



Security and safety in application – by design

## **NORMACLAMP®** – Hose Clamps

The NORMACLAMP® range provides the optimum sealing solution for all applications. The range varies from standard products with or without constant tension spring to special usage clips and heavy duty clamps.



# Clamping Force

## NORMACLAMP® – Hose Clamps

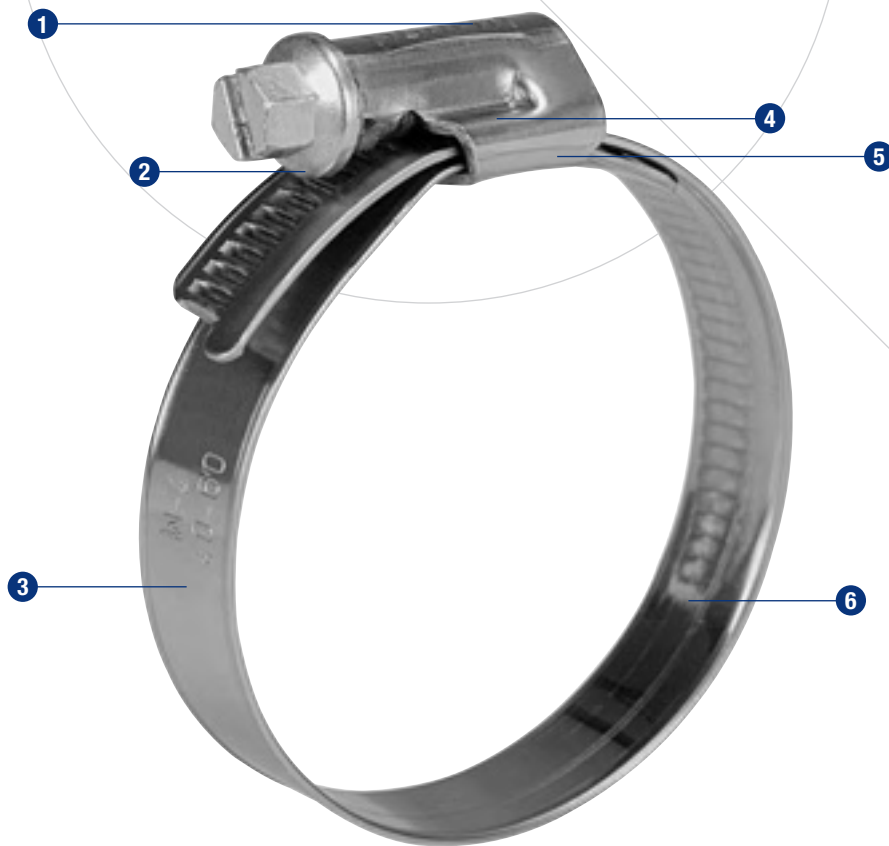
### NORMACLAMP® TORRO® – Worm Drive Hose Clips to DIN 3017

NORMACLAMP® TORRO® hose clips are specially suitable for applications under high mechanical loads. Since we are contin-

uously working to improve its features this clip is still setting standards for modern hose clip design.

The distinguishing feature of the NORMACLAMP® TORRO® is the asymmetrical construction which tells you at first sight whether it is a genuine TORRO® or not.

#### Short description of technical features



- 1** Improved asymmetric housing = even distribution of forces and safe assembly
- 2** Screw support = Ease of assembly due to the safe guidance of the emerging band end
- 3** Material and clamping range stamped on the band = prevention of errors
- 4** Asymmetric extension = prevents the housing from tilting over when the clamp is tightened
- 5** Short housing saddle = even contact pressure = improved efficiency
- 6** Smooth or stamped inside of band = optimal hose protection

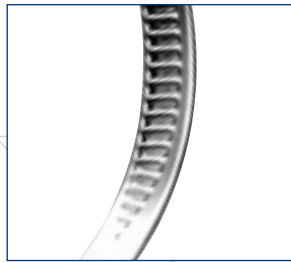
#### Materials

W1*	W2*	W3	W4	W5
X	X	X	X	X

\* No chromium VI used for the coating of the closure components

# NORMACLAMP® – Hose Clamps

## Types of clamp band



- Band width 9 mm
- W1 with smooth inside
  - W2, W3, W4, W5 with stamped inside

- Band width 12 mm
- W1, W2, W3 with smooth inside
  - W4, W5 with stamped inside

