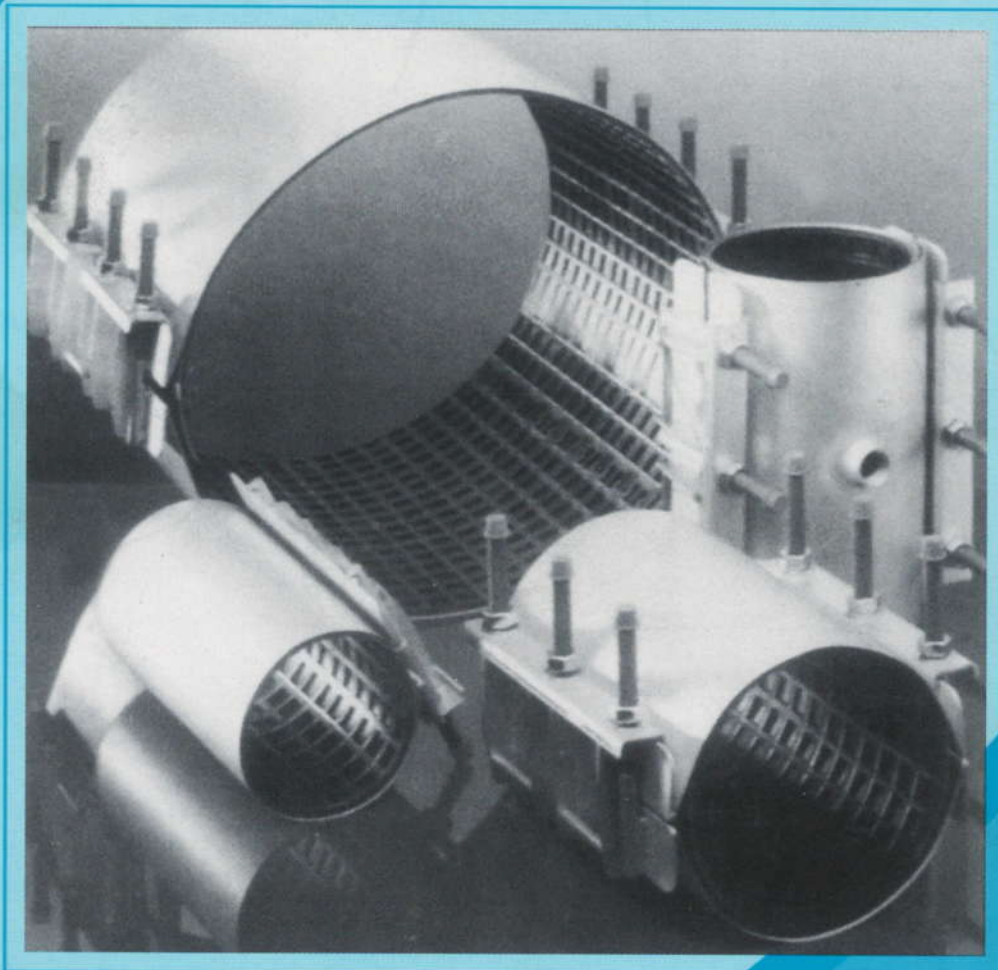


NMC

STAINLESS STEEL REPAIR CLAMP & SADDLE



nmc

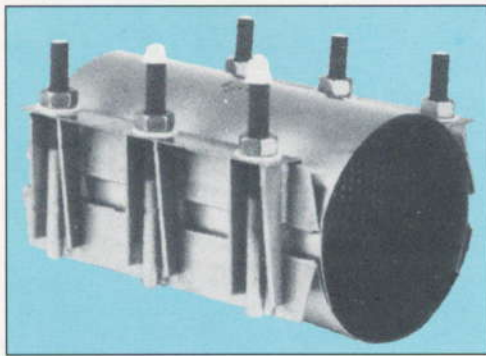
NANDA MANUFACTURING COMPANY

32A, Chittaranjan Avenue, Kolkata - 700 012

Phone : 2212 3530, 2212 3531, 2221 1783

Fax : 91 33 2212 2070 E-mail : nmc@nandagroup.com

Website : www.nandagroup.com



'NMC' SS REPAIR CLAMPS

'NMC' repair clamps are flexible clamps consisting of one or more stainless steel, rubber lined, band sections. They are used for a **quick, easy and permanent** repair of corroded, damaged or broken pipes.

