

Safeseal Technology



Clamping & Connecting Products

NORMA Group

NORMA Group is a strategic development partner and global solution provider of Engineered Joining Technologies. Our Distribution Services combine the world's leading brands in standard hose and pipe fastenings with unrivalled applications expertise in areas such as Emission Control, Cooling System, Air Intake & Induction, Ancillary System and Infrastructure.

ABA manufacturing plants are accredited with leading quality and environmental standards, including ISO 9000:2000, ISO 14001 and ISO TS 16949. Furthermore, we manufacture all products and components using equipment that is continuously checked to ensure high process reliability.

Hose and pipe clamps produced under the ABA trademark are available in many types and standards, ensuring that our customers enjoy the benefit of the highest achievable results for clamping force, tightening and breaking torque. For projects requiring design verification, we assure product performance using endurance tests. We are one of the very few clamp manufacturers with extensive in-house system testing facilities.

ABA trademarked products are distributed via a network of carefully selected companies specialising in volume distribution in their national market segments.

The following pages give you detailed information on our product range and highlight how you can benefit from a number of highly interesting products. You are, of course, also most welcome to visit us at our website www.normagroup.com or contact us at Info.se@normagroup.com.

*Look out for your nearest supplier of ABA clamps from the NORMA Group
– or contact us if you want to join our team in your local market!*



ABA – Welcome to the "world of clamps"

Our aim is to offer you a clamping or connecting to whatever 'low-pressure' application you have. It should be the best available – even if it's only for fastening a garden hose. Many competitive products might look the same as ours, but their sealing force and breaking torque differ considerably, and their quality consistency from one clamp to another can vary considerably. To put it simple, the difference between our clamps and theirs is 'sealing or leaking'.

Buying from us is safe and simple. You can trust the ABA brand. You'll find informative packaging and displays, standard certified products, a wide range of related products, plus a high level of service.

In the 'world of clamps' it's the small details that make a big difference!

ABA Safeseal Technology product range!

ABA products use the best steel qualities. Specially produced tubes are used for our ABA Original worm-drive housings that are pressed into their geometric final form in one single step. This results in a worm-drive housing without a joint – often the weakest point in achieving a high breaking torque. Read more about the technique under ABA Safeseal Technology!

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ABA Safeseal Technology™

Reliable

ABA clamps are designed to have a clamping force reserve and not break. They will reliably continue to develop a sealing force around the hose when tightened (see blue line fig. 1) 360° around the joint.

One-piece pressed housing

The worm gear housing is pressed from custom-made piping to an interior tolerance of a few hundredths of a millimetre. ABA worm gear housings withstand high breaking torques due to the design in comparison with riveted, welded or just folded housing designs.

High clamping force

A good clamp should be able to develop a high level of tightening force around the hose or pipe. The even tightening force secures a tight seal. Through the installation torque you decide on the level of force to apply.

Gentle on the hose

The smooth underside and rolled-up band edges are gentle on the hose and reduce the risk of leakages. **A choice of hose clamp is a choice of clamping force.** Bear in mind that settings in the rubber will in the long term reduce the clamping force. Is the clamping force you have selected large enough? Be sure – choose ABA Original clamps.

Aluzink

Our standard bands are made from an Aluzink material, which provides roughly three times better corrosion protection than traditional galvanization. An Aluzink band, in conjunction with our product design, provides the optimum clamping force.

ABA – for a better environment and quality

ABA clamps are produced in factories certified to ISO 14001 and our products can be reused many times thanks to the high and constant quality continuously surveyed in our ISO 9000:2000 as well as ISO TS 16949 systems.

Pressure – vibration – temperature test equipment

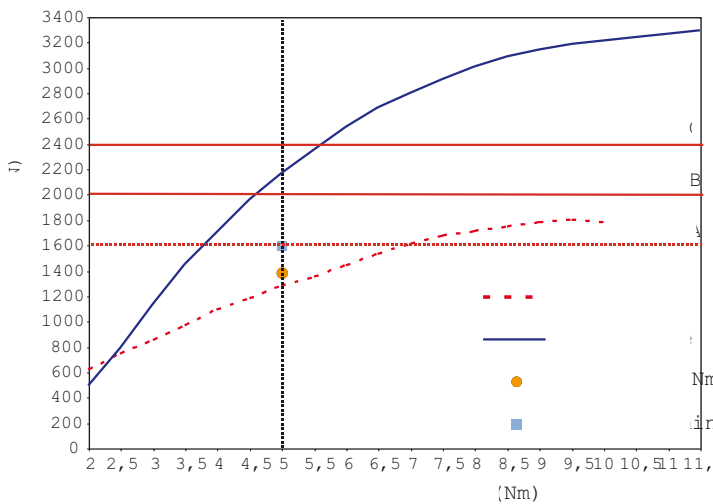


Fig 1. 2-sector "mechanical efficiency" test. Mechanical efficiency of ABA clamps i.e. the relation tightening force: Newton. Speed: 200 rpm. torque and sealing force.

Our Group Technical Centre – State of the art test facilities

Our tests – a guarantee against leakage

A hose connection has three components:

- **Pipe ends** – a large number are available for different purposes.
- **Hoses** – an equally large number are available.
- Naturally, **hose clamps** with different characteristics intended for different jobs are also required. ABA Original can be used, with the correct tightening torque, for a large number of applications. ABA Original with aluzink or stainless bands provide a very large clamping force and a leakproof connection. However in some applications you might need a screw-clamp and then we recommend the Cobra – fast and easy to install.

Clamping force meter

If you wish to compare the clamping force of different products, we can help you on site with our portable measuring equipment. Once the clamping force has been determined, a suitable level of corrosion protection can be selected from the table on next page.

Product development in Maintal

We continuously test systems of hoses, pipe ends, clamps and couplings at our Technical Centre, in order to develop new products and to improve our existing products.



8-Sector load test

Technical Centre in Anderstorp

Mechanical efficiency is one of our test parameters, which is shown in the diagram on the left side Fig. 1. An increase of tightening torque does not always mean an increase in clamping force! Here the Clamp design and lubrication plays a vital role. Our Technical Centre has a state-of-the-art equipment for testing of pressure, vibration and temperature variations. Essential parameters which over time will affect a hose or pipe connection. Many customers have during recent years asked us to perform tests and give technical advice concerning their specific applications.

In industry, the choice of clamp is important. Therefore, we have developed a meter that measures the exact clamping force at eight points, directly after installation and over extended periods of time. Tests have shown that ABA products achieve high clamping forces before breaking and thus ensure that the customer has a clamping force reserve in the clamp to avoid blow-off or leakage over time. If you want us to perform tests for your specific need – just contact your Area Sales Manager.

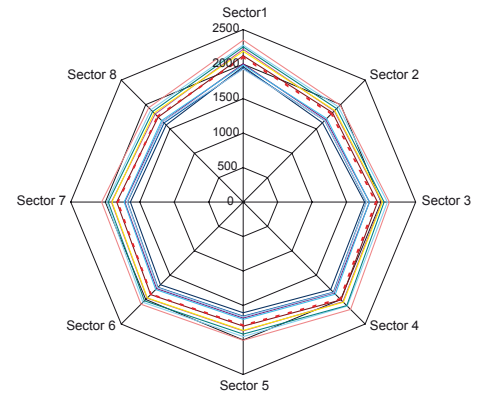


Fig 2. High and consistent quality from clamp to clamp. Each graph is one clamp.

8-sector "one measure" test.
Force: Newton.
Speed: 200 rpm.

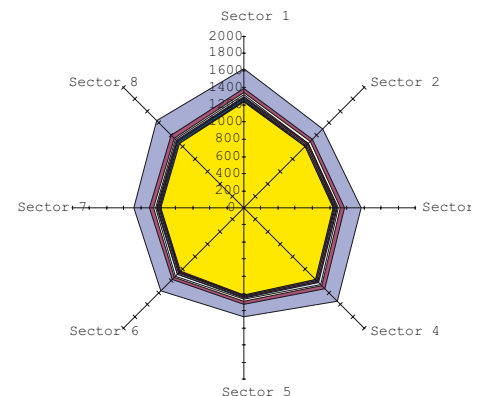















Fig 3. High remaining clamping force thanks to the one piece housing design.

8-sector load test.
Force: Newton. Time: 1 min.
Time step: 6 sec.
Tightening torque: 4,5 Nm

Guide

	Type	Range diameter	Band width	Material
P. 8	 Original Worm Gear Clamp SS 2298 & DIN 3017	15–1060 mm	12 mm	Standard, Stainless,
P. 9	 Nova Worm Gear Clamp SS 2298 & DIN 3017	8–85 mm	9 mm	Standard, Stainless and Acid resistant
P. 9	 Ultra Worm Gear Clamp DIN 3017	15–307	12 mm	Acid resistant
P. 10	 Mini	6,5 – 18 mm	9 mm	Standard, Stainless*
P. 10	 Powerclamp	32–180 mm	20 mm + 20–25 mm	Standard, Acid resistant
P. 11	 Robust	17–252 mm	18–30 mm + 18–25 mm	Standard, Acid resistant
P. 11	 Micro	7–19 mm	5 mm	Standard, Stainless
P. 12	 Safe	32–112 mm	12 mm	Standard, Stainless profile band
P. 13	 Ear Clip	5–40 mm	6–10 mm	Standard, Stainless
P. 14	 Serratub 3	10–110	9	Standard, Stainless
P. 14	 Serratub 3 MAXI	50–625		Standard
P. 15	 Banding System		9–12 mm	Stainless
P. 16	 Cobra	8–32 mm	7–9 mm	Stainless

S10

Material and surface treatment chosen by the manufacturer.
Min 72 hours to red rust.*
Comparable to W1.

* Testing according to SS-ISO 9227 with neutral salt mist spray.

S20

Material and surface treatment chosen by the manufacturer.
Min. 200 hours to red rust.*

S30

All parts in chrome steel 1.4016/AISI 430/SS2320.
Min. time to red rust is 500 hours.*
Comparable to W3.

S40

All parts in stainless steel 1.4301/AISI 304/SS2333
Min. time to red rust is 500 hours.*
Comparable to W4.

S50

All parts in acid resistant steel
1.4436/AISI 316/SS2343
Min. time to red rust is 2.000 hours.*
Comparable to W5.

S60

All parts in acid resistant steel.
Min. time to red rust – well over 2.000 hours.*
Screw & housing in 1.4436/AISI 316/SS2343 and band in higher grade 1.4547/SS-EN 10 088-1.

Guide

		Type	Range diameter	Band width	Material
P. 18		Rubber Lined Clip SS & DIN 3016	3–110 mm	12, 15, 20 mm	Standard, Stainless, Acid resistant
P. 19		Tools	25–50 mm	15–25 mm	Standard, Acid resistant
P. 20		Assortments			Standard, Stainless
P. 21		Fix HMK	40–493 mm	21–31 mm	Standard
P. 21		Fix K			
P.22		Pipe Clamp	25–57 mm		Standard
P.23		Plast SV			

Materials International Standard

Standard	DIN	AISI/AS	BS	AFNOR NF	SS	SUS
S10, W1	<i>Completely zinc plated steel</i>					
S20	Manufacturer's choice min. 200 hours to red rust.					
W2	1. 4016 in housing and band. Screw: 72 hours to red rust.					
S30, W3	1.4016	430	430 S 17	Z8 C17	2320	430
S40, W4	1.4301	304	304 S 15	Z6 CN 18–09	2332	304
S50, W5	1.4401	316	316 S 31	Z3 CND 17–11–1	2343	316
S60	1.4436	316			2347	

SS = Swedish Standard.

