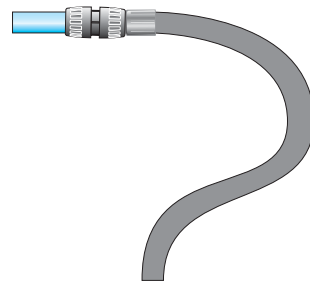
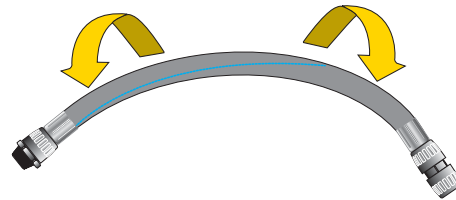
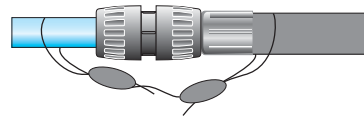
# Flexible Hose

## Do's and Don'ts

Do's



Don'ts





# Mounting Hardware

## SmartPipe Attachments

Ø 16.5, 25, 40, 50, and 63

### Fixing Clips

SmartPipe fixing clips are designed to bear a maximum weight of 44 lbs. However, to ensure good stability of the network, we recommend the use of at least 2 clips per pipe.

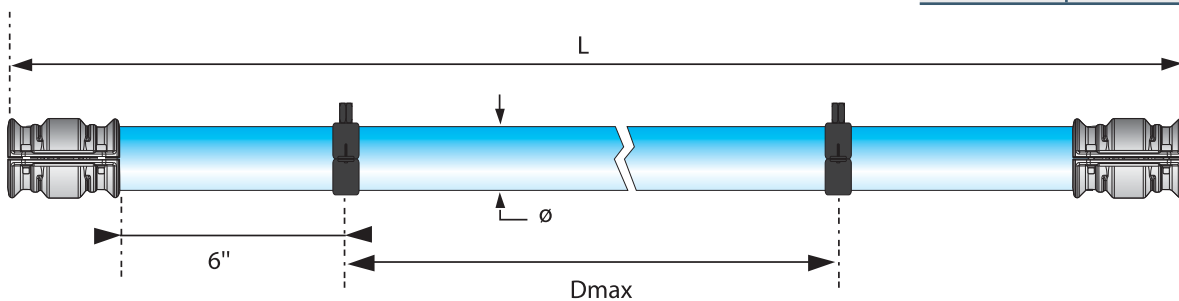
Example

- Maximum 5 ft. space between clips for 10 ft. lengths of pipe
- Maximum 10 ft. space between clips for 20 ft. lengths of pipe

Use only this clip for fixing SmartPipe rigid pipe, all other type of pipe clips are to be avoided. Fix the clip to a rigid support (U-channel, cable tray) to allow for expansion while retaining the pipe.



Ø	L (ft.)	Dmax (ft.)
16.5	10	8
25	20	10
40	20	10
50	20	10
63	20	10



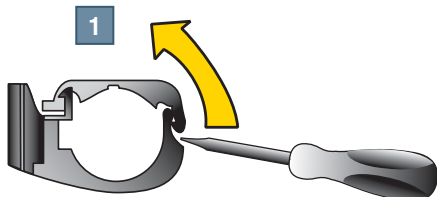
### Properties

SmartPipe fixing clips for Ø16.5, 25, and 40: 1/4" UNC nuts

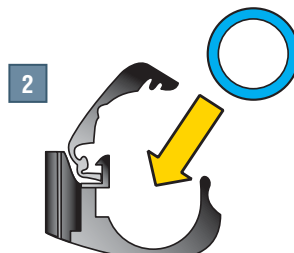
SmartPipe fixing clips for Ø 50 and 63 systems: 3/8" UNC nuts

### Procedure

1 Place the clip as required and open it using a screwdriver



2 Insert the pipe into the clip



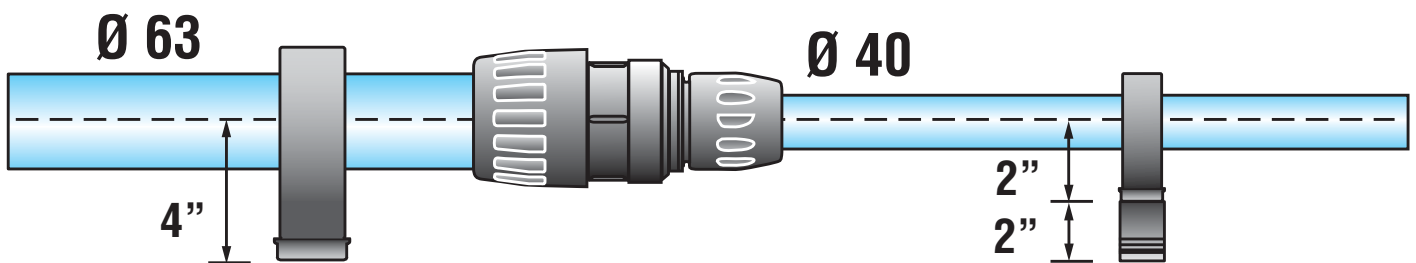
3 Close the clip



# Mounting Hardware

## Spacer

The SmartPipe AN66970003 spacer is used for aligning SmartPipe pipe of different diameters.