They can be applied to Ductile Iron, Grey Cast Iron, Steel, AC and PVC pipes. The clamp contains no loose parts that may get lost during installation.

Material specification :

- A. Material Parts : stainless steel AISI 304 or AISI 316.
- B. All parts have been deburred and are passivated to return the corrosion resistance after the welding process to its original state.
- C. Repair clamps are available in Single or Multi Band, (SS-1-Range 11 mm SS-2 Range 22 mm SS-3 Range 33 mm).
- D. Rubber gaskets SBR/NBR/NITRILE/EPDM (other rubber types on request). The rubber is tapered and has a waffle pattern.
- E. The Band is TIG Welded to the sidebars, the lugs and Bolts are MIG Welded to the sidebars.
- F. Bridge plate is vulcanized into the rubber gasket.
- G. Keeper-Bar is provided with lip.
- H. Electro Zn Plated Nut or Teflon Coated Bolt are provided to prevent galling.
- I. FOP washers are provided to reduce friction between nut and keeper-Bar which also function as a torque indicator.
- J. No loose parts that may get lost during installation.
- K. No special tools required, a simple wrench will do the job.
- L. Special tape is used to fix the rubber gasket to the stainless steel band. The tape is flexible and reinforced with glassfiber thread to resist hot and humid climatological circumstances and guarantee a long storage capability.
- M. Under most circumstances the Clamps can be installed without releasing the pressure of the pipe.

Following damages can be repaired :



Pipe connection

Broken pipes

Longitudinal cracks

Damages due to hot tops

Misaligned pipes

Pin holes

1. Application :

- the width of the clamp should be at least equal to the pipe OD
- the width of the clamp should be 150 mm greater than the length of a crack on pipes with outside diameters up to 350 mm. On larger pipes at least 200 mm.
- the maximum allowable distance between two pipe ends should not exceed 10 mm
- the maximum allowable deflection is 2°
- the maximum allowable offset should not exceed 3 mm

2. Ranges :

Type	No. Of Bands	From OD Range	Up to OD Range	Tolerance
SS 0	1	19 - 23 mm	60 - 64 mm	4 mm
SS 1	1	48 - 55 mm	95 - 102 mm	7 mm
SS 1	1	98 - 108 mm	and above	11 mm
SS 2	2	88 - 108 mm	and above	22 mm
SS 3	3	250 - 280 mm	and above	33 mm

3. Pressure :

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

Type	Pipe OD in mm	for Water	for Gas
SS 0	All	6	1
SS 1	up to 89	20	6
	90-142	16	6
	143-271	10	6
	272-336	8	4
SS 2/3	up to 271	16	6
	272-364	16	4
	365-545	10	3
	546-632	6	1

Note : for higher pressure or other media please contact us

4. Bolts :

Bolts used are 1/2" or M14 rolled thread up to 175 mm OD size and M16 for larger size. The distance between the bolt centers up to 250 mm is 100 mm. for larger diameters this distance is 75 mm. On PVC pipe please use reduced torques.

Recommended Torques : 1/2" - 65 Nm
 14 mm - 85 Nm
 16 mm or 5/8" - 110 Nm

5. Nuts :

Heavy hexagonal nuts.

