

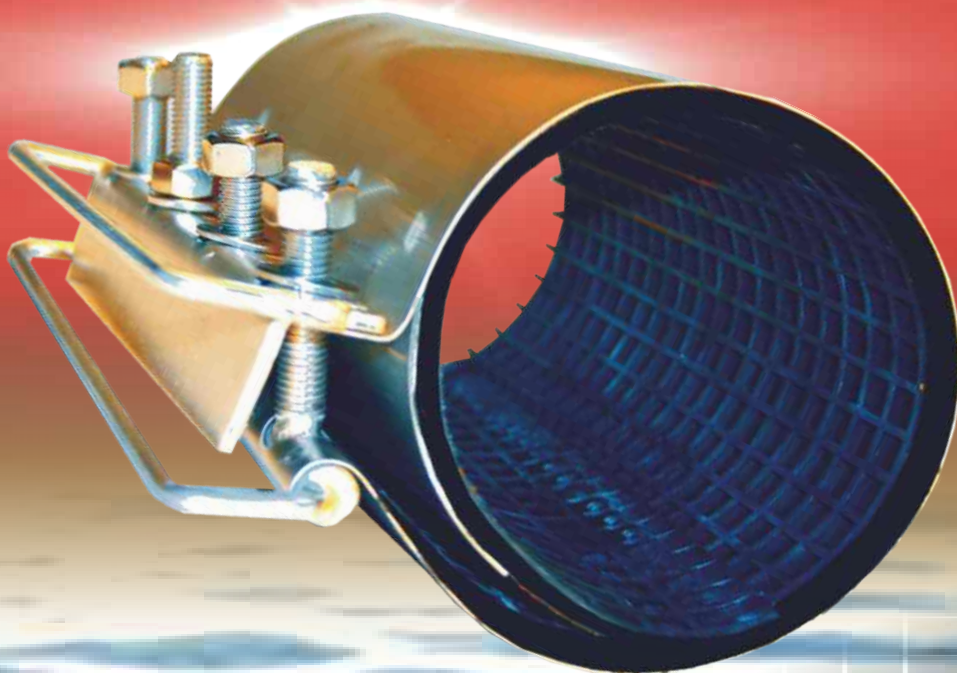
LESCH
HORN

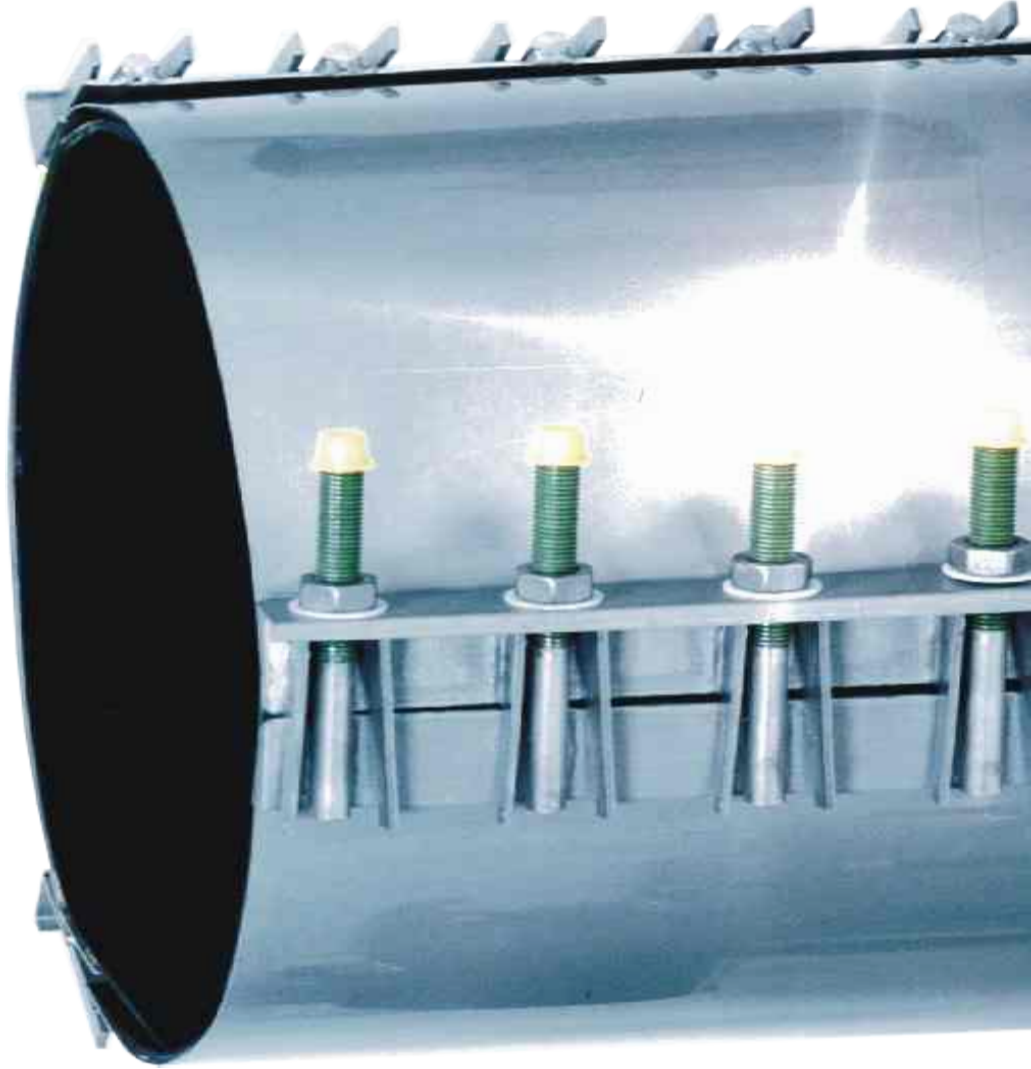
...seit 1919

industrial technology

repair clamps

...for pipes





about us...

More than 88 years experience form the base for a very qualified customer service, to be able to fulfil requirements.

Leschhorn has been a familiar concept for constructors & buyers, in many areas of the industry for decades. Leschhorn offers a wide spectrum. Standardization, industry- and measuring-technique, moreover special constructions. A broad assortment and well-known business connections confirm our potential.



Exhibition on fair for repair clamps

Impressum...

Leschhorn GmbH & Co. KG
Schlitzer Str. 6
D-60386 Frankfurt / Main
GERMANY

Tel. 0049 (0) 69 / 42 09 76-0
Fax 0049 (0) 69 / 41 92 38
eMail: info@leschhorn.de

Application & general description

Feature and benefits...

<p>1. Universal use</p> <ul style="list-style-type: none"> • suitable for any pipe material • compatible with any traditional jointing system • joins pipes of the same or dissimilar materials • suitable for pressure, vacuum, or suction lines • leakproof joint, due to the pressure responsive gasket • quick and simple repairs to existing pipe lines • installation and sealing principle consistent throughout the range 	<p>2. Economical</p> <ul style="list-style-type: none"> • pre-assembled, stab-fit design ensures simple, rapid installation • for use on plain-end pipes without the need for costly pipe end preparation • simply cut pipes to length, center coupling and tighten bolts • suitable for thick or thin wall pipes • no special installation tools required
<p>3. Reliable</p> <ul style="list-style-type: none"> • stress-free, flexible pipe joint • compensates for axial movement and angular deflection • pressure-resistant and leak-proof even with inaccurate pipe assembly • dampens water-hammer, vibration and structure-borne noise 	<p>4. Easy handling</p> <ul style="list-style-type: none"> • detachable and reusable, maintenance free • eases pipe alignment problems • simple and quick to install, reduces installation costs • no heat or fire hazard, can be fitted in fire risk or confined spaces without special equipment or permits