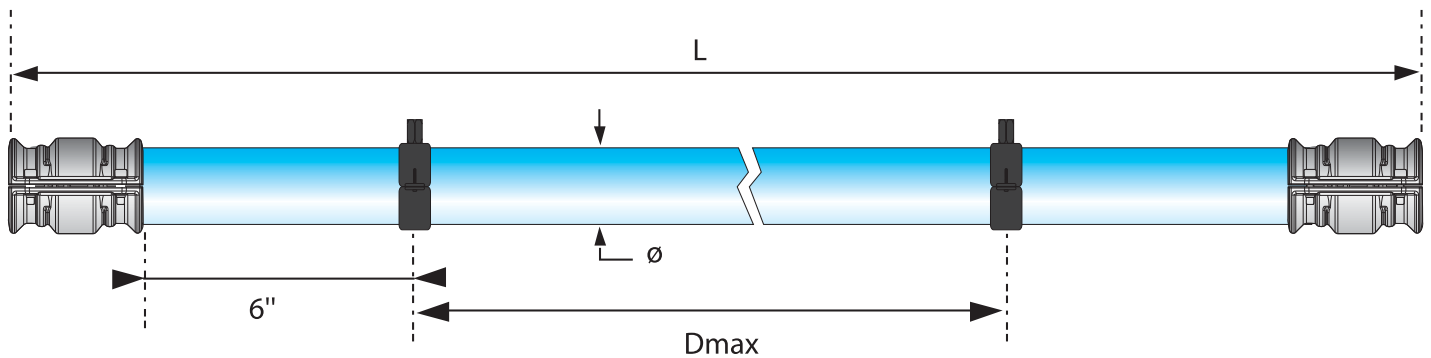


## Ø 76, 100, and 168

## Fixing Clips

To ensure good network stability, we recommend the use of at least two fixing clips per length of pipe. SmartPipe fixing clips for Ø 76 through Ø 168 networks: 3/8" UNC thread.

Ø (in.)	Ø (mm)	L (ft.)	Dmax (ft.)
3	76	20	16
4	100		
6	168		



# Mounting Hardware and Acceptable Mounting Methods

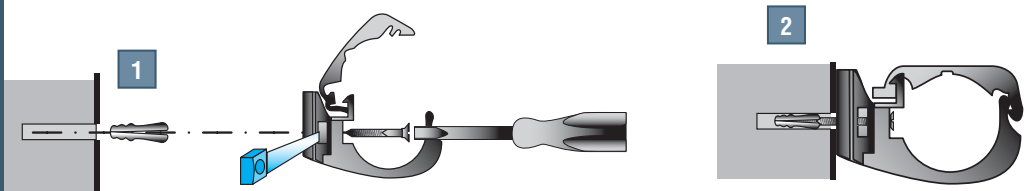
## Supporting a SmartPipe System

Directly onto a wall

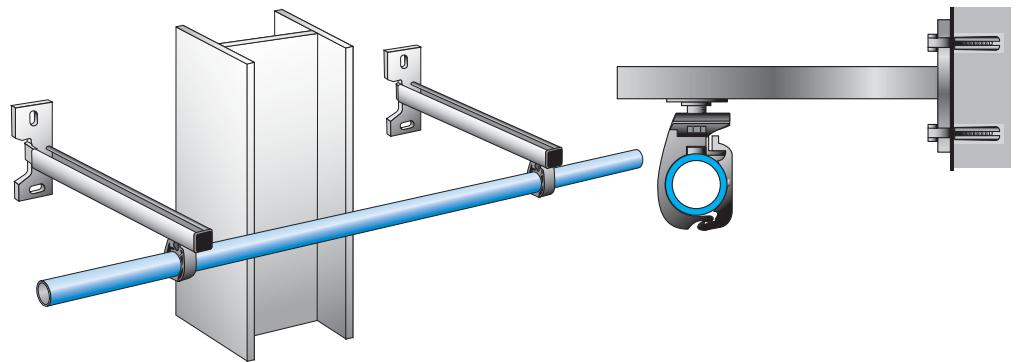
Offset from a wall

1 Remove the nut at the base of the pipe clip using a screwdriver and insert the screw by passing it through the clip

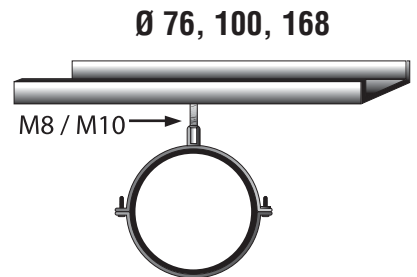
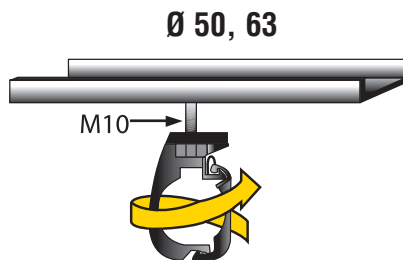
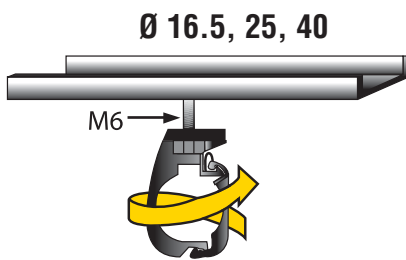
2 Tighten the screw



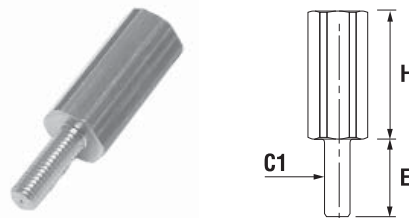
U-channel type mounting bracket



U-channel assemblies are used to offset networks and to bypass obstacles.