## Screw



		W1	W2	W3	W4	W5
Phillips head	SW 7*	•	•			
Slotted head	SW 7**			•	•	•

\* Band width 7.5 mm = SW 6      \*\* Band width 16 mm = SW 8

## The advantages at a glance

- Multi-range hose clamp
- Material: W1, W2, W3, W4, W5
- In future no chromium VI used for coating
- Clamping ranges to DIN 3017: 8 – 16 mm up to 140 – 160 mm
- Larger diameters on demand

## NORMACLAMP® – Hose Clamps

### Variants



### NORMACLAMP® HD

HD clamps are suitable for special areas of application where high tightening torques and high contact pressures are required as, for example, for fastening steel reinforced silicon, plastic and rubber hoses.

The extended bridge prevents the hose from protruding and being damaged.

The NORMACLAMP® HD clamp is an add-on type to our range of worm drive hose clips and therefore only available in 16 mm band width and W4 material quality.

### Features

- Only 16 mm band width
- Only W4 material

## NORMACLAMP® – Hose Clamps

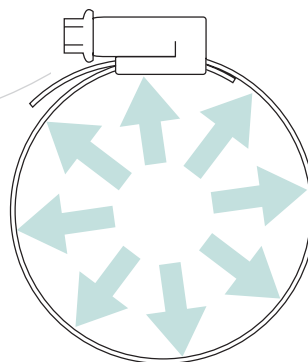
### Technical features

#### High band tensile force and high fracture torque

As always, the new NORMACLAMP® TORRO® features high tensile forces. However, when compared with competitor's products and the previous model, we now achieve significantly higher fracture torques. This provides for an increased assembly reliability.

#### Even clamping force distribution

Thanks to a modification in the technical design the even distribution of clamping forces was still improved. The clamp sits perfectly on the hose and ensures the optimal sealing of the connection.



#### Corrosion resistance

Material	Corrosion resistance in salt spray testing
W1	Min. 144 h
W2	Min. 72 h
W3	Min. 200 h*
W4	Min. 240 h
W5	Min. 400 h

\* Max 10% corrosion of the base material allowed

### Applications

- Cooling water lines
- Depressurized as well as pressurized fuel lines and vent lines
- Oil lines
- Connections in sanitary installations
- Connections in engine construction
- Connections in the white goods industry
- Hose connections in commercial vehicles industries

# NORMACLAMP® – Hose Clamps

## Table with torques

<b>TORRO 9 W1</b>										
Diameter	8–12	10–16	12–18	12–22	16–27	20–32	25–40	30–45	35–50	40–60
AD	2.5 +0.5	3 +0.5	3 +0.5	3 +0.5	3 +0.5	3 +0.5	3 +0.5	3 +0.5	3 +0.5	3 +0.5
LD max	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
PD	3.3	4	4	4	4	4	4	4	4	4
BD min	4	4.5	4.5	4.5	4.5	4.5	6	6	6	6
<b>TORRO 9 W2</b>										
Diameter		8–16		12–22	16–27	20–32	25–40	30–45	35–50	40–60
AD		2 +0.5		3 +0.5	3 +0.5	3 +0.5	3 +0.5	3 +0.5	3 +0.5	3 +0.5
LD max		0.7		0.7	0.7	0.7	0.7	0.7	0.7	0.7
PD		2.6		4	4	4	4	4	4	4
BD min		4		4.5	4.5	4.5	4.5	4.5	4.5	4.5
<b>TORRO 9 W3–W5</b>										
Diameter		8–16		12–22	16–27	20–32	25–40	30–45	35–50	40–60
AD		2 +0.5		3 +0.5	3 +0.5	3 +0.5	3 +0.5	3 +0.5	3 +0.5	3 +0.5
LD max		0.7		0.7	0.7	0.7	0.7	0.7	0.7	0.7
PD		2.6		4	4	4	4	4	4	4
BD min		4		4.5	4.5	4.5	4.5	4.5	4.5	4.5
<b>TORRO 12 W1</b>										
Diameter					16–27	20–32	25–40	30–45	35–50	40–60
AD					5 +0.5	5 +0.5	5 +0.5	5 +0.5	5 +0.5	5 +0.5
LD max					1.2	1.2	1.2	1.2	1.2	1.2
PD					6.5	6.5	6.5	6.5	6.5	6.5
BD min					10	10	10	10	10	10
<b>TORRO 12 W2/W3</b>										
Diameter					16–27	20–32	25–40	30–45	35–50	40–60
AD					5 +0.5	5 +0.5	5 +0.5	5 +0.5	5 +0.5	5 +0.5
LD max					1	1	1	1	1	1
PD					6.5	6.5	6.5	6.5	6.5	6.5
BD min					8.0	8.0	8.5	8.5	8.5	8.5
<b>TORRO 12 W4/W5</b>										
Diameter					16–27	20–32	25–40	30–45	35–50	40–60
AD					5 +0.5	5 +0.5	5 +0.5	5 +0.5	5 +0.5	5 +0.5
LD max					1	1	1	1	1	1
PD					6.5	6.5	6.5	6.5	6.5	6.5
BD min					8	8	8.5	8.5	8.5	8.5