6. Rubber Gasket :

The 'NMC' Clamp can be supplied with following types of rubber :

Rubber	: SBR-S (50° Shore A)	NBR-S (50° Shore A)	EPDM (60° Shore A)
Temperature	: - 40° + 85° C	- 40° + 106° C	up to 140° C
Application	: (waste-) water, mild acids and alkali etc.	gas, water, oil and other chemicals	hot water / steam and several other chemicals

'NMC' SS-1 SINGLE BAND REPAIR CLAMPS

NOM PIPE SIZE	LENGTH AND APPROXIMATE SHIPPING WEIGHT						
	150 mm	200 mm	250 mm	300 mm	400 mm	500 mm	600 mm
mm	kg	kg	kg	kg	kg	kg	kg
048 - 052	1.4	1.5	2.1	2.2	2.8	3.8	4.5
054 - 058	1.4	1.6	2.2	2.3	3.0	4.0	4.6
060 - 067	1.4	1.6	2.3	2.4	3.0	4.2	5.6
067 - 074	1.5	1.7	2.4	2.5	3.2	4.4	5.8
070 - 077	1.5	1.7	2.4	2.5	3.3	4.4	5.9
073 - 080	1.5	1.7	2.4	2.5	3.3	4.4	5.9
076 - 083	1.5	1.8	2.4	2.6	3.4	4.4	6.0
082 - 089	1.5	1.8	2.5	2.7	3.5	4.6	6.2
087 - 094	1.6	1.9	2.6	2.8	3.6	4.8	6.4
089 - 098	1.6	1.9	2.6	2.8	3.6	5.0	6.4
095 - 102	1.8	2.1	3.0	3.2	4.2	6.0	6.4
102 - 112	1.8	2.2	3.0	3.3	4.4	6.0	6.6
106 - 116	1.8	2.2	3.0	3.3	4.4	6.0	6.6
113 - 123	1.8	2.2	3.0	3.3	4.4	6.0	6.6
118 - 128	1.9	2.2	3.0	3.3	4.5	6.2	6.6
120 - 131	2.0	2.3	3.2	3.5	4.6	6.4	7.0
125 - 135	2.0	2.4	3.2	3.9	4.8	6.4	7.2
132 - 142	2.2	2.6	3.5	3.9	5.2	7.0	7.8
135 - 145	2.2	2.6	3.5	3.9	5.2	7.0	7.8
145 - 155	2.2	2.6	3.6	4.0	5.2	7.2	7.8
151 - 161	2.3	2.7	3.7	4.1	5.4	7.4	8.2
159 - 170	2.3	2.8	3.8	4.3	5.4	7.6	8.6
165 - 175	2.3	2.8	3.8	4.3	5.4	7.6	8.6
167 - 177	2.4	2.9	3.9	4.4	5.8	7.8	8.8
170 - 180	2.4	2.9	3.9	4.4	5.8	7.8	8.8
174 - 184	2.5	2.9	3.9	4.4	5.8	7.8	8.8
176 - 186	2.5	2.9	3.9	4.4	5.9	7.9	8.9
180 - 191	2.5	3.0	4.0	4.5	6.0	8.0	9.0
189 - 200	2.6	3.1	4.1	4.6	6.1	8.2	9.2
193 - 203	2.6	3.1	4.1	4.6	6.1	8.2	9.2
200 - 210	2.6	3.1	4.2	4.6	6.2	8.4	9.2
209 - 220	2.6	3.2	4.3	4.8	6.4	8.6	9.6
215 - 225	2.7	3.3	4.5	5.0	6.6	9.0	10.0
219 - 229	2.7	3.3	4.5	5.0	6.7	9.1	10.1
222 - 233	2.7	3.3	4.5	5.0	6.7	9.1	10.1
228 - 239	2.8	3.4	4.6	5.1	6.8	9.2	10.2
230 - 240	2.8	3.4	4.6	5.1	6.8	9.2	10.2
237 - 247	2.9	3.4	4.7	5.1	6.8	9.4	10.2
239 - 249	2.9	3.4	4.7	5.2	6.9	9.5	10.4
243 - 254	2.9	3.5	4.8	5.3	7.0	9.6	10.6
261 - 271	3.0	3.7	5.1	5.7	7.5	10.0	11.3
No. Of Bolts	2	2	3	3	4	5	6