Threaded rod adapter

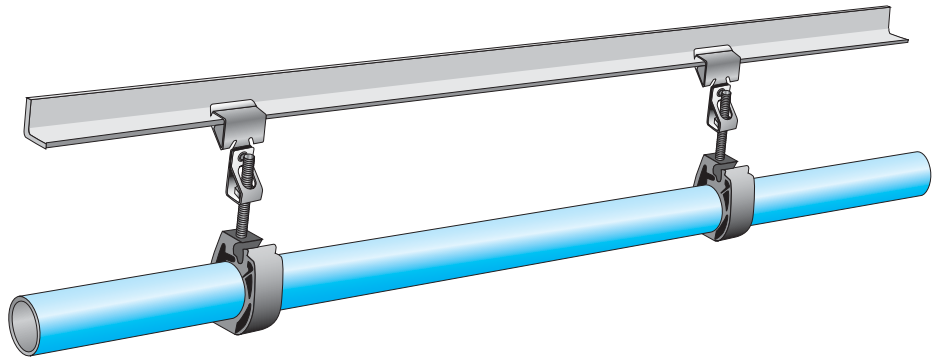


The SmartPipe threaded rod adaptor allows Ø 16.5, Ø 25, and Ø 40 SmartPipe pipe clips to be easily suspended under 3/8" UNC threaded rod.

# Mounting Hardware and Acceptable Mounting Methods

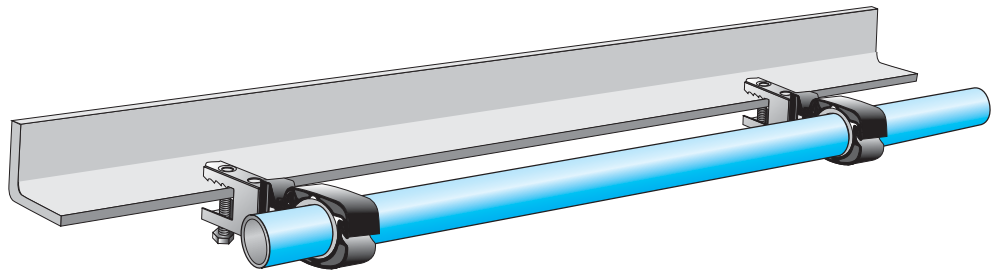
## On a metal beam

Push-on type beam clamps



## Using beam clamps

Screw type beam clamps



# Expansion / Contraction

In order to compensate for the effects of expansion and contraction due to variations in temperature, any fluctuations in the length of the SmartPipe aluminum pipe network should be calculated.

L: length of SmartPipe straight line to be installed (meters)

$\Delta T$ : difference between temperature when installing and maximum operating temperature ( $^{\circ}C$ )

$\Delta L$ : line length variation (mm)

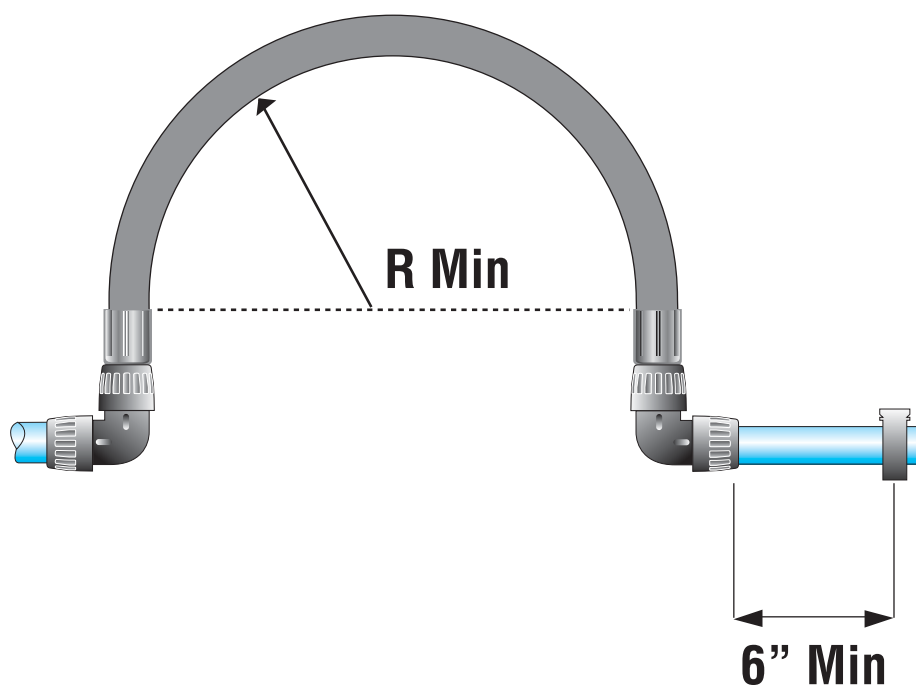
For SmartPipe aluminum pipe networks:

$$\Delta L = \underbrace{(a \times L)}_1 + \underbrace{(0.024 \times L \times \Delta T)}_2$$