<p>5. Space-saving</p> <ul style="list-style-type: none"> • compact design, saves spaces and allows pipes to be compactly installed • allows the use of low profile pipe insulation • can be accessed in confined areas, coupling can be rotated to provide ease of access to bolts • low weight 	<p>6. Durable</p> <ul style="list-style-type: none"> • progressive sealing effect, higher pressure reinforce the seal • axial restraint versions available, prevents pipe pull-out • corrosion resistant, all stainless steel construction • good resistance to temperature and chemicals

Application...

<ul style="list-style-type: none"> • building construction and underground engineering • sanitary pipeline • fuel pipeline • water and gas supply • water pipeline • gas pipeline • hydrant pipeline • power station 	<ul style="list-style-type: none"> • transformer pipeline • frigid pipeline • machinery and equipment • upstream pipeline • lubricate pipeline • offshore • fuel pipeline • fire protection pipeline • ventilation pipeline 	<ul style="list-style-type: none"> • mining • drainage pipeline • exhaust pipeline • pressure pipeline • disposal • slurry pipeline • ventilation pipeline • drainage pipeline • turbine pipeline
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No matter where you apply the repair clamps, e.g. in the field of waste disposal, supply with gas and water, in the industrial plumbing field or in a power plant or ship-building area: **The Leschhorn Repairclamp-Program serves you** with the utmost solution in repairing thin and thick wall pipes and joins almost all pipes of the same or dissimilar materials. No other technique of tube connection offers so many **measurable advantages: Security, durability, economical** in installation and operation as well as universal use and operation.