DIN = Deutsches Institut für Normung.

AISI = American Iron and Steel Institute.

ABA 12 mm Original, Aluzink S20 and Stainless S40(W4)



S20

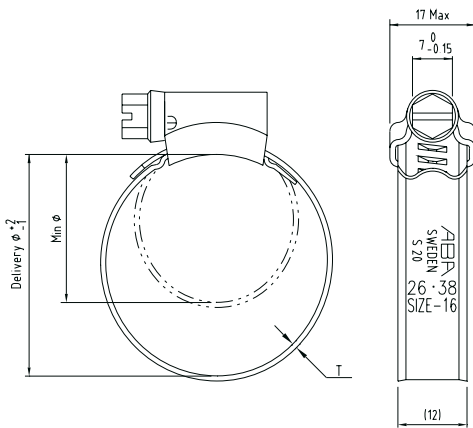


S40

ABA Original clamps feature an extra strong one-piece pressed housing, rolled-up band edges and a smooth band underside that protects the hose. For added corrosion resistance the band in the 12 mm Standard is made of Aluzink which gives three times the protection offered by conventional galvanized steel. ABA Original – the trouble-free clamp with high tightening force and high breaking torque.

ABA Original Standard-S20: Screw: Electro zinc plated. Band: Aluzink. Housing: Painted.

ABA Original Stainless-S40(W4): All parts in SS 2333/AISI 304 Stainless Steel. For dimensions



Hose size	Minimum Ø	Supplied Ø	Standard T	Stainless T	Rec. tightening torque Nm
15-24	15	25	0.8	0.8	4-5
19-28	19	29			
22-32	22	33			
26-38	26	39			
32-44	32	45	1.0		5-6
38-50	38	51			
44-56	44	57			
50-65	50	66			
58-75	58	76			
68-85	68	86			
77-95	77	96			
87-112	87	113			
106-138	106	139			
132-165	132	166			
150-180	150	181			
175-205	175	206			
200-231	200	232			
226-256	226	257			
251-282	251	283			
277-307	277	308			

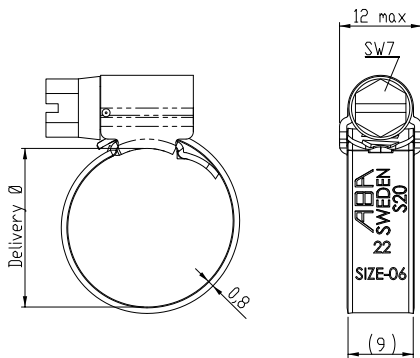
Larger sizes available in Torro

ABA Nova S20, Stainless S40(W4) and Acid Resistant S50(W5)



The highly versatile ABA Nova clamp is an ideal choice for smaller dimensions of hoses. The base of the housing is cut back and the internal tolerances are very close: a few hundredths of a millimetre. Available for a wide range of hose dimensions, it retains its roundness and sealing qualities even on the smallest of hoses.

ABA Nova Standard–S20(W1): Screw: Electro zinc plated. Band: Galvan. Housing: Painted.
ABA Nova Stainless–S40(W4): All parts are made of SS 2333/AISI 304 stainless steel.
ABA Nova Acid Resistant–S50(W5): All parts are made of SS 2343/AISI 316 stainless steel.



Standard			
Hose size	Minimum Ø	Supplied Ø	Rec. tightening torque Nm
8–14	8	15	2.5–3.5
11–17	10	17	
13–20	12	22	3–4
15–24	15	25	
19–28	16	28	4–4,5
22–32	20	32	
26–38	25	40	
32–44	30	45	
38–50	32	51	
44–56	44	56	
50–65	50	65	
58–75	58	75	
68–85	68	85	

Stainless S40(W4)			
Hose size	Minimum Ø	Supplied Ø	Rec. tightening torque Nm
8–14	8	15	2.5–3.5
11–17	10	17	
13–20	12	22	3–4
15–24	15	25	
19–28	16	28	4–4,5
22–32	20	32	
26–38	25	40	
32–44	30	45	

Acid resistant S50(W5)			
Hose size	Minimum Ø	Supplied Ø	Rec. tightening torque Nm
8–14	8	15	2.5–3.5
11–17	10	17	
13–20	12	22	

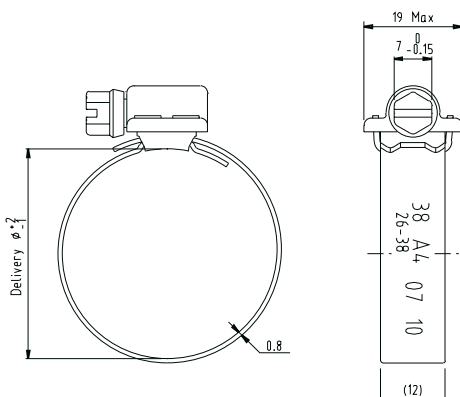
ABA Ultra 12 mm Acid Resistant – A High Torque Clamp S50 (W5)



S50

The acid resistant clamp is produced from SS 2343/AISI 316 high tensile strength steel. It has one of the best clamping force ratings in the world thanks to its special thread design and manufacturing methods. Whenever required, this clamp has a very high clamping force and premium corrosion resistance. Every clamp is date stamped for traceability. This clamp has received high praise from US Powerboats and is used worldwide by quality marine equipment manufacturers, amongst others.

ABA Ultra Acid Resistant–S50(W5): All parts are made of SS 2343/AISI 316 stainless steel, in accordance with SS 2298.



Hose size	Minimum Ø	Supplied Ø	Rec. tightening torque Nm
15–24	15	25	2.5–3.5
19–28	19	29	
22–32	22	33	
26–38	26	39	3.5–4.5
32–44	32	45	
38–50	38	51	5–6
44–56	44	57	
50–65	50	66	
58–75	58	76	
68–85	68	86	
77–95	77	96	
87–112	87	113	
104–138	104	139	
130–165	130	166	
150–180	150	181	
175–205	175	206	
200–231	200	232	
226–256	226	257	
251–282	251	283	
277–307	277	308	

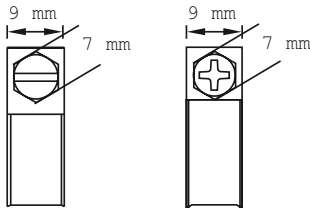
ABA Mini Standard S10(W1) and Stainless S40(W4)



S10



S40



ABA Mini features rolled-up band edges that are gentle on hoses. The band tongue that fits under the hose is profiled for added strength. The nut is retained even if the screw is removed. Furthermore the screw has a hexagonal head and can be tightened with a flexible socket wrench. The ABA Mini is particularly suitable for use on small, thin-walled hoses. This little clamp provides an excellent clamping force well over screwless clamps.

ABA Mini Standard-S10(W1): Electro zinc plated.

ABA Mini Stainless-S40(W4): All parts are made of SS 2333/AISI 304 stainless steel.

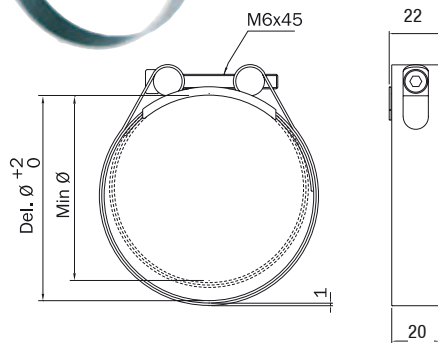
Standard – S10			
Hose size	Minimum Ø	Supplied Ø	Rec. tightening torque Nm
Mini 7	6,5	7,5	1,5
Mini 8	7	8,5	
Mini 9	8	9,5	
Mini 10	9	10,5	
Mini 11	9,5	11,5	
Mini 12	10,5	12,5	
Mini 13	11,5	13,5	
Mini 14	12,5	14,5	
Mini 15	13,5	15,5	
Mini 16	14	16,5	
Mini 17	15	17,5	

Stainless – S40			
Hose size	Minimum Ø	Supplied Ø	Rec. tightening torque Nm
Mini 8	7,5	8,5	1,5
Mini 9	8,5	9,5	
Mini 10	9,5	11	
Mini 11	10,5	12	
Mini 12	11,5	13	
Mini 13	12,5	14	
Mini 14	13,5	15	
Mini 15	14,5	16	
Mini 16	15	17	
Mini 17	16	18	

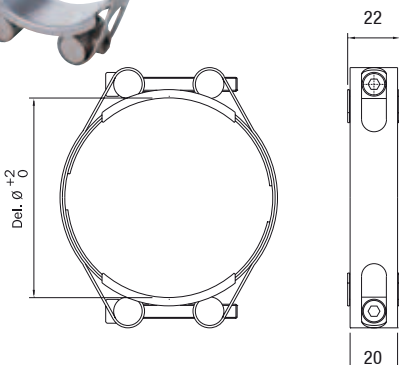
Power Clamp Standard S10(W1) and Acid Resistant S50(W5)



S10



S50



A very strong heavy-duty double band clamp. Also available in a double screw version for extra clamping force. Both “single” and “double” are available in standard version and in stainless steel 316/S50.

Power Clamp – S10(W1): Electro zink plated

Power Clamp – S50(W5) : All parts are made of SS2343/AISI 316 stainless steel.

Power Clamp single			
Minimum Ø	Supplied Ø	Minimum Ø	Supplied Ø
34	40	89	95
39	45	94	100
44	50	99	105
49	55	104	110
54	60	109	115
59	65	114	120
64	70	119	125
69	75	124	130
74	80	129	135
79	85	134	140
84	90	149	155*

Power Clamp double			
Minimum Ø	Supplied Ø	Minimum Ø	Supplied Ø
32	40	105	115
40	50	110	120
45	55	115	125
50	60	120	130
55	65	125	135
60	70	130	140
65	75	135	145
70	80	140	150
75	85	145	155
80	90	150	160
85	95	155	165
90	100	160	170
95	105	165	175
100	110	170	180

Acid resistant not in stock.

* Not standard

ABA Robust Standard W2 and Acid Resistant S50(W5)

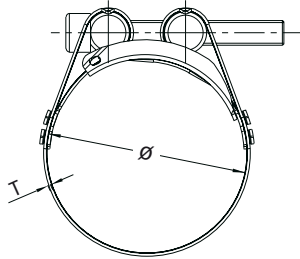
Robust is a heavy-duty clamp with rolled-up band edges. It is used in many applications such as for sealing heavy-gauge reinforced hoses used for irrigation, drainage, sludge pumping etc.

ABA Robust Standard-W2: Band in stainless steel SS2320/AISI 430 other parts individually electro zinc plated before assembly.

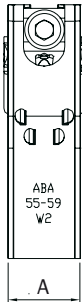
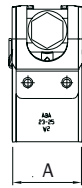
ABA Robust Acid Resistant-S50(W5): All parts are made of SS 2343/AISI 316 stainless steel.