1 - Expansion related to pipe retraction in the connector

2 - Expansion related to temperature variations

	Ø 16.5	Ø 25	Ø 40	Ø 50	Ø 63	Ø 76	Ø 100
10' Pipe	a = 0.06	a = 0.20	a = 0.40	a=0.56	a = 0.73	a = 1.0	a = 1.0
20' Pipe	--	a = 0.10	a = 0.20	a=0.29	a = 0.38	a = 0.50	a = 0.50



## Using an elbow

In addition to expansion loops, changes of direction are another method of compensating for expansion and contraction.

### Ø 16.5, 25, 40, 50, 63

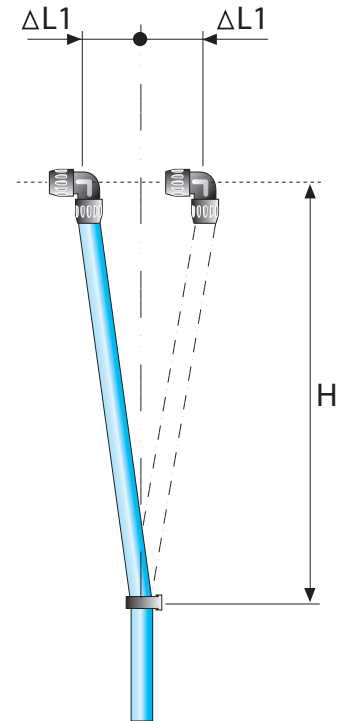
H = 2.46'      ΔL1 = 0.6"

H = 4.92'      ΔL1 = 1.2"

### Ø 76, 100, 168

H = 2.46'      ΔL1 = 3/8"

H = 4.92'      ΔL1 = 6/8"

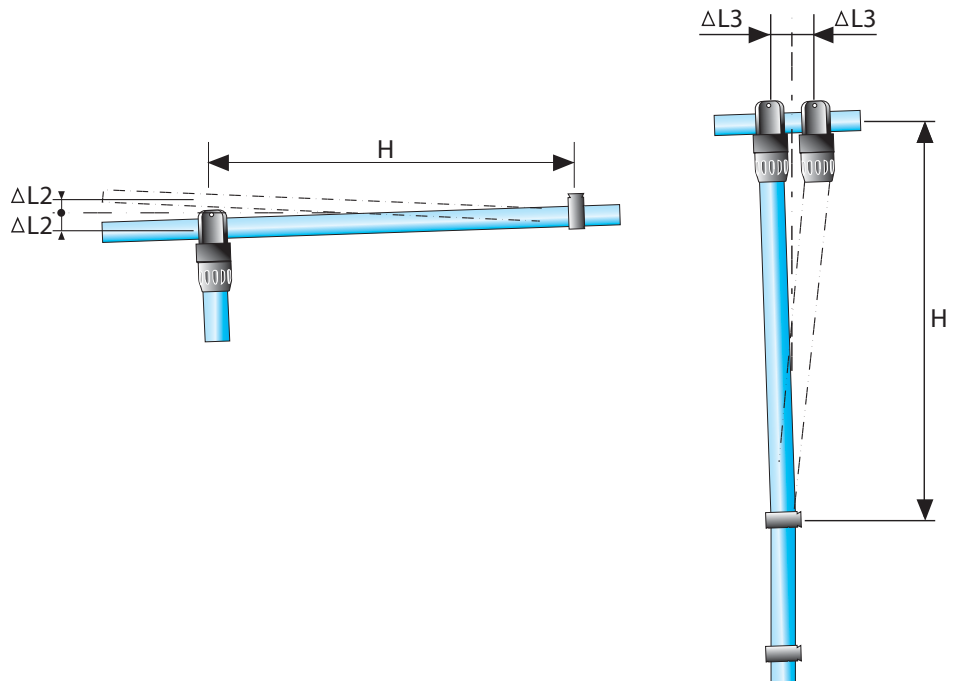


## Using a quick assembly bracket

### Ø 16.5, 25, 40, 50, 63

The length variation  $\Delta L$ , calculated for the SmartPipe line, must always be equal to or less than  $\Delta L2$  and  $\Delta L3$ . If this is not the case, then an expansion loop, using SmartPipe flexible hose, must be added.