The ready to build in coupling can get **installed without using heavy equipment**. Time consuming preparations belong to the past. The compact Leschhorn-Repairclamp -Program guarantees an unobjectable assembly even in places that are hard to reach and with a maximum allowable angular deflection of only up to 2°. The equally mounted sealing sleeve around the pipe only gets minimal stressed in the elastical area and guarantees a leakproof sealing.



Type LS-1-H

One band clamp. This clamp is suitable for permanent repairs. Up to a pipe diameter of 107 mm is a tolerance in height of 7 mm; pipes above Ø 107 with tolerance 10 mm.

available lengths: 250 - 600 mm
(larger lengths on enquiry)



no. 22223

order example

22223.H-108-118 / 250

Ø pipe outside	108-118
face to face	250
length	
type	H

pipe outside Ø [mm]			
82 - 89	132 - 142	193 - 203	270 - 280
87 - 94	135 - 145	200 - 210	280 - 291
91 - 98	145 - 155	209 - 220	294 - 305
95 - 102	151 - 161	215 - 225	300 - 310
102 - 112	159 - 170	222 - 233	310 - 320
108 - 118	165 - 175	228 - 240	315 - 325
113 - 123	170 - 180	239 - 250	320 - 330
118 - 128	176 - 186	243 - 254	325 - 335
120 - 131	180 - 191	252 - 263	340 - 350
125 - 135	186 - 196	261 - 271	350 - 360

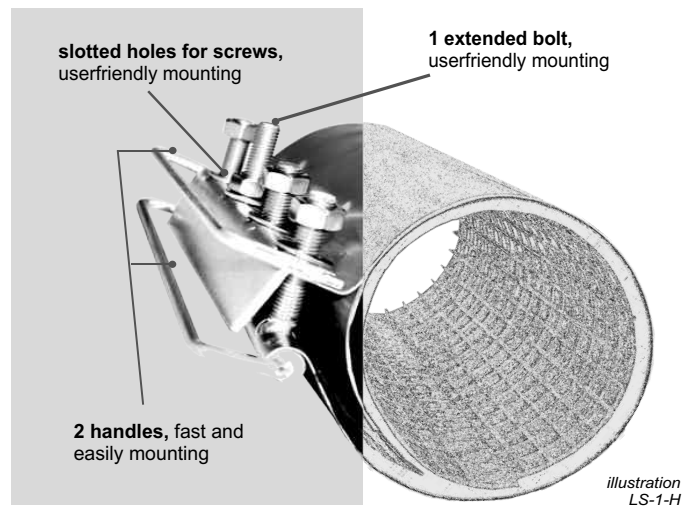
Example:

A clamp with 108-118 x 250 accommodates on outside pipe-Ø from 108 up to 118 mm, hereby a face to face length in height of 250 mm. Application areas as well on PVC-pipes NW 100 (110 mm), steel-pipes NW 100 (108-114,3 mm) and cast pipes NW 100 (118 mm) under a maximum of water pressure up to 16 bar and a gas pressure up to 6

maximum operating pressure: Ø 54-190 mm, 16 bar / Ø 191-492 mm, 10 bar

Mounting advantages in practice

Double handle construction reduces mounting time and realises a skilled mounting



Repair clamp in detail

Convincing: construction & material

The repairclamps of the "type LS1H" designed newly stand out to userfriendly details. At the bolt girder the middle bolt is extended, with that a fast fixing of the clamp is possible and at the assembly there is no injury danger, all edges are rounded. Attaching a second handle to the bolt girder serves for the considerably easier assembly, these clamps can be put together by an employee alone.

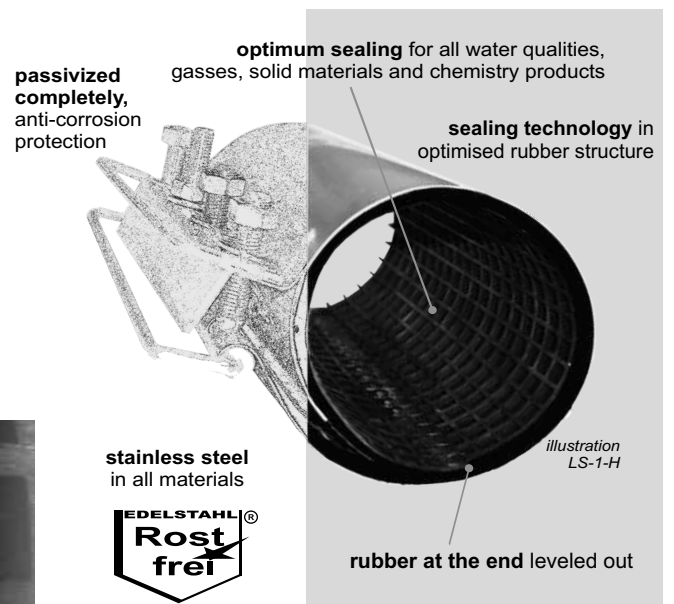
All metal parts and screws are made of stainless steel 1.4301, on request for an extra charge in 1.4435 (A4) available. The nuts are DIN 934 CuNi60 against the galling of bolts and nuts.