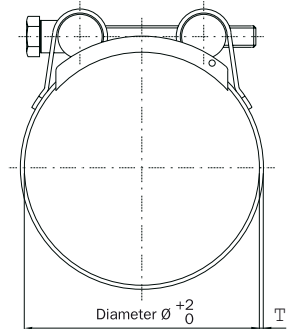
W2-Standard



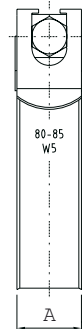
W2-Standard



S50- Acid Resistant



S50- Acid Resistant



Standard				
Ø mm	A	T	Bolt	Screw head type
17-19	18	0,6	M6x40	Hexagon screw head 8 mm
19-21				
21-23				
23-25				
25-27				
27-29				
29-31				
31-34				
34-37				
37-40				
40-43	20	0,8	M7x55	Socket head cap screw 5 mm
43-47				
47-51				
51-55				
55-59				
59-63				
63-68				
68-73				
73-79				
79-85				
85-91	30	1,0	M10x80	Hexagon screw head 17 mm
91-97				
97-104				
104-111				
111-118				
118-125				
125-132				
132-139				
139-146				
146-153				
153-160				
160-167				
167-174				
174-187				
187-200				
200-213				
213-226				
226-239				
239-252				
252-265				
265-278				
278-291				
291-304				

Acid resistant								
Ø mm	A	T	Boltt	Screw head type				
17-19*	18	0,6	M5x35	Hexagon screw head 8 mm				
20-22*								
23-25*								
26-28*								
29-31*								
32-35	20	1,0	M6x50	Hexagon screw head 10 mm				
36-39								
40-43								
44-47								
48-51								
52-55								
56-59					25	1,2	M8x70	Hexagon screw head 13 mm
60-63								
64-67								
68-73								
74-79								
80-85	30	1,5	M8x80	Hexagon screw head 17 mm				
86-91								
92-97								
98-103								
104-112								
113-121								
122-130								
131-139								
140-148								
149-161								
162-174								
175-187								
188-200								
201-213								
214-226								
227-239								
240-252								

* Screw material M5. Zink plated Navy Brass.

Micro Standard S20 and Stainless S40(W4)

Micro extends our product range for small hose dimensions where a small and flexible worm gear clamp is needed and where the demand for tightening force is low. The bandwidth is 5 mm and the clamp a "retaining" product.

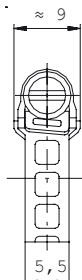
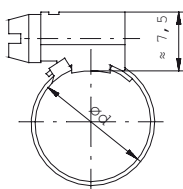
Micro S20: Screw and housing: Electro zinc plated. Band: SS 2320/AISI 430 Stainless Steel.
Micro S40(W4): Screw and housing in stainless AISI 304. Band:SS 2333/AISI 304.



S20



S40



Clamping range (d) mm	Rec. max tightening torque Nm
7 - 11	1,0
9 - 14	
10 - 19	

ABA Safe™ 12 mm Aluzink S20 and Stainless S40(W4)



S20



S40

ABA Safe™ utilizes the flexibility of the hose (rubber) and protects soft hoses against damage. The profile beads increase the clamp pressure locally, which means the clamp can also be used for plastic piping that is relatively resistant to deformation. ABA Original clamp provides the clamping force needed for an effective joint.

ABA Safe™ Standard–S20: See ABA Original 12 mm Standard.

ABA Safe™ Stainless–S40(W4): See ABA Original 12 mm SS 2333/AISI 304 Stainless. In both versions the inner ring is made of cold rolled steel SS 2331/AISI 301.

Size	Minimum Ø	Supplied Ø	Rec. tightening torque Nm
32–44	32	43	5–6
38–50	38	49	
44–56	44	55	
50–65	50	64	
58–75	58	74	
68–85	68	84	
77–95	77	94	
87–112	87	111	

Technical function – Safe™

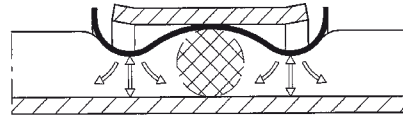
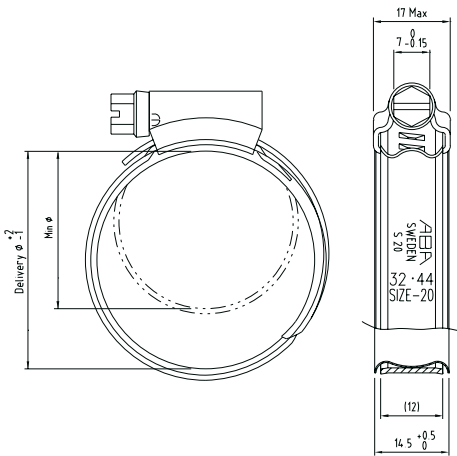


Illustration 1. On tightening, the wave-shaped band causes maximum compression of the rubber at the two beads. The rubber is squeezed inwards towards the middle and outwards towards the edges. As the rubber between the two beads is only marginally affected it retains its elasticity and acts as an "O" ring.

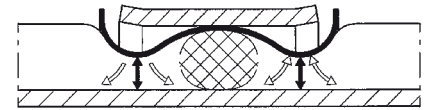
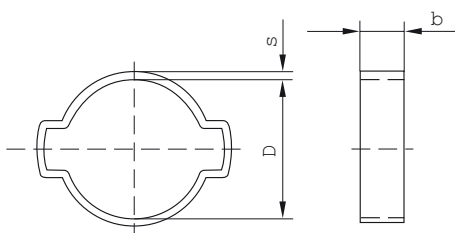
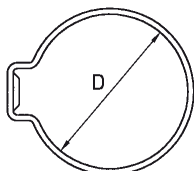


Illustration 2. On heating the band the "O" ring flattens out. As it cools down it will assume its original shape and seal against the end fitting. The design of the Safe™ clamp makes it particularly suitable for soft hoses with relatively thick walls. Plastic piping that is relatively resistant to compression can often be sealed due to the increased pressure.

Ear Clips Standard S10(W1) and Stainless S40(W4)



S10, S40



Ear Clips are available in galvanized steel.
Application tools are available, see page 20.

1 Ear Clip			
Clamping range D	b	S10 s	S40 s
9-11*	6,5	0,8	0,8
10-12*			
11-13*		0,9	
12-14*	7	1	1
14-16*		1,1	
16-18*		1,2	

Sizes marked with (*) are available in stainless steel S40.

2 Ear Clip			
Clamping range D	b	S10 s	S40 s
5 - 7*	6	0,8	0,6
7 - 9		0,6	0,8
9 - 11*	6,5	0,8	
11 - 13*		0,9	
13 - 15*	7	1,0	1
14 - 17*		1,2	
15 - 18*	7,5		
17 - 20*			
18 - 21	8		
20 - 23*		1,3	
22 - 25*	8,5	1,4	1,2
23 - 27			
25 - 28	9		
28 - 31			
31 - 34	9,5		
34 - 37		1,6	
37 - 40	10		

Serratub 3 W1/W2B and Serratub 3 MAXI

Serratub 3 and Serratub 3 Maxi are manufactured according to European standards and are made according to DIN ISO 9000 and EN29000.

Mechanical efficiency is one of our test parameters. Note that increasing tightening torque does not always mean an increase in clamping force! Here clamp design and lubrication play a vital role. Our Technical Centre has state-of-the-art equipment for testing pressure, vibration and temperature variations, all of which are parameters that over time will affect a hose or pipe connection. Our technical department is at your disposal to satisfy all your needs and answer all your questions.

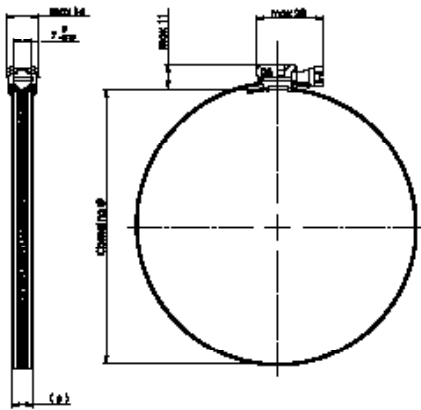


Serratub 3

The proven and well known Serratub Quick Lock clamps have several benefits thanks to their unique housing design. The hinged Quick Lock mechanism enables a very fast installation time and the solid band construction delivers a strong and consistent band sealing force. Serratub 3 clamps also have rolled band edges for additional hose protection and are available in a 9mm bandwidth

Serratub 3 Maxi

The Serratub 3 Maxi clamp is designed for use on larger diameter hoses. Supplied in a 9mm bandwidth, the Maxi features a wide clamping range that enables a large number of size applications to be covered by a small range of clamps. This benefit allows for a far more economical stockholding when catering for lower volume, large hose applications.



SERRATUB 3 W1/W2B table		
Clamping Ø	Rec. tightening torque Nm	Break torque min Nm.
10-16	3	4
12-22		
16-27		
23-35		
30-45		
32-50	4	4,5
40-60		
50-70		
60-80		
70-90		
80-100		
90-110		

W1: Band, screw, housing electro zinc plated
W2B: Band AIS430-screw and housing electro zinc plated.

SERRATUB 3 MAXI/W2B table		
Clamping Ø	Rec. tightening torque Nm	Break torque min Nm
50-100	4	4,5
50-130		
50-145		
50-165		
50-175		
50-215	4	4,5
50-280		
50-325		
50-370		
50-425		
60-525		
70-625		

W2B: Band AIS430-screw and housing electro zinc plated

Banding System

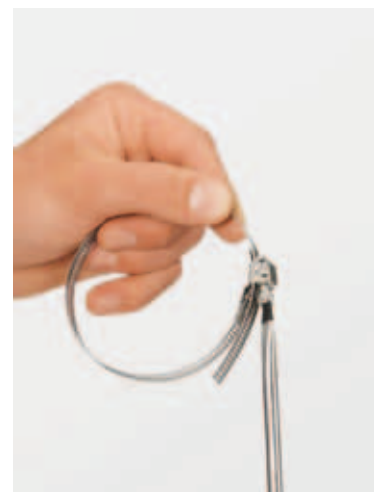
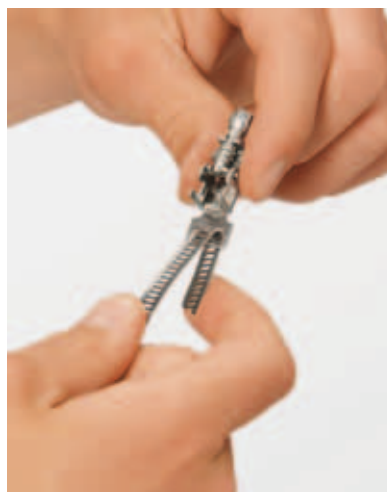
An instant solution for clamping. The Banding System offers you the immediate possibility to make your own clamp from the components. Ideal for service and maintenance. Each system is supplied in a dispenser box containing a full length of band and a number of the unique quick-lock housings with screw. The band is perforated, flexible and in stainless steel. Available in 9 or 12 mm bandwidths.

Banding System/W2B: Screw and housing: Electro zink plated and chromated. Band: AISI 430.



W2B			
Bandwidth	Description		
9 mm	KIT 3 meters	with	8 quick-lock housings
12 mm	KIT 3 meters	with	6 quick-lock housings
9 mm	KIT 5 meters	with	8 quick-lock housings
12 mm	KIT 5 meters	with	6 quick-lock housings
9 mm	Bandbox	containing	25 meters
12 mm	Bandbox	containing	25 meters
9 mm	Quick-lock housing box		100 pcs
12 mm	Quick-lock housing box		100 pcs

The smart quick-lock housing is outstanding for this type of banding system.