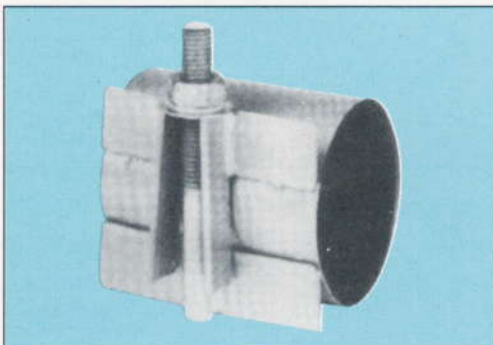
'NMC' SS-2 DOUBLE BAND REPAIR CLAMPS

NOM PIPE SIZE	LENGTH AND APPROXIMATE SHIPPING WEIGHT					
	200 mm	250 mm	300 mm	400 mm	500 mm	600 mm
mm	kg	kg	kg	kg	kg	kg
088 - 110	3.2	4.4	4.5	6.0	8.6	9.8
100 - 120	3.3	4.6	4.6	6.5	9.0	10.0
108 - 128	3.5	4.8	5.0	7.0	9.4	10.4
114 - 134	3.6	5.0	5.4	7.2	9.6	10.8
120 - 140	3.8	5.1	5.8	7.6	10.2	11.6
130 - 150	3.9	5.3	5.9	7.8	10.6	11.8
135 - 155	3.9	5.3	5.9	7.8	10.6	11.8
140 - 160	4.0	5.4	6.1	8.0	10.8	12.0
159 - 180	4.1	5.5	6.2	8.2	11.0	12.3
165 - 185	4.2	5.6	6.3	8.4	11.2	12.6
168 - 189	4.2	5.6	6.3	8.4	11.2	12.6
170 - 190	4.2	5.6	6.3	8.5	11.3	12.7
176 - 196	4.4	5.8	6.5	8.7	11.5	12.9
190 - 210	4.4	5.8	6.6	8.8	11.6	13.2
195 - 217	4.5	5.9	6.8	9.0	11.8	13.5
210 - 230	4.6	6.1	7.0	9.2	12.2	13.9
216 - 238	4.7	6.2	7.1	9.4	12.4	14.2
225 - 246	4.7	6.3	7.1	9.4	12.6	14.2
240 - 260	4.9	6.6	7.3	9.7	13.0	15.0
269 - 289	5.1	7.1	7.7	10.2	14.2	15.4
273 - 293	5.1	7.1	7.7	10.2	14.2	15.4
282 - 302	5.2	7.2	7.8	10.4	14.4	15.6
295 - 315	5.3	7.3	7.9	10.6	14.6	15.8
315 - 335	5.6	7.6	8.5	11.0	15.0	16.8
322 - 344	5.9	8.2	8.9	11.8	16.4	17.8
337 - 358	6.0	8.4	9.0	12.0	16.8	17.8
347 - 367	6.1	8.5	9.2	12.2	17.0	18.4
365 - 385	6.2	8.7	9.5	12.6	17.4	18.7
382 - 402	6.4	8.9	9.6	12.8	17.8	19.2
396 - 418	6.5	8.9	9.6	13.1	18.3	19.5
410 - 430	6.6	9.2	9.9	13.2	18.4	19.8
420 - 440	6.7	9.4	10.0	13.3	18.5	20.0
435 - 455	7.0	10.0	10.3	14.0	19.0	21.0
450 - 470	7.0	10.0	10.3	14.0	19.0	21.0
	2 Bolts	3 Bolts	3 Bolts	4 Bolts	5 Bolts	6 Bolts

'NMC' SS-3 TRIPLE BAND REPAIR CLAMPS

NOM PIPE SIZE	LENGTH AND APPROXIMATE SHIPPING WEIGHT					
	200 mm	250 m	300 mm	400 mm	500 mm	600 mm
mm	kg	kg	kg	kg	kg	kg
270 - 300	7.2	9.5	10.8	14.3	19.0	21.5
310 - 340	7.7	10.0	11.5	15.3	21.1	23.0
340 - 370	8.2	10.7	12.3	16.4	21.3	24.6
395 - 425	8.6	10.9	12.4	16.5	22.5	24.8
440 - 470	9.2	11.9	13.7	18.3	23.7	27.5
475 - 505	10.3	13.1	15.0	20.0	26.3	30.0
530 - 560	11.4	14.8	17.2	22.5	29.1	34.0
570 - 600	12.0	15.4	18.0	24.0	31.0	36.0
610 - 640	12.4	16.0	19.0	25.0	32.0	37.2
685 - 715	13.5	17.2	20.2	26.8	34.1	40.0
715 - 745	14.0	18.0	21.2	28.0	36.2	42.7
785 - 815	15.2	19.0	22.5	30.0	38.5	45.0
	2 Bolts	3 Bolts	3 Bolts	4 Bolts	5 Bolts	6 Bolts