The nuts are deliverably also in material 1.4301 or in 1.4435, on request. The greatest corrosion resistance is ensured optimal through anti-corrosion protection by complete passivize.

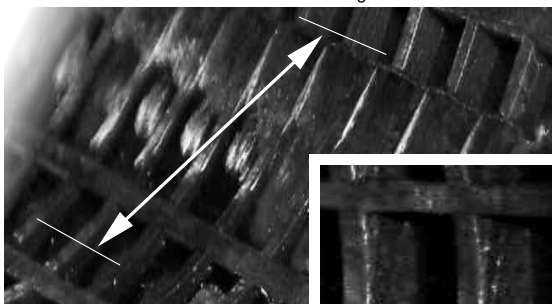
The rubber seal is in DVGW standard W270 and KTW-recommendation, suitably for all water qualities, gasses, sediments and chemistry products, constructed with a grid and leveled off at the ends. Thereby the rubber seal is fixed in evenly and a faultless seal is ensured with the additional stainless-steel girder. The direction of rotation for the right placement at the assembly is indicated by a directional arrow on the sheet metal. A faultless seal and even tonicity is therefore ensured.

Optimum sealing in place of action

Uniform sealing technology in rubber structure



rubber at the end leveled out for radial sealing

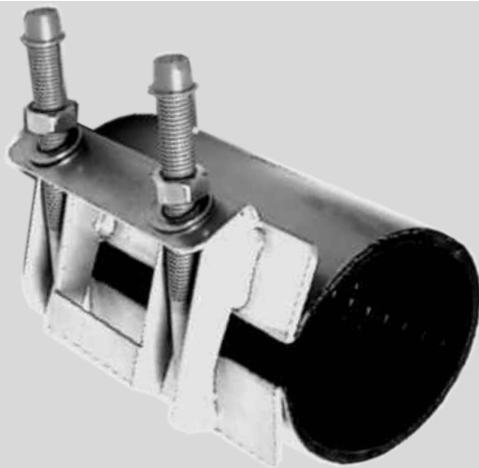


evenly sealing, cause rubber with grid structure



stainless steel in all materials





Type LS 1

This one band clamp is made out of one piece and without any loose parts.

Available for pipes up to diameter of 107 with a working range of 7 mm, pipes more than 107 in diameter have a working range of 10 mm.

Example: A one band clamp has a working range of 10 mm, e.g. outside diameter of 120 -130 mm.
(With an outside diameter bigger than 100 mm in diameter.)

(Some of the pipe outside Ø are not available in all face to face lengths***.)

pipe outside Ø [mm]

48 - 52	106 - 116	167 - 177	228 - 239	290 - 300
54 - 58	108 - 118	170 - 180	230 - 240	300 - 310
60 - 67	113 - 123	174 - 184	237 - 247	310 - 320
67 - 74	118 - 128	176 - 186	239 - 249	315 - 325
70 - 77	120 - 131	180 - 191	243 - 254	320 - 330
73 - 80	125 - 135	186 - 196	250 - 260	325 - 335
76 - 83	132 - 142	193 - 203	252 - 263	340 - 350
82 - 89	135 - 145	200 - 210	261 - 271	350 - 360
87 - 94	145 - 155	209 - 220	266 - 276	
91 - 98	151 - 161	215 - 225	270 - 280	
95 - 102	159 - 170	219 - 229	273 - 283	
102 - 112	165 - 175	222 - 233	280 - 291	



no. 22 117
up to
no. 22 260

order example

22220.108-118/200

range 108-118
face to face length 200

Deliverable face to face lengths:

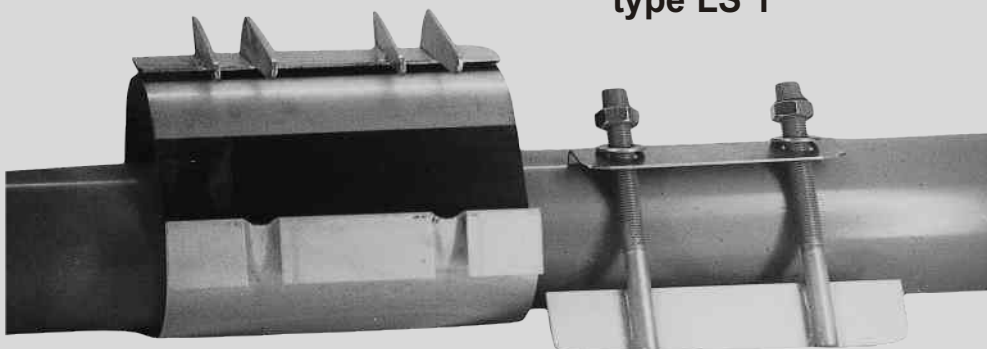
100 mm = article no. 22 118
150 mm = article no. 22 117
200 mm = article no. 22 220
250 mm = article no. 22 223
300 mm = article no. 22 230
400 mm = article no. 22 240
500 mm = article no. 22 250
600 mm = article no. 22 260

Example:

Above described clamp in the size of 108 - 118 x 200 fits all pipe outside diameter between 108 and 118 mm and has the face to face length of 200 mm. The clamp is suitable for pvc- pipes with NW (nominal width) of 100 (110 mm). Steel pipe NW 100 (108 and 114,3 mm) and cast iron pipe NW 100 (118 mm) with a maximum water pressure up to 16 bar and a gas pressure up to 6 bar.

EPDM

Type LS 1 Spezial pipe-Ø outside according to type LS 1



This clamp was especially developed to repair...

...pipes for long distance heating
(gasket EPDM 130° C).

This clamp is a two part band clamp. In spots where pipes are closely together and other type models can not be used, this particular clamp will be needed.



no. 22 222

order example

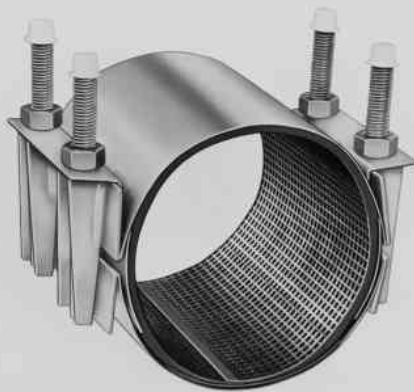
22222.108-118/200

range 108-118
face to face length 200

This clamp can be compared...

...with type LS 1

Price will be based on LS 1, including additional 15% for special design.



Type LS 2

This clamp is made out of 2 parts with a working range of about 20 mm.

Face to face length***:

You can chose in sizes of face to face length between 200 mm up to 600 mm.

- 200 mm = article no. 22 320
- 250 mm = article no. 22 325
- 300 mm = article no. 22 330
- 400 mm = article no. 22 340
- 500 mm = article no. 22 350
- 600 mm = article no. 22 360

◀ no. 22 320
up to
◀ no. 22 360

order example

22320.108-128/200

range 108-128
face to face length 200



stainless steel

(Some of the pipe outside Ø are not available in all face to face lengths***.)

pipe outside Ø [mm]

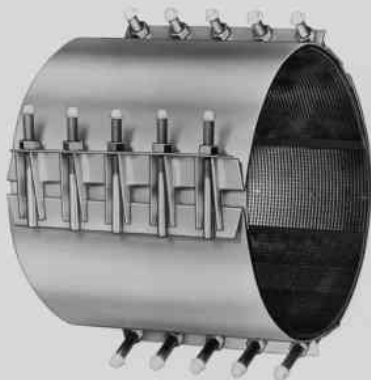
88 - 110	159 - 180	216 - 238	315 - 335	420 - 440
100 - 120	165 - 185	225 - 246	322 - 344	435 - 455
108 - 128	168 - 189	240 - 260	337 - 358	450 - 470
114 - 134	170 - 190	250 - 270	347 - 367	468 - 488
120 - 140	176 - 196	269 - 289	365 - 385	
130 - 150	190 - 210	273 - 293	382 - 402	
135 - 155	195 - 217	282 - 302	396 - 420	
140 - 160	210 - 230	295 - 315	410 - 430	

Example:

A repair clamp in size of 210 - 230 x 300 fits on all outside diameter pipes between 210 and 230 mm and has a face to face length of 300 mm.

This clamp can be used on AZ (asbestos pipe)- pipes NW 175 class 10 and 12 with a max. water pressure of 16 bar and a gas pressure of 6 bar.

Type LS 3



This is a three band clamp with a working range of 30 mm.

Face to face length***:

You can chose in sizes of face to face length between 300 mm up to 1000 mm.