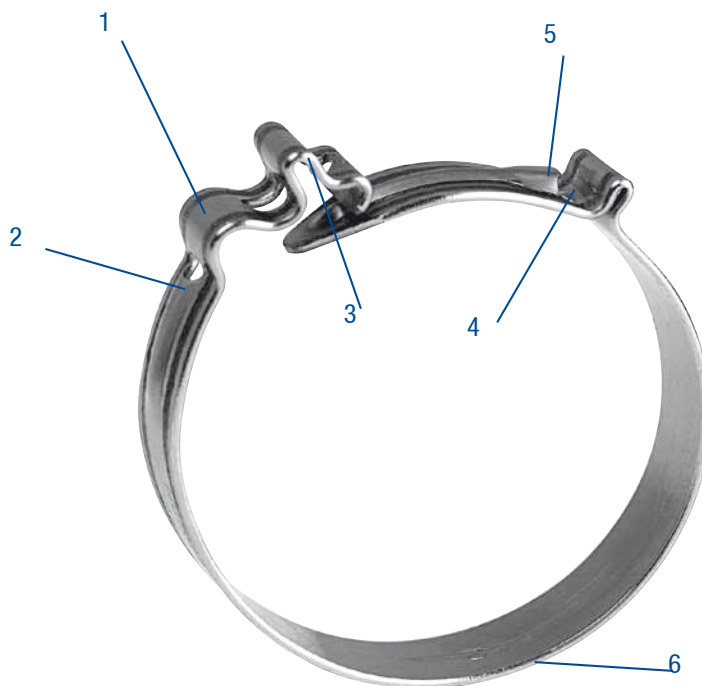


COBRA – One–piece hose clamps (W4)

The low profile of the COBRA one–piece clamps allows the exact fitting even in very narrow assembly conditions. The fitting is fast and easy.

Features

- 1 Self–adjusting diameter – compensation for tolerances in the hose outside diameter
- 2 Bead – safe guidance of the band
- 3 Protruding tool gripping points – simple and safe assembly
- 4 Marking: Production date and machine number
- 5 Single lock–in point – visual check for correct assembly without difficulties
- 6 Clamp band with rounded edges – hose protection



COBRA – Survey of sizes, bandwidths & materials

Band-width (mm)	Description, ordercode Nominal diameter d ₁	Clamping Range D _a (hose outside-ø)	
		in mm	in Inches
7	COBRA 7.5/7 W4	8.0–9.0	5/16–3/8
7	COBRA 8.5/7 W4	8.5–9.5	5/16–3/8
7	COBRA 8.5/7 W4	9.0–10.0	3/8–3/8
7	COBRA 9/7 W4	9.5–10.5	3/8–3/8
7	COBRA 9.5/7 W4	10.0–11.0	3/8–7/16
7	COBRA 10/7 W4	10.5–11.5	3/8–7/16
7	COBRA 10.5/7 W4	11.0–12.0	7/16–1/2
7	COBRA 11/7 W4	11.5–12.5	7/16–1/2
7	COBRA 11.5/7 W4	12.0–13.0	1/2–1/2
8	COBRA 11.5/8 W4	12.0–13.5	1/2–1/2
8	COBRA 12/8 W4	12.5–14.0	1/2–9/16
8	COBRA 13/8 W4	13.5–15.0	1/2–5/8
8	COBRA 14/8 W4	14.5–16.0	9/16–5/8
8	COBRA 15/8 W4	15.5–17.0	5/8–11/16
8	COBRA 16/8 W4	16.5–18.0	5/8–3/4
8	COBRA 17/8 W4	17.5–19.0	11/16–3/4
8	COBRA 18/8 W4	18.5–20.0	3/4–13/16
8	COBRA 19/8 W4	19.5–21.0	3/4–13/16
8	COBRA 20/8 W4	20.5–22.0	13/16–7/8
8	COBRA 21/8 W4	21.5–23.0	13/16–7/8
8	COBRA 22/8 W4	22.5–24.0	7/8–15/16
8	COBRA 23/8 W4	23.5–25.0	7/8–1
8	COBRA 24/8 W4	24.5–26.0	15/16–11/16
8	COBRA 25/8 W4	25.5–27.0	1–11/16
8	COBRA 26/8 W4	26.5–28.0	11/16–11/8
8	COBRA 27/8 W4	27.5–29.0	11/16–11/8
8	COBRA 28/8 W4	28.5–30.0	11/8–13/16
8	COBRA 29/8 W4	29.5–31.0	11/8–11/4
8	COBRA 30/8 W4	30.5–32.0	13/16–11/4

Larger diameters will be supplied on request in band width 9 mm.

Workshop assortment



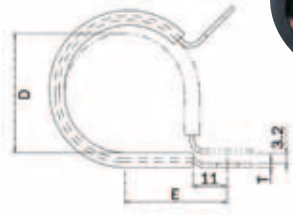
The workshop assortment contains a customised variety of COBRA hose clamps arranged in a plastic display box. One box contains 500 COBRA made from stainless chrome nickel steel in 7 mm and 8 mm bandwidths and sorted in different quantities. The fitting is fast and easy for many applications such as suction lines, fuel, washing machines, irrigation systems and pneumatic lines.

30 x 7.5/7	25 x 8/7	25 x 8.5/7
25 x 9/7	25 x 9.5/7	25 x 10/7
25 x 10.5/7	25 x 11/7	25 x 11.5/7
25 x 12/8	30 x 13/8	30 x 14/8
30 x 15/8	30 x 16/8	30 x 17/8
30 x 18/8	30 x 19/8	30 x 21/8

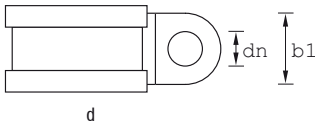
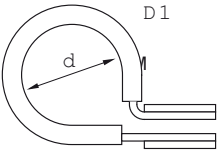
Application tools see page 20

Rubber Lined Clips Standard and Stainless

Standard type Clamps



SQ retaining Clamps



Retaining clamps are primarily used for securing pipes, tubes and cables in place. The rubber profile prevents vibrations from being transmitted, safeguards against scratching and also insulates. Rubber clips are used in the automotive industry, machine construction, hydraulic and pneumatic applications, process industries, shipbuilding and refrigeration. The SS range of clips has a solid single layer hot dip galvanized steel. The rubber profile is in EPDM material.

"D±0.4	E±0.4	T
3.2	14.6	0.8
4.8	15.4	0.8
6.4	16.2	0.8
7.9	17.0	0.8
9.5	17.8	0.8
11.1	18.6	0.8
12.7	19.4	1.0
14.3	20.2	1.0
15.9	21.0	1.0
17.5	21.8	1.0
19.0	22.6	1.0
20.6*	23.4	1.0
22.2	24.2	1.0
23.8*	25.0	1.0
25.4	25.8	1.0
27.0*	27.1	1.3

"D±0.4	E±0.4	T
28.6	27.9	1.3
30.2*	28.6	1.3
31.8	29.4	1.3
33.3*	30.2	1.3
34.9	31.0	1.3
36.5*	31.8	1.3
38.1	32.6	1.3
41.0*	34.0	1.3
45.0	36.0	1.3
47.0*	36.5	1.3
51.0*	39.0	1.3
54.0*	41.5	1.3
60.0*	43.5	1.3
65.0*	46.1	1.3
74.0*	50.0	1.3
110.0*	68.0	1.3

Bandwidth 12,7 mm Standard
* Non stock items.

Our Retaining clamps are also produced to DIN 3016. The standard form is D1. Bands have reinforced bolt holes for extra strength and rubber profile. Available in W1 material (galvanized steel) and W4 (stainless steel) – other material options and clamp forms available on request.

DIN 3016 materials:

S10(W1) = Electro zink plated

S40(W4) = Stainless steel 1.4301/SS2333/
AISI304

S30(W3) and S50(W5) – Upon request

Standard: Form D1, bandwidths 12, 15 and 20 mm.

Available on request: bandwidth 9 mm and 25 mm, design without rubber profile (forms A1, B1, C1), SQ Clamps for

SQ forms according to DIN 3016

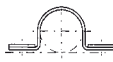
Without rubber profile



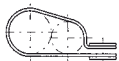
A1



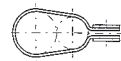
B1



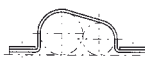
C1



A2



B2



C2

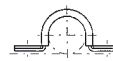
With rubber profile



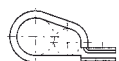
D1



E1



F1



D2



E2



F2

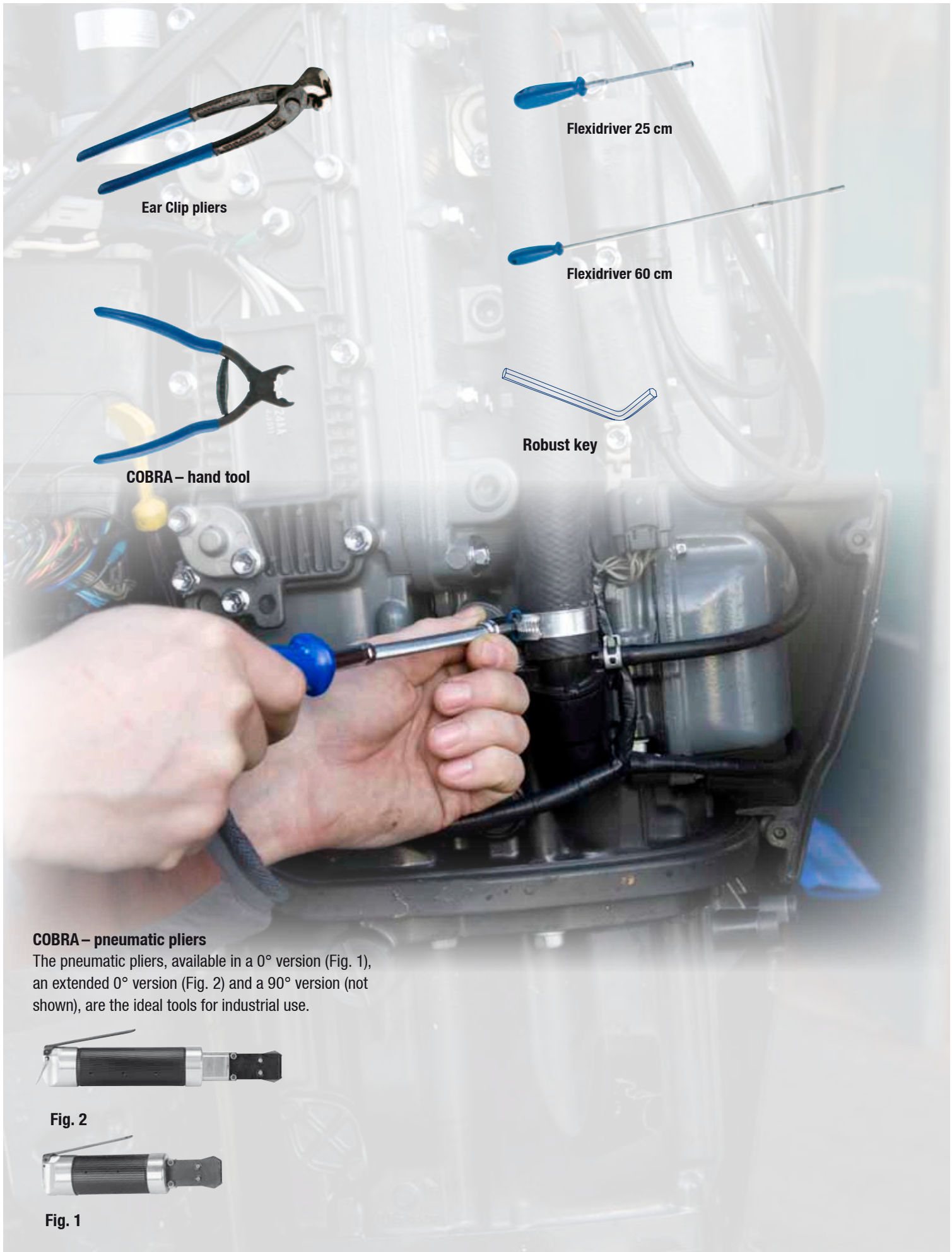
SQ W1		
Nominal diameter (d) mm Bandwidth (b1) mm		
12 dn= Ø 5,3	15 dn= Ø 6,4	20 dn = Ø 8,4
5	5	
6	6	
7	7	
8	8	
9	9	
10	10	10
11	11	11
12	12	12
13	13	13
14	14	14
15	15	15
16	16	16
17	17	17
18	18	18
19	19	19
20	20	20
21	21	21
22	22	22
23	23	23
24	24	24
25	25	25
	26	26
	27	27
	28	28
	29	29
	30	30
	31	31
	32	32
	33	33
	34	34
	35	35
	36	36
	37	37
	38	38
	39	39
	40	40
		41
		42
		43
		44
		45
		46
		47
		48
		49
		50