STAINLESS STEEL REPAIR CLAMP



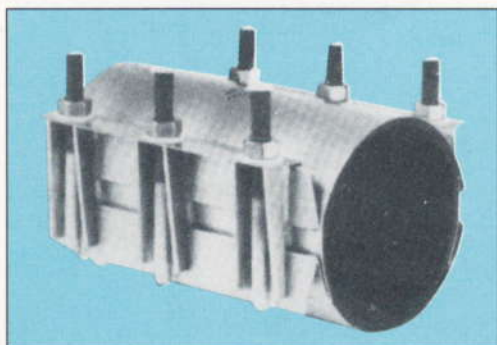
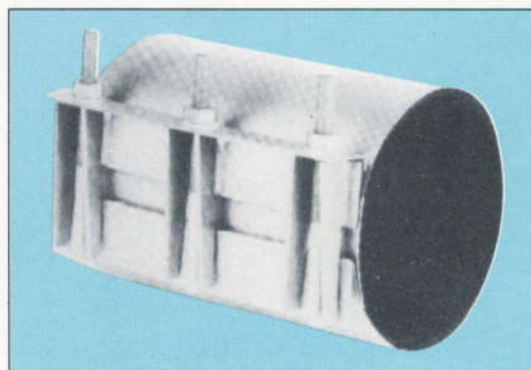
NMC STYLE SS-0

SS-0 is a one band clamp
The gasket is not tapered
It is used to repair broken pipes permanently
Range ½" up to 2" nominal
The working range is 4 mm
The standard width of the clamp is 100 mm

NMC STYLE SS-1

SS-1 is a one band clamp
Its outside diameter range is 7 mm on clamps up to the range 95-102 mm and 11 mm on larger sizes
The smallest available size is 48-55 mm

The clamp is available in a width of 150-200-250-300 and 400 mm



NMC STYLE SS-2

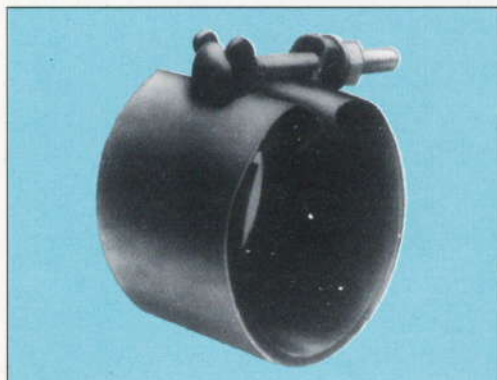
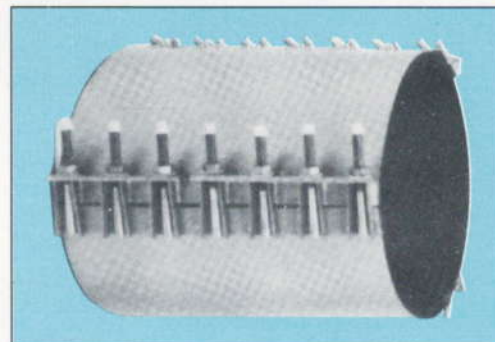
SS-2 is a two band clamp
Its outside diameter range is at least 22 mm

It is available starting with range 88-110 mm and a width of 150-200-250-300-400-500 and 600 mm

NMC STYLE SS-3

SS-3 is a three band clamp
Its outside diameter has a range of at least 33 mm

It is available starting with range 250-283 mm and a width of 300-400-500 and 600 mm