- 300 mm = article no. 22 430
- 400 mm = article no. 22 440
- 500 mm = article no. 22 450
- 600 mm = article no. 22 460
- >1000 mm = article no. according made to specifications

◀ no. 22 430
up to
◀ no. 22 460

order example

22430.270-300/300

range 270-300
face to face length 300



stainless steel

(Some of the pipe outside Ø are not available in all face to face lengths***.)

pipe outside Ø [mm]

270 - 300	400 - 430	608 - 638	815 - 855	1.220 - 1.300
310 - 340	440 - 470	685 - 715	820 - 870	1.320 - 1.410
340 - 370	475 - 505	710 - 750	900 - 950	1.400 - 1.490
350 - 380	530 - 560	775 - 815	1.000 - 1.060	
395 - 425	570 - 600	800 - 840	1.120 - 1.190	

Example:

Described clamp from 340 - 370 x 400 is suitable for all pipe outside diameter between 340 and 370 mm and has a face to face length of 400 mm.

This clamp can be used on steel pipes NW 350 (355,6), AZ (asbestos pipe)-pipes NW 300 class 10 and 12 with a maximum water pressure up to 10 bar and a gas pressure of 6 bar.



Type LSA

available as LS 1, LS 2 and LS 3

Construction characteristics similar as standard types.

The tee is made of stainless steel (1.4301), WIG welded.

Hereby it is possible to drill in pipes under pressure.

(LS 1 = article no. 22610)
 (LS 2 = article no. 22620)
 (LS 3 = article no. 22630)

◀ no. 22 610

◀ no. 22 620

◀ no. 22 630

order example
 22610.108-118/200/ 1/2

type	LS-1
range	108-118
face to face length	200
tee	1/2"



stainless steel

screw tee		
1/2"	1 1/4"	2 1/2"
3/4"	1 1/2"	3"
1"	2"	4"

Type SST

(LS 2 = article no. 22660)
 (LS 3 = article no. 22670)



stainless steel tapping sleeve

advantages of these clamps are:

- this clamp has a working range of 10 mm and therefore useable to different asbestos pipes or cast pipes
- this clamp is for easy installation
- clamp has an upper body and is reinforced to accommodate the installation of valves and there is no problem with drilling holes in pipes
- this clamp is totally made out of passivated stainless steel, material no.14301
- because of the special construction it is the lightest two band clamp of all
- the all around sealing guarantees a reinforcement of pipes compared with the flange tee.

◀ no. 22 660

◀ no. 22 670

order example
 22660.114.3/300/DN80

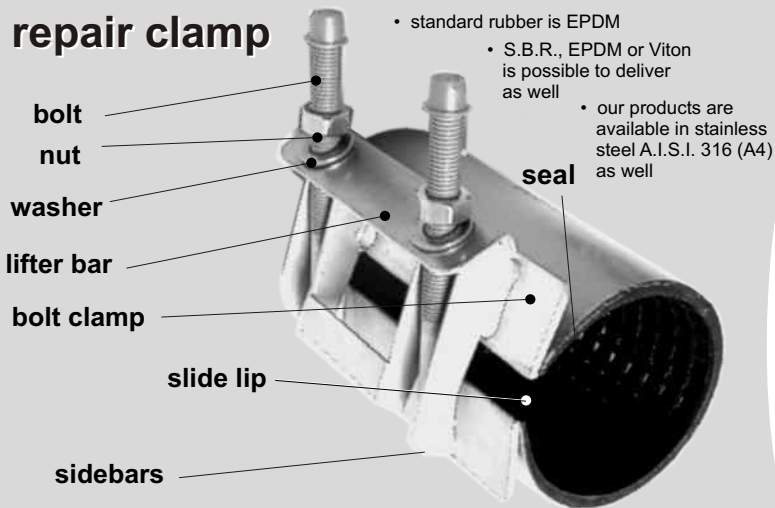
type	LS-2
outside diameter of pipe	114,3
face to face length	300
flange tee	DN 80

clamp: Ø-outside [mm]
94 - 104
105 - 115
108 - 118
120 - 130
135 - 145
155 - 165
210 - 220
240 - 250
270 - 280
294 - 304
310 - 320
337 - 347
358 - 368
405 - 415
445 - 455
495 - 505
540 - 550
630 - 640
676 - 686

flange tee DN	inch	face to face length [minimum]	A	B	bolt
50	2	300	120	63	6
65	2 1/2	300			
80	3	300	100	88,9	6- 8
100	4	400	100	114,3	8-10
125	5	400			
150	6	400	130	168,3	8-10
200	8	500	140	219,1	10-14
250	10	600			
300	12	700			

With flange tee you can choose from 50 in diameter up to the maximum of outside diameter of pipes.