SQ W4		
Nominal diameter (d) mm Bandwidth (b1) mm		
12 dn= Ø 5,3	15 dn = Ø 6,4	20 dn = Ø 8,4
5	5	
6	6	
7	7	
8	8	
9	9	
10	10	10
11	11	11
12	12	12
13	13	13
14	14	14
15	15	15
16	16	16
17	17	17
18	18	18
19	19	19
20	20	20
21	21	21
22	22	22
23	23	23
24	24	24
25	25	25
26	26	26
27	27	27
28	28	28
29	29	29
30	30	30
31	31	31
32	32	32
33	33	33
34	34	34
35	35	35
36	36	36
37	37	37
38	38	38
39	39	39
40	40	40
		41
		42
		43
		44
		45
		46
		47
		48
		49
		50

Bold = Stock items
Non bold = Non stock items

Bold = Stock items
Non bold = Non stock items

Tools



Ear Clip pliers



Flexidriver 25 cm



Flexidriver 60 cm



COBRA – hand tool



Robust key

COBRA – pneumatic pliers

The pneumatic pliers, available in a 0° version (Fig. 1), an extended 0° version (Fig. 2) and a 90° version (not shown), are the ideal tools for industrial use.



Fig. 2

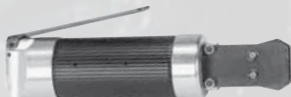


Fig. 1

Assortments – Merchandisers



Assortment 244*
65 x 15 x 23.4 cm 4.7 kg



Assortment 335*
90 x 24 x 13.8 cm 8.9 kg



Assortment 270*
40 x 8.5 x 27 cm 6.3 kg



Assortment 120
28 x 17 x 4.5 cm 1.2 kg



Assortment 135*
34 x 24 x 5 cm 2.9 kg



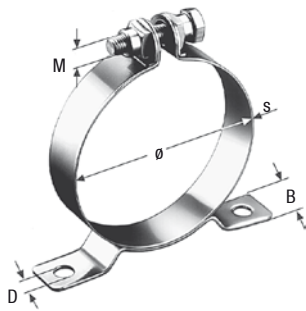
Assortment 130
34 x 24 x 5 cm 2.4 kg



Assortment 600
34 x 24 x 5 cm 3.3 kg

* available in 9 mm or 12 mm bandwidths.

FIX HMK



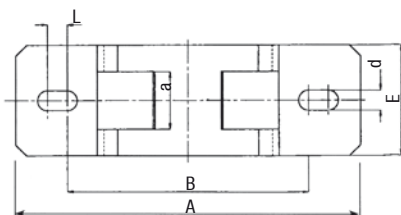
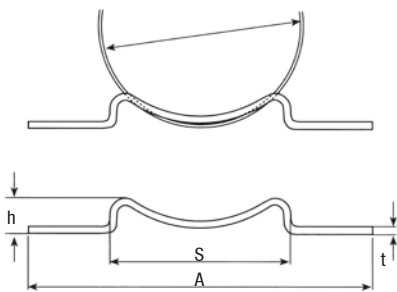
Standard design

HMK standard clamps with “open” bracket are suitable for use in applications where relatively light-weight pipes and containers need to be retained and which involve low mechanical loads. Standard design retaining clamps with brackets are available as single-part or two-part design. The clamp band is either 15, 20 or 25 mm wide. If vibrations need to be absorbed, an additional rubber profile can be supplied which is also suitable for use as gasket against creeping water.

Bandwidth (mm)	Min. Ø (mm)	Screws			D (mm)	Rubber Profile		Product Group	s	
		Sz	Sk	Measurement		Silicone	EPDM		W1	W5
15	25	•	–	M 6 x 30	6,5	•	•	141 6	0,8	0,6
20	30	•	–	M 8 x 40	8,5	•	•	151 6	1,0	0,8
25	50	–	•	M 10 x 45	11	•	•	161 6	1,5	1,0

No stock items

FIX K



FIX K are pre-fabricated steel brackets that are suitable to convert any standard clamp into a retaining clamp with bracket: Just open the clamp, then push the clamp band through the slot of the bracket – that's it.

FIX K brackets are made from W1 steel.

Size	Clamping Range (mm)	a*	A*	B*	S*	d*	E*	h*	L*	t*
0	40–62	21	120	85	62	9	40	13	8	3
1	63–80									
2	81–110									
3	101–118	26	156	100	82	9	50	15	18	3
4	119–136									
5	137–163									
6	163–180	26	236	152	132	9	60	24	32	3
7	181–207									
8	208–234									
9	235–259	31,5	300	214	190	11	60	34	32	4
10	261–298									
11	300–337									
12	339–389	31,5	400	320	290	11	60	48	32	4
13	391–441									
14	443–493									

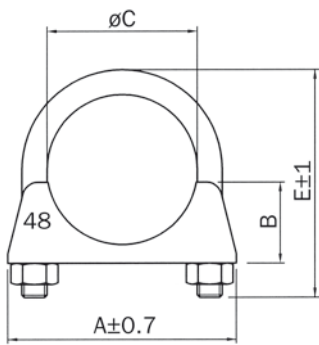
No stock items

Pipe Clamp, M8



Our standard M8 pipe clamps meets the quality standards, which are suitable for use with a wide range of pipe diameters. Pipe clamps are not used only in exhaust systems. Other applications include TV aerials, road signs etc. M10 pipe clamps are available to order as well as other sizes of M8 pipe clamps.

Material: Electro zinc plated steel.



Size	A \pm 0.7	B	C	E \pm 1
25	50	16	25	52
28	53	17.5	28	54
32	57	19	32	60
35	60	20	35	63
38	63	22	38	65
42	67	23.5	42	69
45	70	25.5	45	71
48	73	26	48	73
51	76	26.5	51	76
54	79	28	54	79
57	82.5	29	57	83

Larger sizes on request

PLAST SV – Plastic Products

PLAST SV products are proven plastic hose and tube connectors which connect fluid carrying lines reliably and at a reasonable price. PLAST SV hose and tube connectors can be used in motor vehicles as well as in nearly every industrial application.



Different types

1. Taper thread connector

These PLAST SV connectors made of Polyamide 6 feature on one end a tapered thread and on the other end one or two push-on spigots. The ribbed surface of the push-on spigots ensures that the hoses are tight-fit after assembly. Three different thread geometries are distinguished by means of colour coding allowing for a quick visual identification:



Metric taper thread	light grey
Whitworth pipe thread	charcoal
NPT thread	black

(Other materials are available on request)

2. Hose connectors

With these PLAST SV connectors without thread hoses are connected quickly and easily with one another by just pushing the hose onto the connectors. The ribbed surface of the push-on spigots ensures that the hoses are tight-fit after assembly.



The PLAST SV hose connectors are made of ecrucoloured POM (acetalcopolymerisat); other materials are available on request.

3. Compression

The PLAST SV threaded connectors feature on one end a metric thread and on the other end one or two pipe unions. These compression connectors are made of black polyamide 6 with 30 % glass-fibre reinforcement.



4. Push-on connectors

These PLAST SV parts are used for connecting plastic pipes made of PA6 or PA12. With these connectors safe connections can be achieved even without the use of additional hose clips. The push-on connectors are made of black polyamide 6 or polyamide 12 containing 30 % glass fibre reinforcement. The connectors can be supplied with O-rings on request.



PLAST – Product & Material Properties

Thermal Properties

For the threaded connecting pieces the coefficient of expansion of 100×10^{-6} must be considered if there is any exposure to temperature fluctuations. Our standard materials are classified under the UL (Underwriters Laboratories) system:

Flammability (UL94)

POM, PP, PA6, PA6.6, and PA12 : HB (Horizontal Burning)