Ø1 (mm)	Ø2 (mm)	H (ft.)	ΔL2 (in.)	ΔL3 (in.)
25	16.5	5	1/2	1
	25			
40	16.5			
	25			
50	16.5			
	25			
63	25			

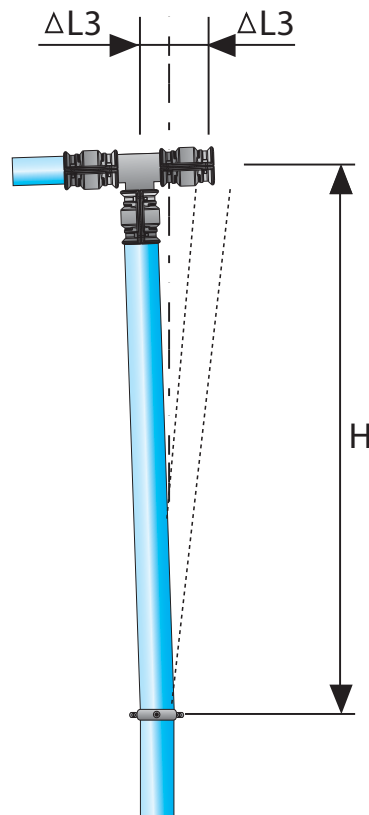
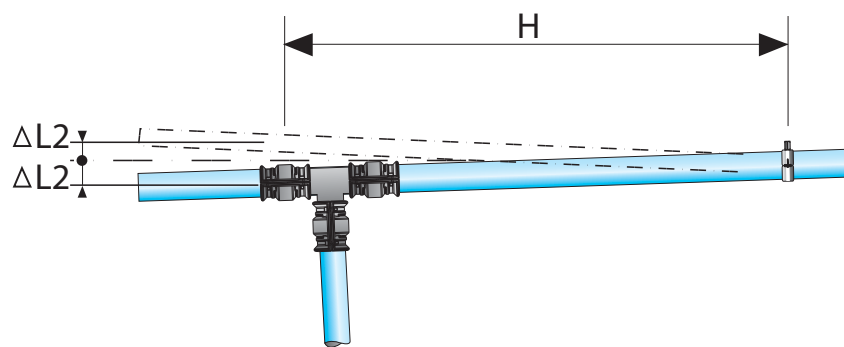


# Expansion / Contraction

Ø 76, 100, 168

Changing direction with a tee

Ø (in.)	Ø (mm)	H (ft.)	ΔL2 Max. (in.)	ΔL3 Max. (in.)
3	76	2-1/2	3/8	3/8
4	100			
6	168			

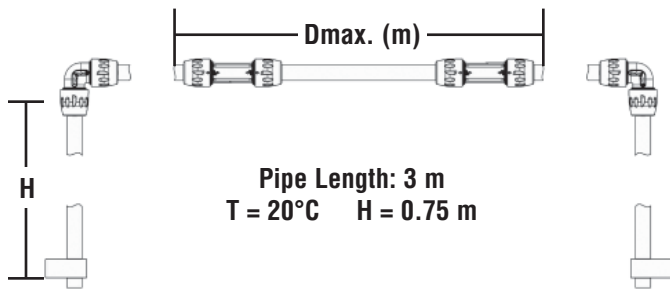




# Expansion / Contraction

## Examples

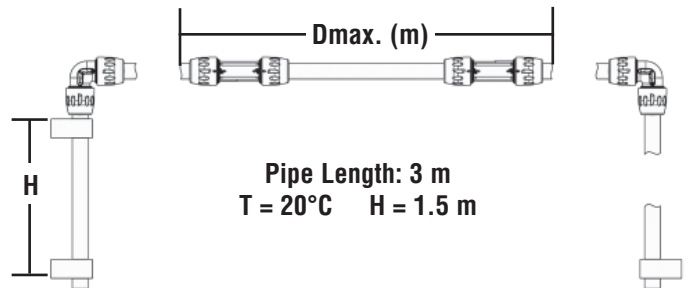
### Example 1



Maximum distance, without expansion loop, from a fixed point dependant on SmartPipe diameter (2 elbows).

Ø SmartPipe	1/2	7/8	1 1/2	2	2 1/2	3	4
Dmax. (m)	50	40	30	24	24	15	15

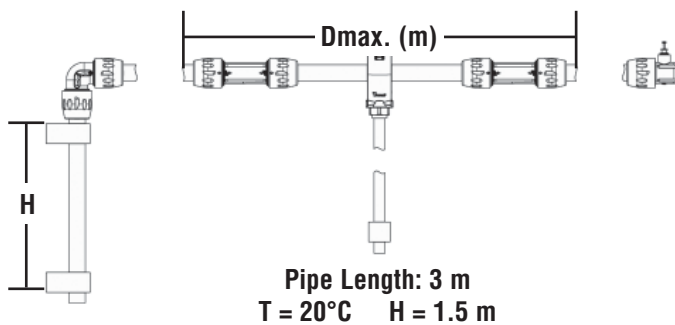
### Example 2



Maximum distance, without expansion loop, dependant on SmartPipe diameter (2 elbows - 1 fixed point).

Ø SmartPipe	1/2	7/8	1 1/2	2	2 1/2	3	4
Dmax. (m)	50	40	30	24	24	15	15

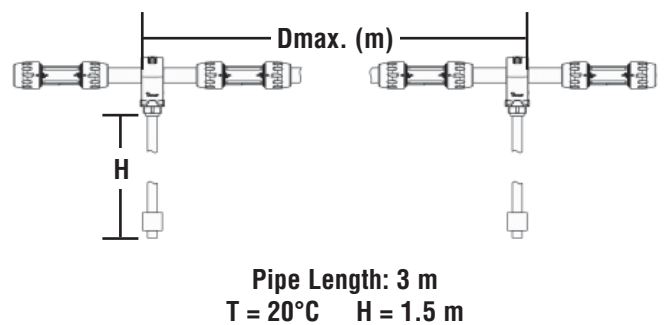
### Example 3



Maximum distance for fitting a bracket, without expansion loop, dependant on SmartPipe diameter (1 elbow - 1 bracket).