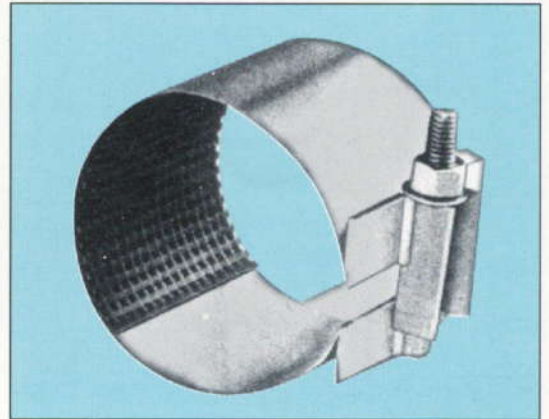


NMC STYLE SNAP CLAMP

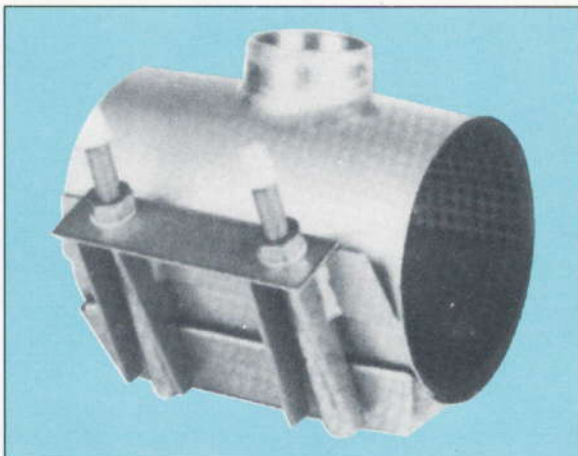
The Snapclamp is for the repair of small holes in pipes
The band is made of stainless steel
The lugs are made of MCI/DI and are Epoxy painted
Bolts and nuts are made of galvanised mild steel
The gasket is waffled nitrile rubber (NBR) and partially covers the inside of the clamp
Snap clamps are available in OD ranges 21 mm up to 324 mm and widths usually 75, 150 and 225 mm

NMC STYLE SS-C

This clamp specially designed for the permanent repair of small holls. It is a often use for repair of ships the gasket partially covers the inside of the clamp
It is available in the OD ranges 21 mm up to 219 mm and width 100, 150, 200, 250 and 300 mm for large diameters use style SS-CC (not illustrated)
This model is similar to Style SS-C bur has two bands
It is available from OD 219 mm.



STAINLESS STEEL TAPPING CLAMP



NMC STYLE SS-A1 (with outlet)

Style SS-A1 has the same basic design as the standard NMC repairclamp SS-1, but with outlet
It is also possible to provide an outlet on the standard clamps SS-2 (NMC style SS-A2) and SS-3 (style SS-A3)

The standard taps are threaded according to BSP. Other Type of Threading available on request.

- 1/2" - available on all diameters
- 3/4" - available on all diameters
- 1" - available on all diameters
- 1 1/4" - available from Ø 60 mm OD
- 1 1/2" - available from Ø 60 mm OD
width should be at least 200 mm
- 2" - available from Ø 70 mm OD
width should be at least 200 mm

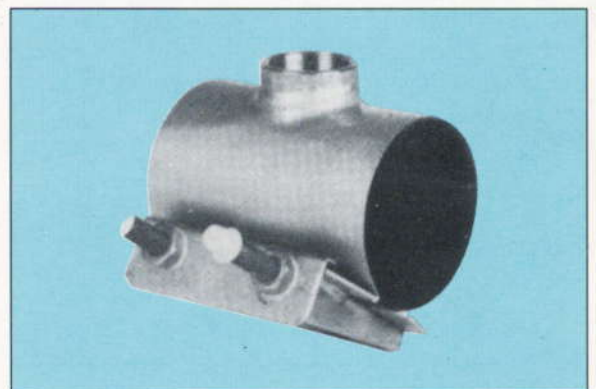
NMC STYLE SS-CA (with outlet)

This clamp is specially designed for PVC pipes
It can be used on 2" pipe (60 mm OD) up to 300 mm