No.	Chemical Substance	Concentration	Temperature	POM	PP	PA 6	PA 6.6	PA 12
1	Acetone	100%	20 °C/50 °C	1/3	1/1	1/0	1/0	1/0
2	Formic acid	98–100%	20 °C/50 °C	4/4	1/3	4/4	4/4	4/4
3	Ammonium hydroxide (spirits of ammonia)	Any	20 °C/50 °C	1/2	1/1	1/0	1/0	1/0
4	Fuel (Super Unleaded, Normal)	Commercial	20 °C/50 °C	1/1	3/4	1/1	1/1	1/1
5	Benzene, B. hydrocarbons	100%	20 °C/50 °C	3/3	3/4	1/0	1/0	1/0
6	Bleaching lye (12.5% active chlorine)	Aqueous solution 12,5%	20 °C/50 °C	4/4	3/3	4/4	4/4	3/3
7	Brake fluid (DOT4)	Commercial	20 °C/50 °C	1/1	1/1	1/1	1/1	1/1
8	Butane	Technically pure	20 °C/50 °C	1/2	1/1	1/0	1/0	1/0
9	Chlorine, chlorine water	Commercial	20 °C/50 °C	4/4	4/4	4/4	4/4	4/4
10	Disinfectant phenols	Diluted solution	20 °C/50 °C	4/4	1/1	4/4	4/4	4/4
11	Diesel fuel, Diesel oil	Commercial	20 °C/50 °C	1/1	1/3	1/1	1/1	1/1
12	Decalcifier	Aqueous solution ~ 10%	20 °C/50 °C	4/4	1/1	2/3	2/3	2/3
13	Photographic developer (1:100)	Commercial	20 °C/50 °C	1/1	1/1	4/4	4/4	4/4
14	Town gas (coal gas, natural gas)	Commercial	20 °C/50 °C	1/1	1/1	1/1	1/1	1/1
15	Crude oil	Commercial	20 °C/50 °C	1/1	3/3	1/1	1/1	1/1
16	Acetic acid (glacial acetic acid)	90%	20 °C/50 °C	4/4	1/2	4/4	4/4	4/4
17	Ethyl alcohol	96% (techn. pure)	20 °C/50 °C	1/2	1/1	1/0	1/0	1/0
18	Photographic emulsion	Commercial	20 °C/50 °C	1/0	1/1	1/0	1/0	1/0
19	Fruit juices	Commercial	20 °C/50 °C	1/1	1/1	1/1	1/1	1/1
20	Glycerine	Technically pure	20 °C/50 °C	1/1	1/1	1/1	1/1	1/1
21	Glysantin	Commercial	20 °C/50 °C	1/1	1/1	3/3	3/3	3/3
22	Heating oil	Commercial	20 °C/50 °C	1/1	1/3	1/1	1/1	1/1
23	Hydraulic fluids	Commercial	20 °C/50 °C	1/0	1/3	1/1	1/1	1/1
24	Carbon dioxide, carbonic acid	Technically pure, saturated	20 °C/50 °C	1/1	1/1	1/0	1/0	1/0
25	Coolants (based on Glycol)	Commercial	20 °C/50 °C	1/1	1/1	3/3	1/1	1/1
26	Methane	Technically pure	20 °C/50 °C	1/1	1/1	1/1	1/1	1/1
27	Methanol	Technically pure	20 °C/50 °C	1/1	1/1	1/1	1/1	3/3
28	Methylethylketon	100%	20 °C/50 °C	3/3	1/3	1/0	1/0	1/0
29	HD engine oils	Commercial	20 °C/50 °C	1/1	1/3	1/1	1/1	1/1
30	Sodium hydroxide	40%	20 °C/50 °C	1/1	1/1	1/1	1/1	1/1
31	Ozone	Gaseous	20 °C/50 °C	4/4	3/4	3/4	3/4	3/4
32	Propanol	Technically pure	20 °C/50 °C	1/1	1/1	1/1	1/1	2/2
33	Propane (liquefied gas)	Fluid	20 °C/50 °C	1/1	1/1	1/0	1/0	1/0
34	Propene	96%	20 °C/50 °C	1/0	1/1	1/0	1/0	1/0
35	Rape oil (RME)	Commercial	20 °C/50 °C	1/1	2/2 (*)	1/1	1/1	1/1
36	Hydrochloric acid	Aqueous, 10%	20 °C/50 °C	4/4	1/1	4/4	4/4	3/3
37	Lubricating oils with HD or with EP additive	Commercial	20 °C/50 °C	1/1	1/2	1/1	1/1	1/1
38	Sulphuric acid	Aqueous, 10%	20 °C/50 °C	4/4	1/2	3/3	3/3	2/2
39	De-icing salt (solutions)	Saturated	20 °C/50 °C	1/2	1/1	1/1	1/1	1/1
40	Soap suds	Solution, diluted	20 °C/50 °C	1/1	2/2 (*)	1/1	1/1	1/1
41	Water (drinking, river, sea)	Technically pure	20 °C/50 °C	1/1	1/1	1/1	1/1	1/1
42	Citric acid	10%	20 °C/50 °C	2/4	1/1	1/0	1/0	1/0

(*) Moisture expansion

Abbreviations:

POM = Acetalcopolymerisat

PP = Polypropylen

PA = Polyamide

0 = No statement available / no declaration possible

1 = Very stable / applicable

(Change in dimensions: none or negligible and reversible; no damage also after long periods of time)

2 = Very stable / applicable

(Change in dimensions: none or negligible and reversible after a short period of time; slightly changed dimensions, possibly irreversible changes in the material characteristics after a longer period of time)

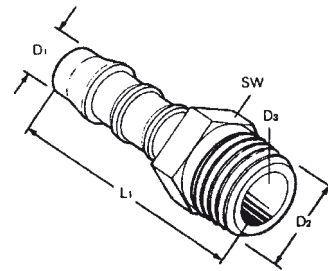
3 = Conditionally applicable

(Change in dimensions: considerable changes; possibly irreversible changes in the material characteristics after a longer period of time)

4 = Not stable / not applicable

(soluble or extremely affected after a short period of time)

PLAST – Taper thread connectors



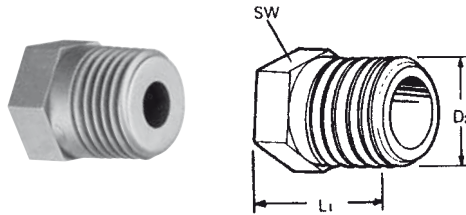
GES

Straight taper thread connectors

Description	D1	D2	D3	L1 ~	SW	Material
GES 3 / M 5	3	M 5	2.5	19.5	6	Polyamide
GES 4 / M 8 x 1	4	M 8 x 1 keg	2.5	27	10	Polyamide
GES 4 / M 8 x 1.25	4	M 8 x 1.25 keg	2.5	27	10	Polyamide
GES 4 / M 10 x 1	4	M 10 x 1 keg	2.5	27	10	Polyamide
GES 4 / M 12 x 1.5	4	M 12 x 1.5 keg	2.5	32	14	Polyamide
GES 4 / M 14 x 1.5	4	M 14 x 1.5 keg	2.5	32	14	Polyamide
GES4/R 1/8	4	R 1/8 keg	2.5	27	10	Polyamide
GES4/R 1/4	4	R 1/4 keg	2.5	32	14	Polyamide
GES4/ 1/8 NPT	4	1/8 NPT	2.5	29	10	Polyamide
GES4/ 1/4 NPT	4	1/4 NPT	2.5	35	14	Polyamide
GES 5 / M 12 x 1.5	5	M 12 x 1.5 keg	3	36	14	Polyamide
GES 5 / M 14 x 1.5	5	M 14 x 1.5 keg	3	36	14	Polyamide
GES5/R 1/4	5	R 1/4 keg	3	36	14	Polyamide
GES5/R 1/4 NPT	5	1/4 NPT	3	39	14	Polyamide
GES 6 / M 10 x 1	6	M 10 x 1 keg	4	32.5	10	Polyamide
GES 6 / M 12 x 1.5	6	M 12 x 1.5 keg	4	37.5	14	Polyamide
GES 6 / M 14 x 1.5	6	M 14 x 1.5 keg	4	36.5	14	Polyamide
GES6/R 1/8	6	R 1/8 keg	4	32.5	10	Polyamide
GES6/R 1/4	6	R 1/4 keg	4	37.5	14	Polyamide
GES6/R 3/8	6	R 3/8 keg	4	39	17	Polyamide
GES6/ 1/8 NPT	6	1/8 NPT	4	34.5	10	Polyamide
GES6/ 1/4 NPT	6	1/4 NPT	4	40.5	14	Polyamide
GES 8 / M 10 x 1	8	M 10 x 1 keg	5.6	38	14	Polyamide
GES 8 / M 12 x 1.5	8	M 12 x 1.5 keg	5.6	41	14	Polyamide
GES 8 / M 14 x 1.5	8	M 14 x 1.5 keg	5.6	41	14	Polyamide
GES 8 / M 18 x 1.5	8	M 18 x 1.5 keg	5.6	49	22	Polyamide
GES 8 / M 22 x 1.5	8	M 22 x 1.5 keg	5.6	49	22	Polyamide
GES8/R 1/8	8	R 1/8 keg	5.6	38	14	Polyamide
GES8/R 1/4	8	R 1/4 keg	5.6	41	14	Polyamide
GES8/R 3/8	8	R 3/8 keg	5.6	41	17	Polyamide
GES8/R 1/2	8	R 1/2 keg	5.6	49	22	Polyamide
GES8/ 1/4 NPT	8	1/4 NPT	5.6	44	14	Polyamide
GES 10 / M 12 x 1.5	10	M 12 x 1.5 keg	7	43.5	14	Polyamide
GES 10 / M 14 x 1.5	10	M 14 x 1.5 keg	7	43.5	14	Polyamide
GES 10 / M 16 x 1.5	10	M 16 x 1.5 keg	7	43.5	17	Polyamide
GES 10 / R 1/4	10	R 1/4 keg	7	43.5	14	Polyamide
GES 10 / R 3/8	10	R 3/8 keg	7	43.5	17	Polyamide
GES 10 / 1/4 NPT	10	1/4 NPT	7	46.5	14	Polyamide
GES 10 / 3/8 NPT	10	3/8 NPT	7	46.5	17	Polyamide
GES 12 / M 16 x 1.5	12	M 16 x 1.5 keg	8.6	45.5	17	Polyamide
GES 12 / M 18 x 1.5	12	M 18 x 1.5 keg	8.6	54	22	Polyamide
GES 12 / M 22 x 1.5	12	M 22 x 1.5 keg	8.6	54	22	Polyamide
GES 12 / R 3/8	12	R 3/8 keg	8.6	45.5	17	Polyamide
GES 12 / R 1/2	12	R 1/2 keg	8.6	54	22	Polyamide
GES 12 / 3/8 NPT	12	3/8 NPT	8.6	48	17	Polyamide
GES 14 / M 20 x 1.5	14	M 20 x 1.5 keg	10	56	22	Polyamide
GES 14 / M 22 x 1.5	14	M 22 x 1.5 keg	10	56	22	Polyamide
GES 14 / R 3/8	14	R 3/8 keg	10	56	17	Polyamide
GES 14 / R 1/2	14	R 1/2 keg	10	56	22	Polyamide
GES 14 / R 1/2 NPT	14	1/2 NPT	10	56	22	Polyamide
GES 16 / M 26 x 1.5	16	M 26 x 1.5 keg	12	58	27	Polyamide
GES 16 / R 1/2	16	R 1/2 keg	12	58	22	Polyamide
GES 16 / R 3/4	16	R 3/4 keg	12	58	27	Polyamide
GES 19 / M 26 x 1.5	19	M 26 x 1.5 keg	15	58	27	Polyamide
GES 19 / R 3/4	19	R 3/4 keg	15	58	27	Polyamide
GES 25 / R 1	25	R 1 keg	21	69	32	Polyamide

All dimensions in mm.

PLAST – Taper thread connectors

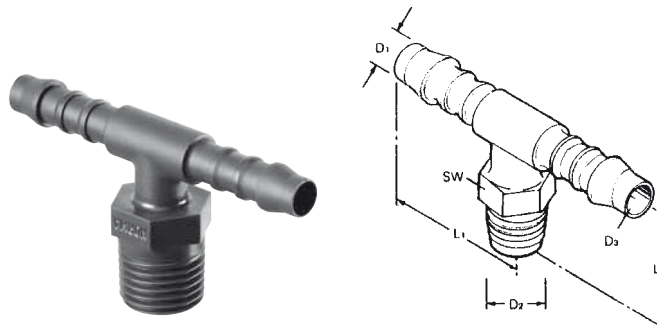


BST

Blanking plugs with screw-in thread

Description	D2	L1 ~	SW	Material
BST M 8 x 1	M 8 x 1 keg	13	10	Polyamide
BST M 10 x 1	M 10 x 1 keg	13.5	10	Polyamide
BST M 12 x 1.5	M 12 x 1.5 keg	17.5	14	Polyamide
BST M 14 x 1.5	M 14 x 1.5 keg	17.5	14	Polyamide
BST M 18 x 1.5	M 18 x 1.5 keg	26.5	22	Polyamide
BST M 20 x 1.5	M 20 x 1.5 keg	25	22	Polyamide
BST M 22 x 1.5	M 22 x 1.5 keg	26.5	22	Polyamide
BST M 26 x 1.5	M 26 x 1.5 keg	26	22	Polyamide
BST R 1/8	R 1/8 keg	12.5	10	Polyamide
BST R 1/4	R 1/4 keg	17.5	14	Polyamide
BST R 3/8	R 3/8 keg	27	17	Polyamide
BST R 1/2	R 1/2 keg	27.5	22	Polyamide
BST 1/8 NPT	1/8 NPT	14	10	Polyamide
BST 1/4 NPT	1/4 NPT	20.5	14	Polyamide

All dimensions in mm.