Ø SmartPipe	1/2	7/8	1 1/2	2	2 1/2	3	4
Dmax. (m)	48	38	30	25	25	7.5	7.5

### Example 4



Maximum distance for fitting a bracket, without expansion loop, dependant on SmartPipe diameter (2 brackets).

Ø SmartPipe	1/2	7/8	1 1/2	2	2 1/2	3	4
Dmax. (m)	80	70	55	40	40	15	15

# Conversion Charts

## Length

Millimeter (mm)	Meter (m)	Inches (in.)	Feet (ft.)	Yard (yd.)
10	0.01	0.39	0.03	0.01
20	0.02	0.79	0.07	0.02
30	0.03	1.18	0.10	0.03
40	0.04	1.57	0.13	0.04
50	0.05	1.97	0.16	0.05
60	0.06	2.36	0.20	0.07
70	0.07	2.76	0.23	0.08
80	0.08	3.15	0.26	0.09
90	0.09	3.54	0.30	0.10
100	0.10	3.94	0.33	0.11
150	0.15	5.91	0.49	0.16
200	0.20	7.87	0.66	0.22
250	0.25	9.84	0.82	0.27
300	0.30	11.81	0.98	0.33
350	0.35	13.78	1.15	0.38
400	0.40	15.75	1.31	0.44
450	0.45	17.72	1.48	0.49
500	0.50	19.69	1.64	0.55
550	0.55	21.65	1.80	0.60
600	0.60	23.62	1.97	0.66
700	0.70	27.56	2.30	0.77
800	0.80	31.50	2.62	0.87
900	0.90	35.43	2.95	0.98
1000	1.00	39.37	3.28	1.09



# Conversion Charts

## Pressure

Bar	Kilo Pascal (KPa)	Atmosphere (atm.)	psi	Torr (mm Hg)
1	100	0.99	14.50	750
2	200	1.97	29.00	1500
3	300	2.96	43.50	2250
4	400	3.95	58.00	3000
5	500	4.93	72.50	3750
6	600	5.92	87.00	4500
7	700	6.91	101.50	5250
8	800	7.90	116.00	6000
9	900	8.88	130.50	6750
10	1000	9.87	145.00	7500
11	1100	10.86	159.50	8250
12	1200	11.84	174.00	9000
13	1300	12.83	188.50	9750
14	1400	13.82	203.00	10,500
15	1500	14.80	217.50	11,250
16	1600	15.79	232.00	12,000
20	2000	19.74	290.00	15,000



## Flow Rate

liters per second (l/s)	liters per minute (l/min)	cubic meters per minute (m <sup>3</sup> /min.)	cubic meters per hour (m <sup>3</sup> /h)	cubic feet per minute (cfm)
10	600	0.60	36	21
20	1200	1.20	72	42
30	1800	1.80	108	64
40	2400	2.40	144	85
50	3000	3.00	180	106
60	3600	3.60	216	127
70	4200	4.20	252	148
80	4800	4.80	288	169
90	5400	5.40	324	191
100	6000	6.00	360	212
150	9000	9.00	540	318
200	12,000	12.00	720	424
250	15,000	15.00	900	530
300	18,000	18.00	1080	635
350	21,000	21.00	1260	741
400	24,000	24.00	1440	847
450	27,000	27.00	1620	953
500	30,000	30.00	1800	1059
550	33,000	33.00	1980	1165
600	36,000	36.00	2160	1271
700	42,000	42.00	2520	1483
800	48,000	48.00	2880	1694
900	54,000	54.00	3240	1906
1000	60,000	60.00	3600	2118

## Air Consumption Values

Tools	Typical cfm Consumption at an Operating Pressure of 6 bar (90 psi)
Small process controls, instrumentation, pneumatic logic units	4
Paint spray gun, small impact wrench, light/medium drill, blowgun	5 to 18
Polisher, screwdriver	25
Sheet metal cutter, large impact wrench, automatic plane	28
Small automatic machines, miscellaneous tooling	32
Large tool, power machines, and associated equipment	36
Air hoist, grinder	74