The outlets are according to BSP

- 1/2" - available on all diameters
- 3/4" - available on all diameters
- 1" - available on all diameters
- 1 1/4" - available from Ø 60 mm OD
- 1 1/2" - available from Ø 60 mm OD
width should be at least 200 mm
- 2" - available from Ø 70 mm OD
width should be at least 200 mm

For larger diameters use style SS-CCA (not illustrated)
This model is similar to style SS-CA but has 2 bands
It can be supplied from OD 219 mm



NMC TAPPING SADDLE

NMC STAINLESS STEEL SADDLE

The NMC all stainless steel saddle is made of 18.8 type AISI 304 stainless steel. On request, stainless steel type AISI 316 is also available. After welding, the saddle is fully passivated, returning the stainless steel to its original high corrosion resistance and appearance. The NMC saddle consists of the following parts.



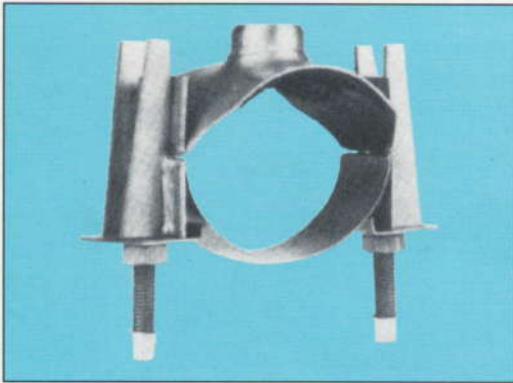
NMC DUCTILE / MCI SERVICE SADDLE

The NMC ductile / MCI saddle is made of ductile (nodular) iron, ASTM A 536 grade or MCI-A-47

The illustrated saddle is NMC Style 101 S, with a stainless steel strap.

Available sizes for stainless steel and ductile/MCI saddles

Nominal OD	Ranges	Nominal OD	Ranges	Nominal OD	Ranges
2"	68 - 78	6"	158 - 184	12"	300 - 330
3"	88 - 110	-	165 - 190		310 - 340
4"	104 - 130	7"	190 - 218		315 - 345
	108 - 134	8"	216 - 244		325 - 355
	114 - 137	9"	230 - 260		335 - 365
5"	128 - 154	10"	267 - 298		380 - 410
	138 - 160		280 - 310		



Pad

The pad is made for heavy stainless steel in following size :

- width 100 mm for tap size up to 1¹/₄"
- width 100 mm for tap size 1¹/₂" & 2"

The length is 200 mm except in case the OD is smaller than size 128-154.

Large taps require longer pads.

Straps

On tap sizes up to 2", the NMC saddle is provided with one strap made of 50 mm wide heavy stainless steel.

A two strap construction is available on request, but if requested, a rubber inlay in the strap is available.

Outlet

The stainless steel threaded outlet are available in every required size. The outlet is welded in the pad on both sides avoiding a "Chamber" instead of an outlet with inside thread, the pad can be provided with a nipple with outlet thread, a plain ended nipple or a flange.

Gasket

The gasket is made of NBR Rubber. The gasket consists of a specially grooved rubber fitting around the branch, which is embedded into a rubber mat covering the inside of the pad.

Bolts

The 1/2" UNC bolts, are welded to the pad and the threads are Teflon coated to prevent galling. The nuts are oversized and have a F.O.P. washer. The design of heavy lugs, combined with the bolts, enables the saddle to be used on a pipe outside diameter range of 26 mm. Bolt direction standard as in picture.

Besides the illustrated Style 101 S, of which the body is painted. NMC can supply the following other styles :

- | | | | |
|--------------------|--|--------------------|--|
| Style 101 | - Painted saddle with mild steel U - bolts | Style 202 S | - Painted saddle with 2 stainless steel Straps |
| Style 101 N | - Rilsan / Epoxy powder coated saddle with 2 stainless steel Straps. | Style 202 N | - Rilsan / Epoxy powder coated saddle with 2 stainless steel Straps. |
| Style 202 | - Painted saddle with 2 mild steel U - bolts | | |