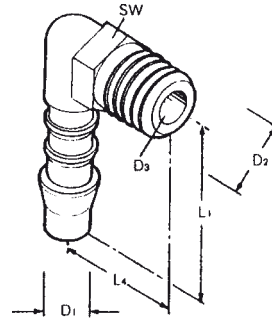
TES

T-taper thread connectors

Description	D1	D2	D3	L1 ~	L4 ~	SW	Material
TES 4 / M 8 x 1	4	M 8 x 1 keg	2.5	21	18	10	Polyamide
TES 4 / M 10 x 1	4	M 10 x 1 keg	2.5	21	18	10	Polyamide
TES 4 / M 12 x 1.5	4	M 12 x 1.5 keg	2.9	21	23	14	Polyamide
TES 4 / R 1/8	4	R 1/8 keg	2.5	21	18	10	Polyamide
TES 4 / R 1/4	4	R 1/4 keg	2.5	21	23	14	Polyamide
TES 4 / 1/8 NPT	4	1/8 NPT	2.5	21	20	10	Polyamide
TES 4 / 1/4 NPT	4	1/4 NPT	2.5	21	26	14	Polyamide
TES 6 / M 10 x 1	6	M 10 x 1 keg	4	28.5	21	10	Polyamide
TES 6 / M 12 x 1.5	6	M 12 x 1.5 keg	4	28.5	26	14	Polyamide
TES 6 / R 1/8	6	R 1/8 keg	4	28.5	21	10	Polyamide
TES 6 / R 1/4	6	R 1/4 keg	4	28.5	26	14	Polyamide
TES 6 / 1/8 NPT	6	1/8 NPT	4	28.5	23	10	Polyamide
TES 6 / 1/4 NPT	6	1/4 NPT	4	28.5	29	14	Polyamide
TES 8 / M 12 x 1.5	8	M 12 x 1.5 keg	5.6	33	27.5	14	Polyamide
TES 8 / M 14 x 1.5	8	M 14 x 1.5 keg	5.6	33	27.5	14	Polyamide
TES 8 / R 1/4	8	R 1/4 keg	5.6	33	27.5	14	Polyamide
TES 8 / 1/4 NPT	8	1/4 NPT	5.6	33	30.5	14	Polyamide
TES 10 / R 3/8	10	R 3/8 keg	7	35.5	30	17	Polyamide

All dimensions in mm.

PLAST – Taper thread connectors



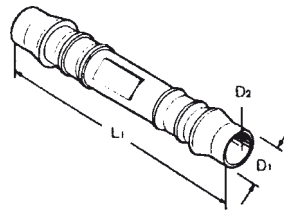
WES

Elbow taper thread connectors

Description	D1	D2	D3	L1 ~	L4 ~	SW	Material
WES 3 / M 5	3	M 5 keg	2.5	12.5	12.5	6	Polyamide
WES 4 / M 8 x 1	4	M 8 x 1 keg	2.7	21	16	10	Polyamide
WES 4 / M 10 x 1	4	M 10 x 1 keg	2.7	21	16	10	Polyamide
WES 4 / M 12 x 1.5	4	M 12 x 1.5 keg	2.7	21	25	14	Polyamide
WES 4 / M 14 x 1.5	4	M 14 x 1.5 keg	2.7	21	25	14	Polyamide
WES 4 / R 1/8	4	R 1/8 keg	2.7	21	16	10	Polyamide
WES 4 / R 1/4	4	R 1/4 keg	2.7	21	25	14	Polyamide
WES 4 / 1/8 NPT	4	1/8 NPT	2.7	21	18	10	Polyamide
WES 4 / 1/4 NPT	4	1/4 NPT	2.7	21	28	14	Polyamide
WES 6 / M 10 x 1	6	M 10 x 1 keg	4	28.5	21	10	Polyamide
WES 6 / M 12 x 1.5	6	M 12 x 1.5 keg	4	28.5	26	14	Polyamide
WES 6 / R 1/8	6	R 1/8 keg	4	28.5	21	10	Polyamide
WES 6 / R 1/4	6	R 1/4 keg	4	28.5	26	14	Polyamide
WES 6 / R 3/8	6	R 3/8 keg	4	28.5	27	17	Polyamide
WES 6 / 1/8 NPT	6	1/8 NPT	4	28.5	23	10	Polyamide
WES 6 / 1/4 NPT	6	1/4 NPT	4	28.5	29	14	Polyamide
WES 8 / M 10 x 1	8	M 10 x 1 keg	5.6	33	23.5	14	Polyamide
WES 8 / M 12 x 1.5	8	M 12 x 1.5 keg	5.6	33	27.5	14	Polyamide
WES 8 / M 14 x 1.5	8	M 14 x 1.5 keg	5.6	33	27.5	14	Polyamide
WES 8 / M 16 x 1.5	8	M 16 x 1.5 keg	5.6	36	27.5	17	Polyamide
WES 8 / M 18 x 1.5	8	M 18 x 1.5 keg	5.6	36	36	19	Polyamide
WES 8 / M 22 x 1.5	8	M 22 x 1.5 keg	5.6	36	36	22	Polyamide
WES 8 / R 1/8	8	R 1/8 keg	5.6	33	23	14	Polyamide
WES 8 / R 1/4	8	R 1/4 keg	5.6	33	27.5	14	Polyamide
WES 8 / R 3/8	8	R 3/8 keg	5.6	36	31	17	Polyamide
WES 8 / R 1/2	8	R 1/2 keg	5.6	36	36	22	Polyamide
WES 8 / 1/4 NPT	8	1/4 NPT	5.6	33	30.5	14	Polyamide
WES 10 / M 14 x 1.5	10	M 14 x 1.5 keg	7	38	30	14	Polyamide
WES 10 / R 1/4	10	R 1/4 keg	7	38	30	14	Polyamide
WES 10 / R 3/8	10	R 3/8 keg	7	38	30	17	Polyamide
WES 10 / 1/2 NPT	10	1/2 NPT	7	38	38	22	Polyamide
WES 12 / M 16 x 1.5	12	M 16 x 1.5 keg	8.6	40.5	30	17	Polyamide
WES 12 / M 18 x 1.5	12	M 18 x 1.5 keg	8.6	40.5	36	19	Polyamide
WES 12 / M 22 x 1.5	12	M 22 x 1.5 keg	8.6	40.5	36	22	Polyamide
WES 12 / M 26 x 1.5	12	M 26 x 1.5 keg	8.6	40.5	36	22	Polyamide
WES 12 / R 3/8	12	R 3/8 keg	8.6	40.5	31	17	Polyamide
WES 12 / R 1/2	12	R 1/2 keg	8.6	40.5	36	22	Polyamide
WES 12 / 3/8 NPT	12	3/8 NPT	8.6	40.5	31	19	Polyamide
WES 19 / M 24 x 2	19	M 24 x 2 keg	15	45	42.8	27	Polyamide
WES 19 / R 3/4	19	R 3/4 keg	15	45.5	42.8	27	Polyamide
WES 25 / R 1	25	R 1 keg	21	60	49	32	Polyamide

All dimensions in mm.

PLAST – Push–on connectors

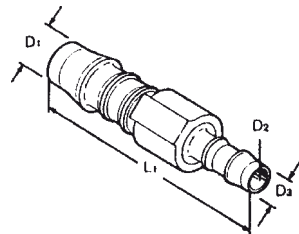


GS

Straight push–on connectors

Description	D1	D2	L1 ~	Material
GS 3	3	2.5	25	Acetalcopolymerisat (POM)
GS 4	4	2.7	35	Acetalcopolymerisat (POM)
GS 5	5	3	45	Acetalcopolymerisat (POM)
GS 6	6	4	49	Acetalcopolymerisat (POM)
GS 8	8	5.6	56	Acetalcopolymerisat (POM)
GS 10	10	7	63	Acetalcopolymerisat (POM)
GS 12	12	8.6	66.5	Acetalcopolymerisat (POM)
GS 13	13	8.6	73	Acetalcopolymerisat (POM)
GS 14	14	10	79	Acetalcopolymerisat (POM)
GS 16	16	12	75	Acetalcopolymerisat (POM)
GS 19	19	15	76	Acetalcopolymerisat (POM)
GS 25	25	21	95	Acetalcopolymerisat (POM)

All dimensions in mm.

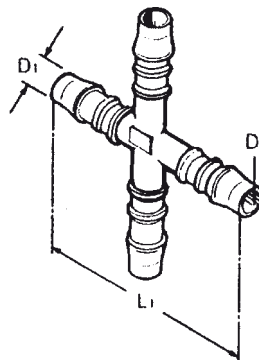


GRS

Reducing straight push–on connectors

Description	D1	D2	D3	L1 ~	Material
GRS 4–3	4	2.5	3	30	Acetalcopolymerisat (POM)
GRS 5–4	5	2.7	3	41	Acetalcopolymerisat (POM)
GRS 6–4	6	2.7	4	42.5	Acetalcopolymerisat (POM)
GRS 8–4	8	2.7	4	48	Acetalcopolymerisat (POM)
GRS 8–6	8	4	6	54	Acetalcopolymerisat (POM)
GRS 10–6	10	4	6	58	Acetalcopolymerisat (POM)
GRS 10–8	10	5.6	8	60.5	Acetalcopolymerisat (POM)
GRS 12–8	12	5.6	8	62.5	Acetalcopolymerisat (POM)
GRS 12–10	12	7	10	64	Acetalcopolymerisat (POM)

All dimensions in mm.



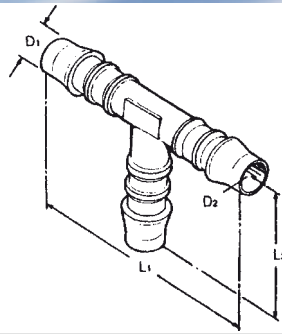
KS

Cross push–on connectors

Description	D1	D2	L1 ~	Material
KS 4	4	2.9	39	Acetalcopolymerisat (POM)
KS 5	5	3	48	Acetalcopolymerisat (POM)
KS 6	6	4	48	Acetalcopolymerisat (POM)
KS 12	12	8.6	69	Acetalcopolymerisat (POM)

All dimensions in mm.

PLAST – Push-on connectors

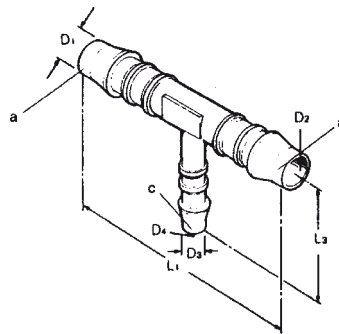


TS

Equal T push-on connectors

Description	D1	D2	L1 ~	L3 ~	Material
TS 3	3	2.5	25	12.5	Acetalcopolymerisat (POM)
TS 4	4	2.7	35	19.5	Acetalcopolymerisat (POM)
TS 5	5	3	42	22	Acetalcopolymerisat (POM)
TS 6	6	4	50	26	Acetalcopolymerisat (POM)
TS 7	7	5	50	26	Acetalcopolymerisat (POM)
TS 8	8	5.6	58	30	Acetalcopolymerisat (POM)
TS 10	10	7	62.5	33.5	Acetalcopolymerisat (POM)
TS 12	12	8.6	69	36	Acetalcopolymerisat (POM)
TS 13	13	8.6	68	36	Acetalcopolymerisat (POM)
TS 14	14	10	77.5	41.5	Acetalcopolymerisat (POM)
TS 15	15	11	79.5	43.5	Acetalcopolymerisat (POM)
TS 16	16	12	81	45	Acetalcopolymerisat (POM)
TS 19	19	15	85	45	Acetalcopolymerisat (POM)
TS 25	25	21	105	52.5	Acetalcopolymerisat (POM)

All dimensions in mm.