# Part Numbers Index

Part Number	Pg.	Part Number	Pg.	Part Number	Pg.	Part Number	Pg.	Part Number	Pg.
AN0169000500	18	AN66092535	11	AN66684022	14	ANCP05U1N03	35	ANRX31L300	27
AN1001E25001	10	AN66094035	11	AN66686322	22	ANCP05U1N04	35	ANRX64L163	26
AN1001E25003	10	AN66094043	11	AN66686328	22	ANCP05U2N02	36	ANRX64L363	26
AN1001E25004	10	AN66094050	11	AN66751722	16	ANCP05U2N03	36	ANRX66L3L1	26
AN1001E40002	10	AN66094044	11	AN66752522	16	ANCP05U2N04	36	ANTA16L104	24
AN1001E40004	10	AN66096341	21	AN66791722	16	ANER01L100	29	ANTA16L304	24
AN1001E40005	10	AN66096346	21	AN66792522	16	ANER01L300	29	ANVR01L100	28
AN1001E63005	19	AN66122500	11	AN66841722	16	ANEW010002	39	ANVR01L300	28
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AN1001E63008	19	AN66126300	20	AN66882222	15	ANEW02L300	40		
AN1013A17040	10	AN66192522	12	AN66891722	15	ANEW030001	40		
AN1016A6304	19	AN66192528	12	AN66892522	15	ANEW05L100	27		
AN1016A25040	10	AN66192535	12	AN66912222	15	ANEW05L300	27		
AN1016A40040	10	AN66194035	12	AN66941722	15	ANEW060001	27		
AN40024000	17	AN66194043	12	AN66942522	17	ANEW090030	38		
AN40126300	23	AN66194050	12	AN66962522	16	ANEX01L100	29		
AN40991700	17	AN66194044	12	AN66970003	18	ANEX01L300	29		
AN40992500	17	AN66211722	13	AN66971701	18	ANFP01L101	24		
AN66021700	11	AN66212522	13	AN66972501	18	ANFP01L102	24		
AN66022500	11	AN66212528	13	AN66974001	18	ANFP01L302	24		
AN66024000	11	AN66212535	13	AN66976301	23	ANFP01L303	24		
AN66026300	20	AN66214043	13	AN66980005	37	ANRP00L100	25		
AN66041700	12	AN66214050	13	AN66980103	38	ANRP00L300	25		
AN66042500	12	AN66251700	12	AN66980201	38	ANRR01L100	25		
AN66044000	12	AN66252500	12	AN66980202	38	ANRR01L300	25		
AN66046300	20	AN66254000	12	AN66980301	37	ANRR21L1N20	27		
AN66046340	20	AN66256300	21	AN66980401	39	ANRR21L1N24	27		
AN66051722	13	AN66362822	16	AN66980402	37	ANRR63L1N08	27		
AN66052522	13	AN66382522	17	AN66980403	37	ANRR63L3N08	27		
AN66052528	13	AN66401722	14	AN66980503	39	ANRX02L100	25		
AN66052535	13	AN66402522	14	AN66989903	10	ANRX02L300	25		
AN66054035	13	AN66422222	14	ANCA83A1N02	36	ANRX04L100	25		
AN66054043	13	AN6653252206	18	ANCA83A1N03	36	ANRX04L300	25		
AN66054044	13	AN6653402206	18	ANCA83U1N02	35	ANRX12L100	25		
AN66054050	13	AN66622500	13	ANCA83U1N03	35	ANRX12L300	25		
AN66056341	21	AN66622517	13	ANCA83U2N02	36	ANRX20L1N04	26		
AN66056344	21	AN66624017	13	ANCA83U2N03	36	ANRX20L3N04	26		
AN66056346	21	AN66624025	13	ANCA84A1N02	36	ANRX24L140	26		
AN66061700	11	AN66626325	22	ANCA84A1N03	36	ANRX24L163	26		
AN66062500	11	AN66632522	14	ANCA84U1N02	35	ANRX24L340	26		
AN66064000	11	AN66634022	14	ANCA84U1N03	35	ANRX24L363	26		
AN66066300	20	AN66636328	22	ANCA84U2N02	36	ANRX25L100	26		
AN66091714	11	AN66661725	12	ANCA84U2N03	36	ANRX25L300	26		
AN66091722	11	AN66662540	12	ANCP05A1N03	36	ANRX30L100	27		
AN66092522	11	AN66664063	21	ANCP05A1N04	36	ANRX30L300	27		
AN66092528	11	AN66682522	14	ANCP05U1N02	35	ANRX31L100	27		

# Warranty

**KAESER**  
**COMPRESSORS**

*Built for a lifetime.™*

## SmartPipe™

Kaeser Compressors, Inc. herein referred to as “Kaeser,” warrants the Kaeser SmartPipe™ delivered hereunder will be free of defects in material and workmanship for a period of two (2) years from the date of purchase of the products.

If a certified Kaeser SmartPipe Installer completes the installation, Kaeser warrants the SmartPipe delivered hereunder will be free of defects in material and workmanship for a period of ten (10) years from the date of purchase of the products.

Kaeser does not warranty the design, assembly or installation of the system, but only the components as stated herein. Kaeser is not responsible for improper design, assembly or installation, or for any modifications of the Kaeser products.

Should any failure to conform with the above warranties occur during the specified period under normal use, and the components have been proven to Kaeser’s satisfaction to have been properly stored, installed and maintained, and purchaser has complied with all procedures outlined in the instruction manual then Kaeser shall, with prompt notice correct the non-conformities at its option either by replacement or by refund of the purchase price of the non-conforming equipment. Return of such component to such delivery point as Kaeser may direct pursuant to this paragraph shall be at the purchaser’s risk and expense. Kaeser warrants any components replaced pursuant to the above warranty, under normal use, to be free from defects in workmanship and material for a period of ninety (90) days after the shipment of such replaced components or for a period ending on the expiration of the original component warranty, whichever is longer. Unless otherwise expressly agreed, Kaeser shall not be responsible for labor charges, loss or damage resulting from improper operation, maintenance or repairs made by personnel other than those authorized in writing by Kaeser, or damage to equipment caused by the use of non-authorized replacement parts.