Legend:

AD = recommended tightening torque in Nm;

LD = no-load torque in Nm;

PD = test torque in Nm;

BD = fracture torque in Nm

# NORMACLAMP® – Hose Clamps

## TORRO 9 W1

50–70	60–80	70–90	80–100	90–110	100–120	110–130	120–140	130–150	140–160	Diameter
3 +0.5	3 +0.5	3 +0.5	3 +0.5	3 +0.5	3 +0.5	3 +0.5	3 +0.5	3 +0.5	3 +0.5	AD
1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	LD max
4	4	4	4	4	4	4	4	4	4	PD
6	6	6	6	6	6	6	6	6	6	BD min

## TORRO 9 W2

50–70	60–80	70–90	80–100	90–110	100–120	110–130	120–140	130–150	140–160	Diameter
3 +0.5	3 +0.5	3 +0.5	3 +0.5	3 +0.5	3 +0.5	3 +0.5	3 +0.5	3 +0.5	3 +0.5	AD
0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	LD max
4	4	4	4	4	4	4	4	4	4	PD
4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	BD min

## TORRO 9 W3–W5

50–70	60–80	70–90	80–100	90–110	100–120	110–130	120–140	130–150	140–160	Diameter
3 +0.5	3 +0.5	3 +0.5	3 +0.5	3 +0.5	3 +0.5	3 +0.5	3 +0.5	3 +0.5	3 +0.5	AD
0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	LD max
4	4	4	4	4	4	4	4	4	4	PD
4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	BD min

## TORRO 12 W1

50–70	60–80	70–90	80–100	90–110	100–120	110–130	120–140	130–150	140–160	Diameter
5 +0.5	5 +0.5	5 +0.5	5 +0.5	5 +0.5	5 +0.5	5 +0.5	5 +0.5	5 +0.5	5 +0.5	AD
1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	LD max
6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	PD
10	10	10	10	10	10	10	10	10	10	BD min

## TORRO 12 W2/W3

50–70	60–80	70–90	80–100	90–110	100–120	110–130	120–140	130–150	140–160	Diameter
5 +0.5	5 +0.5	5 +0.5	5 +0.5	5 +0.5	5 +0.5	5 +0.5	5 +0.5	5 +0.5	5 +0.5	AD
1	1	1	1	1	1	1	1	1	1	LD max
6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	PD
8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	BD min

## TORRO 12 W4/W5

50–70	60–80	70–90	80–100	90–110	100–120	110–130	120–140	130–150	140–160	Diameter
5 +0.5	5 +0.5	5 +0.5	5 +0.5	5 +0.5	5 +0.5	5 +0.5	5 +0.5	5 +0.5	5 +0.5	AD
1	1	1	1	1	1	1	1	1	1	LD max
6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	PD
8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	BD min