repair clamp



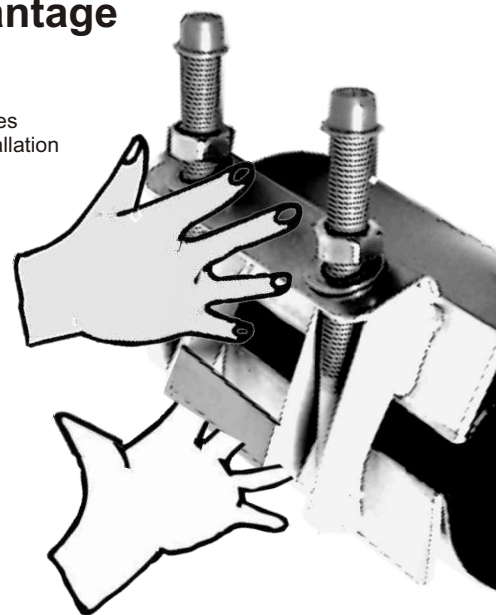
- standard rubber is EPDM
- S.B.R., EPDM or Viton is possible to deliver as well
- our products are available in stainless steel A.I.S.I. 316 (A4) as well

Mounting... ...advantage

caused in
2 grab handles
user-friendly installation



stainless steel

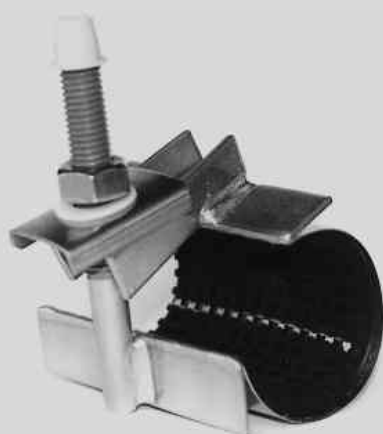


Important evidence: In using on PE-pipes a reinforcing ring is necessary.

Advantages...

...and description of repair clamp's

- All metal parts of repair clamps are made of stainless steel, material 1.4301.
- All band sections are welded to a high performance closing mechanism, fully passivated for high corrosion resistance.
- The clamps are WIG welded together with the sidebars.
- The bolt clamps and bolts are mig welded together with the sidebars.
- Bolts are coated with a PTFE (Teflon) coating to prevent galling. The thread is 1/2" UNC or 5/8" UNC rolled.
- Beneath the bolt there is a (FOP) delrin-washer in order to prevent galling and to function as a torque indicator.
- The tapered gasket has a grid (waffle pattern) and the bridge plate is vulcanised into the gasket for high sealing performance. The rubber gasket is treated with the material of antioxidant / antiozonant in order to prolong the duration of life of gasket.
- Between pipe and slide lip a rubber seal was equally installed. A hermetic sealing and uniformly distributed clamping force is thereby guaranteed.



Type LSO

One band clamp. This clamp is suitable for permanent repairs of holes in diameter of 1/2" up to 2" pipes.

Delivery of sizes: 1/2" - 3/4" - 1" - 1 1/4" - 1 1/2" - 2"

Face to face length is 100 / 150 / 200 mm.
This type of clamp completes the following

face to face length 100 mm = article no. 22 110
face to face length 150 mm = article no. 22 111
face to face length 200 mm = article no. 22 114

◀ no. 22 110

◀ no. 22 111

◀ no. 22 114

order example
22110.19-22 / 100

range 19-22

Face to face length 100

Ø-outside [mm]	inch
19 - 22	1/2
22 - 25	
26 - 29	3/4
32 - 35	1
37 - 41	
41 - 45	1 1/4
45 - 50	

Ø-outside [mm]	inch
48 - 53	1 1/2
53 - 57	
57 - 62	2
60 - 65	
75 - 82	2 1/2
85 - 92	3



stainless steel

Notice the following helpful hints

clamp length...

- A** The face to face length of the clamp should be at least equal to the pipe outside diameter.
- B** The width of the clamp should be 150 mm greater than the face to face length of a crack on pipes with outside diameters up to 350 mm; on larger pipes at least 200 mm.
- C** The maximum allowable distance between two pipe ends should not exceed 15 mm.
- D** The maximum allowable angular deflection is 2°.
- E** The maximum allowable offset is 3 mm.
- F** When other problems occur, please do not hesitate to contact us.

bolt thread...

1/2" UNC thread will be used up to a pipe outside diameter of NW 150 - over that use a 5/8" thread. The distance between bolts is up to 250 mm: for 100 mm and more use 75 mm in diameter.

rubber gasket...

These clamps are deliverable and come with:

► Standards...

...according to standards **NBR (Nitril-Butadien)** synthetic caoutchouc made for excellent durability towards fuel, hydrocarbons, mineral oils, grease, vegetable and animal containing fats and oils, light fuel oil, Diesel-fuel, none organic acid founded on less concentration and temperature.