Replacement or refund (whichever Kaeser determines, in its sole discretion, to provide) shall be Kaeser’s sole obligation and purchaser’s exclusive remedy for any nonconformity, noncompliance, defect or deficiency in components furnished hereunder, and shall be conditioned upon purchaser’s return of the defective components to Kaeser (DAP Kaeser’s directed delivery point) if Kaeser requires such return. This exclusive remedy will not be deemed to have failed of its essential purpose so long as Kaeser is willing to provide replacement or refund. THE EXPRESS WARRANTY CONTAINED HEREIN IS EXCLUSIVE AND IN LIEU OF ALL OTHER REPRESENTATIONS AND WARRANTIES, EXPRESSED OR IMPLIED, AND KAESER EXPRESSLY DISCLAIMS AND EXCLUDES ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE, AND ANY WARRANTIES ARISING FROM COURSE OF DEALING OR USAGE OF TRADE.

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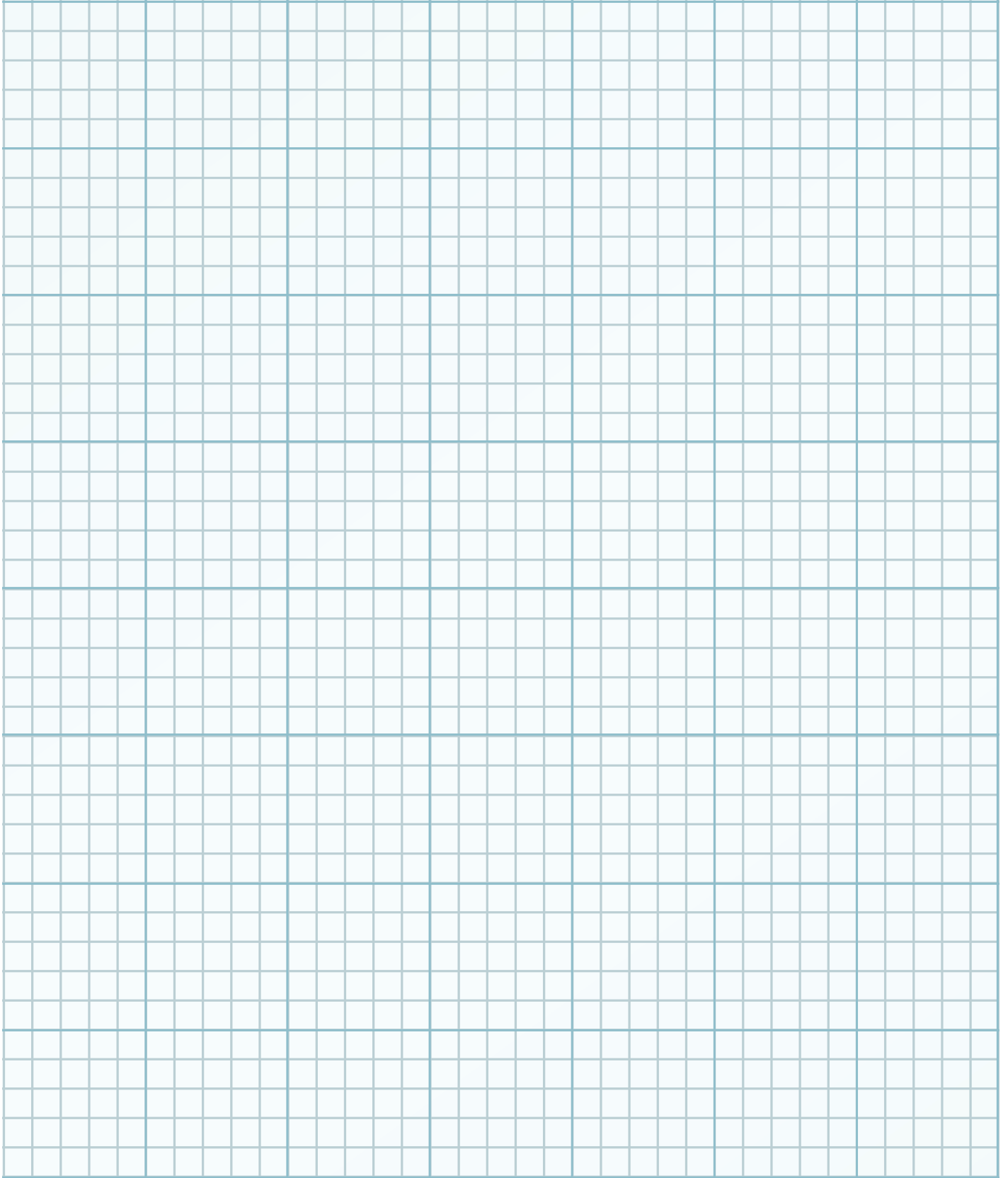
Certified Management Systems



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# System Sketch and Notes



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With innovative products and services, Kaeser Compressors' experienced consultants and engineers help customers to enhance their competitive edge by working in close partnership to develop progressive system concepts that continuously push the boundaries of performance and compressed air efficiency. Every Kaeser customer benefits from the decades of knowledge and experience gained from hundreds of thousands of installations worldwide and over ten thousand formal compressed air system audits.

These advantages, coupled with Kaeser's worldwide service organization, ensure that our compressed air products and system deliver superior performance with maximum uptime.



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