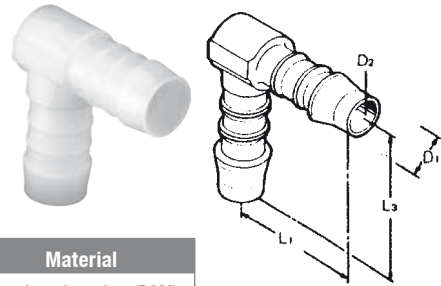
TRS

Reducing T push-on connectors

Description	D1	D2	D3	D4	L1 ~	L4 ~	Material
TRS 3 –4 –3	3	2.5	4	2.5	25	17.5	Acetalcopolymerisat (POM)
TRS 4 –6 –4	4	2.7	6	4	37	24	Acetalcopolymerisat (POM)
TRS 6 –4 –6	6	4	4	2.5	49	20.5	Acetalcopolymerisat (POM)
TRS 8 –4 –8	8	5.6	4	2.5	56	22	Acetalcopolymerisat (POM)
TRS 8 –6 –8	8	5.6	6	4	56	28	Acetalcopolymerisat (POM)
TRS 8 –12 –8	8	5.6	12	8.6	57	34	Acetalcopolymerisat (POM)
TRS 10 –6 –10	10	7	6	4	62	28	Acetalcopolymerisat (POM)
TRS 10 –8 –10	10	7	8	5.6	62	31	Acetalcopolymerisat (POM)
TRS 10 –13 –10	10	7	13	8.6	64	38	Acetalcopolymerisat (POM)
TRS 12 –6 –12	12	8.6	6	4	69	29	Acetalcopolymerisat (POM)
TRS 12 –8 –12	12	8.6	8	5.6	69	31	Acetalcopolymerisat (POM)
TRS 12 –10 –12	12	8.6	10	7	69	33	Acetalcopolymerisat (POM)
TRS 15 –6 –15	15	11	6	4	78	28	Acetalcopolymerisat (POM)
TRS 15 –8 –15	15	11	8	5.6	79	33	Acetalcopolymerisat (POM)
TRS 18 –10 –18	18	14	10	7	79	36	Acetalcopolymerisat (POM)
TRS 18 –15 –18	18	14	15	11	80	44	Acetalcopolymerisat (POM)

All dimensions in mm.

PLAST – Push-on connectors

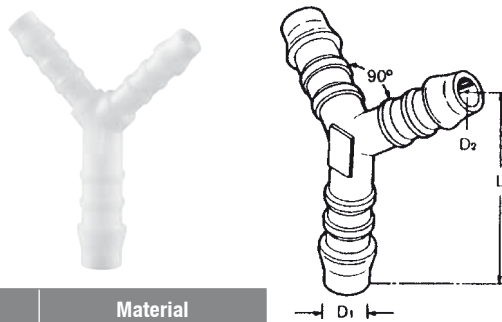


WS

Elbow push-on connectors

Description	D1	D2	L1 ~	L3 ~	Material
WS 3	3	2.5	12.5	12.5	Acetalcopolymerisat (POM)
WS 4	4	2.5	17.5	19.5	Acetalcopolymerisat (POM)
WS 5	5	3	21	22	Acetalcopolymerisat (POM)
WS 6	6	4	25	26	Acetalcopolymerisat (POM)
WS 8	8	5.6	29	30	Acetalcopolymerisat (POM)
WS 10	10	7	31	33.5	Acetalcopolymerisat (POM)
WS 12	12	8.6	34.5	36	Acetalcopolymerisat (POM)
WS 13	13	8.6	36.5	38.5	Acetalcopolymerisat (POM)
WS 14	14	10	38.5	41.5	Acetalcopolymerisat (POM)
WS 15	15	11	40	43.5	Acetalcopolymerisat (POM)
WS 16	16	12	40.5	45	Acetalcopolymerisat (POM)
WS 19	19	15	43.5	46	Acetalcopolymerisat (POM)
WS 25	25	21	52.5	52.5	Acetalcopolymerisat (POM)

All dimensions in mm.

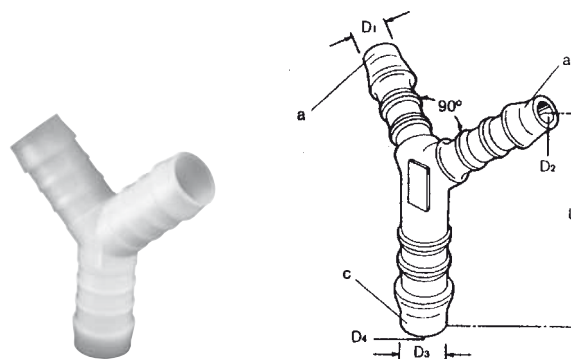


YS

Equal Y push-on connectors

Description	D1	D2	L1 ~	Material
YS 3	3	2.5	21	Acetalcopolymerisat (POM)
YS 4	4	2.5	25.5	Acetalcopolymerisat (POM)
YS 5	5	3	43	Acetalcopolymerisat (POM)
YS 6	6	4	44	Acetalcopolymerisat (POM)
YS 8	8	5.6	51	Acetalcopolymerisat (POM)
YS 10	10	7	54	Acetalcopolymerisat (POM)
YS 12	12	8.6	64	Acetalcopolymerisat (POM)
YS 13	13	9	65	Acetalcopolymerisat (POM)
YS 14	14	10	65	Acetalcopolymerisat (POM)
YS 16	16	12	67	Acetalcopolymerisat (POM)
YS 19	19	15	72	Acetalcopolymerisat (POM)

All dimensions in mm.



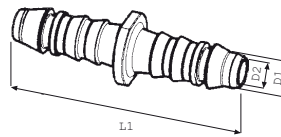
YRS

Reducing Y push-on connectors

Description	D1	D2	D3	D4	L1 ~	Material
YRS 4 –6 –4	4	2.7	6	4	35	Acetalcopolymerisat (POM)
YRS 6 –8 –6	6	4	8	5.6	49	Acetalcopolymerisat (POM)

All dimensions in mm.

PLAST – Push-on connectors

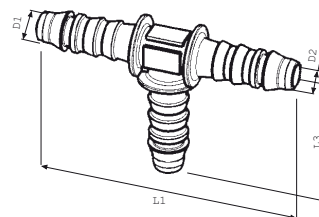


GN

Straight plastic pipe connectors

Description	D1	D2	L1 ~	Material
GN 6	6.4	4.75	45	Polyamide 6 or 12; 30% GF*
GN 8	9.2	6.8	46	Polyamide 6 or 12; 30% GF*
GN 10	11	8	46	Polyamide 6 or 12; 30% GF*
GN 15	16.9	12	32	Polyamide 6 or 12; 30% GF*
GN 19	21	16	39	Polyamide 6 or 12; 30% GF*
GN 27	29	24	42	Polyamide 6 or 12; 30% GF*

All dimensions in mm.
* GF = glass fibre content

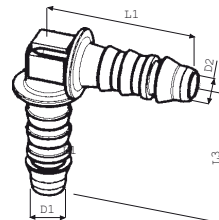


TN

T plastic pipe connectors

Description	D1	D2	L1 ~	L3 ~	Material
TN 6	6.4	4.75	66	28	Polyamide 6 or 12; 30% GF*
TN 8	9.2	6.8	58	29	Polyamide 6 or 12; 30% GF*
TN 10	11	8	60	30	Polyamide 6 or 12; 30% GF*
TN 15	16.4	12	72	36	Polyamide 6 or 12; 30% GF*
TN 19	18.9	16	65	32.5	Polyamide 6 or 12; 30% GF*

All dimensions in mm.
* GF = glass fibre content

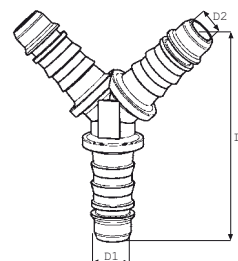


WN

Elbow plastic pipe connectors

Description	D1	D2	L1 ~	L3 ~	Material
WN 6	6.4	4.75	28	28	Polyamide 6 or 12; 30% GF*
WN 8	9.2	6.8	29	29	Polyamide 6 or 12; 30% GF*
WN 10	11	8	30	30	Polyamide 6 or 12; 30% GF*
WN 19	18.9	16	32	32	Polyamide 6 or 12; 30% GF*

All dimensions in mm.
* GF = glass fibre content



YN

Y plastic pipe connectors

Description	D1	D2	L1 ~	Material
YN 8	8.4	5.8	50.5	Polyamide 6 or 12; 30% GF*

All dimensions in mm.
* GF = glass fibre content

The Customer in focus



NORMA Sweden AB's factory in Anderstorp

Quality in products and services

As a customer of ABA premium hose and pipe clamping and connecting products, you will always enjoy:

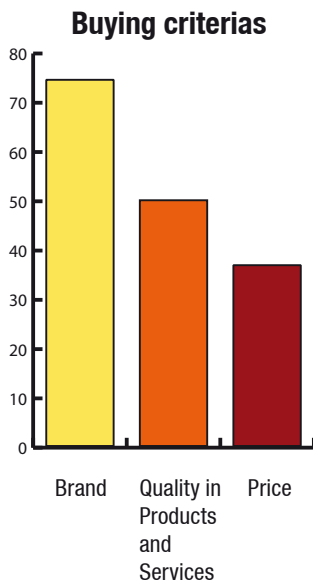
- First-class products produced in plants certified to TS 16949:2000. The best steel qualities enable stable processes and provide a high and even product quality.
- Continuous improvement to always exceed the demands of our SS2298 standard. This assures you of products with a high break torque combined with a high clamping force around the hose. ABA Safeseal Technology – our guarantee to you.
- The ABA Original product line. Clamps without welded or riveted housings. Instead, just one purpose-made tube pressed to its final shape in a precision process. All bands have embossed threads that allow a flat band underside to tightly fit against the hose wall.
- Prompt and secure delivery of all our products in this catalogue. Essential in today's industrial sector.
- Technical advice for a variety of applications such as drainage waste water pipes, freshwater pipes, fuel lines, water and air hoses, etc. We also provide you with test data using your own tubes or hoses – free of charge!
- Our products are produced in plants certified to ISO14001 and made entirely with recyclable materials.
- Packaging with a solid design made to satisfy different customer needs.
- Highly-appreciated merchandisers used all over the world as efficient sales tools.
- A wide variety of sales promotion materials and product training for our Distributors.



All summarised in three letters – ABA.

A recent Market Survey confirmed that our customers value the ABA brand and what it stands for very highly. Interviewees rated the ABA brand name as the most important buying criterion, closely followed by the quality of products and services. Product price came third – being important as well.

Our aim is to put our customer first – to continue to develop our product range with improved solutions and services so that we will then always be your first choice!



Welcome to us!

Notes



Notes





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