Temperature - 50° C up to + 130° C

► Special design...

...**EPDM**, synthetic caoutchouc made for excellent stability towards weather, aging and ozone, is resistant to chemicals, acid and lyes, has also a high durability in temperature and is resistant against hot water as well as steam and lyes.

Temperature - 50° C up to + 130° C

► VITON (FPM)...

This type of synthetic caoutchouc has the highest resistancy against fuel, oil, fat contents of ozone, is also weather and chemical resistant and is against aliphate, aromas and chlorine hydrocarbons.

**Temperature for short-term - 60° C up to + 200° C
up to + 230° C**

Orders & technical data

If you like to order...



Please pay attention to the following points, in case of place an order:

1. Please state the type of clamp you want to order for example:
Type LS 1 (one band clamp)
2. Please state and measure the length or state the pipe outside diameter and the material for example: type 108 - 118 mm pipe outside diameter 110 mm steel pipe
3. Please inform us about the length of clamp for example: face to face length 200 mm
4. If possible please state working pressure, temperature and medium for example: 16 bar pressure, 8° C water



Order example:

- *X pieces LS 1* - *type 108 - 118*
 - *steel pipe*
 - *face to face length 200*
 - *16 bar pressure*

Working range (WR*)...

clamps type LS 1	Ø 57 up to 107	*WR: 7 mm
	Ø 108 and bigger	*WR: 10 mm
clamps type LS 2	Ø 90 and bigger	*WR: 20 mm
clamps type LS 3	Ø 280 and bigger	*WR: 30 mm

Pressure...

The pressure, for which the clamp can be used, will vary with the type of clamp, diameter of pipe, medium, etc. Use the following table as guide (recommended maximum pressure, in bars, under ideal circumstances):

pipe Ø-outside [mm] type LS 1	pressure for water	pressure for gas
60 - 89	up to 20 bar	up to 6 bar
90 - 142	16 bar	6 bar
143 - 271	10 bar	6 bar
272 - 366	8 bar	4 bar

pipe Ø-outside [mm] type LS 2	pressure for water	pressure for gas
88 - 271	up to 16 bar	up to 6 bar
272 - 364	16 bar	4 bar
365 - 545	10 bar	3 bar
546 - 632	6 bar	1 bar

Installation & mounting instructions

Mounting...



Step 1:

Screw back nuts till the end of threaded bolts

PLEASE DO NOT REMOVE NUTS

Open up clamp. Put clamp around the pipe so that it will fit on the right spot.



Step 2:

Press lifter bar on profile of bolt clamp.

An open space between the pipe will develop.

In order to guarantee tight fitting of sealing, pipe clamp should not be turned radial anymore.



Step 3:

Tie all screws equally. A wrench of at least 300 mm in length should be used.

The Delrin-washer (disc) will show the exact strain of bolts. The disc has to bend around the nut. A damaged disc has no

Important evidence...

Measure the pipe diameter and check for the right size of repair clamp!

Rules for precaution

1. Check the diameter and choose the right clamp.
2. Clean the pipe of dirt, best results with soapy water.
3. Check that no dirt or strange material is between pipe and clamp.
4. Check the torque and avoid using keys that are too short.
5. Do not use any oil or grease on nuts, bolts or rubber.
6. Check tightness of installed clamps on broken pipe.

Weight table for repair clamps (kg)

type LS 1

range [mm]	clamp width [mm]				
	200	300	400	500	600
60 - 80	1,9	2,3			
82 - 94	2,1	2,7			
95 - 116	2,2	3,2	4,1		
113 - 144	2,3	3,6	4,6	6,4	7,3
145 - 198	3,2	4,6	6,4	7,7	9,6
199 - 247	3,6	5,5	6,8	8,6	10,9
245 - 300	5	7,3	10,9	12,7	14,6
315 - 360	5,9	8,2	12,3	13,6	16,4

type LS 2

range [mm]	clamp width [mm]				
	200	300	400	500	600
89 - 160	4,6	8,2	11,8	14,5	17,3
162 - 192	5,9	8,4	12,7	15,9	19,1
210 - 246	6,8	9,6	13,6	17,3	20,9
270 - 310		10,5	14,6	18,6	22,7
323 - 368		11,4	15,5	20	24,6
381 - 425		12,3	16,4	21,4	26,8

type LS 3

range [mm]	clamp width [mm]			
	300	400	500	600
434 - 465	14,1	18,2	23,6	29,1
457 - 526	15,9	20	25,5	30,9
549 - 579	18,6	21,8	27,3	33,2
655 - 686	20,9	24,1	28,2	35,9