# NORMACLAMP® – Hose Clamps

## Survey of sizes, band widths & materials NORMACLAMP® TORRO®

Band width	Description	Clamping Range		Packaging		B	h	L	s	s (only W1)	W1	W2	W3	W4	W5
		in mm	in Inches	PU	IC										
5	SGL 7-11/5			100								X			
5	SGL 11-19/5			100								X			
7.5	TORRO 8-12/7.5	8-12	5/16-1/2	100	1000	11.5	9.2	17.6	0.6			X	X		
7.5	TORRO 10-16/7.5	10-16	3/8-5/8	100	1000	11.5	9.2	17.6	0.6			X	X		
7.5	TORRO 12-18/7.5	12-18	1/2-3/4	100	1000	11.5	9.2	17.6	0.6			X	X		
9	TORRO 8-12/9	8-12	5/16-1/2	100	1000	13.0	11.0	21.0	0.7	0.8	X				
9	TORRO 8-16/9	8-16	5/16-5/8	100	1000	13.0	11.0	21.0	0.7			X	X	X	X
9	TORRO 10-16/9	10-16	3/8-5/8	100	1000	13.0	11.0	21.0	0.7	0.8	X				
9	TORRO 12-18/9	12-18	1/2-3/4	100	1000	13.0	11.0	21.0	0.7	0.8	X				
9	TORRO 12-22/9	12-22	1/2-7/8	100	1000	13.0	11.0	24.0	0.7			X	X	X	X
9	TORRO 16-27/9	16-27	5/8-11/16	100	1000	13.0	11.0	24.0	0.7	0.8	X	X	X	X	X
9	TORRO 20-32/9	20-32	3/4-11/4	100	1000	13.0	11.0	24.0	0.7	0.8	X	X	X	X	X
9	TORRO 25-40/9	25-40	1-15/8	100	1000	13.0	11.0	26.0	0.7	0.8	X	X	X	X	X
9	TORRO 30-45/9	30-45	13/16-13/4	100	500	13.0	11.0	26.0	0.7	0.8	X	X	X	X	X
9	TORRO 35-50/9	35-50	13/8-2	50	500	13.0	11.0	26.0	0.7	0.8	X	X	X	X	X
9	TORRO 40-60/9	40-60	15/8-23/8	50	250	13.0	11.0	26.0	0.7	0.8	X	X	X	X	X
9	TORRO 50-70/9	50-70	2-23/4	50	250	13.0	11.0	26.0	0.7	0.8	X	X	X	X	X
9	TORRO 60-80/9	60-80	23/8-31/8	25	250	13.0	11.0	26.0	0.7	0.8	X	X	X	X	X
9	TORRO 70-90/9	70-90	23/4-31/2	25	250	13.0	11.0	26.0	0.7	0.8	X	X	X	X	X
9	TORRO 80-100/9	80-100	31/8-4	25	200	13.0	11.0	26.0	0.7	0.8	X	X	X	X	X
9	TORRO 90-110/9	90-110	31/2-43/8	25	200	13.0	11.0	26.0	0.7	0.8	X	X	X	X	X
9	TORRO 100-120/9	100-120	4-43/4	-	250	13.0	11.0	26.0	0.7	0.8	X	X	X	X	X
9	TORRO 110-130/9	110-130	43/8-51/8	-	200	13.0	11.0	26.0	0.7	0.8	X	X	X	X	X
9	TORRO 120-140/9	120-140	43/4-51/2	-	200	13.0	11.0	26.0	0.7	0.8	X	X	X	X	X
9	TORRO 130-150/9	130-150	51/8-57/8	-	200	13.0	11.0	26.0	0.7	0.8	X	X	X	X	X
9	TORRO 140-160/9	140-160	51/2-61/4	-	200	13.0	11.0	26.0	0.7	0.8	X	X	X	X	X



# NORMACLAMP® – Hose Clamps

Band width	Description	Clamping Range		Packaging		B	h	L	s	s (only W1)	W1	W2	W3	W4	W5
		in mm	in Inches	PU	IC										
12	TORRO 16-27/12	16-27	5/8-11/16	50	500	14.6	12.5	30.0	0.8	0.8	X	X	X	X	X
12	TORRO 20-32/12	20-32	3/4-11/4	50	500	14.6	12.5	30.0	0.8	0.8	X	X	X	X	X
12	TORRO 25-40/12	25-40	1-15/8	50	500	14.6	12.5	30.0	0.8	1.0	X	X	X	X	X
12	TORRO 30-45/12	30-45	13/16-13/4	50	500	14.6	12.5	30.0	0.8	1.0	X	X	X	X	X
12	TORRO 35-50/12	35-50	13/8-2	50	500	14.6	12.5	30.0	0.8	1.0	X	X	X	X	X
12	TORRO 40-60/12	40-60	15/8-23/8	25	250	14.6	12.5	30.0	0.8	1.0	X	X	X	X	X
12	TORRO 50-70/12	50-70	2-23/4	25	250	14.6	12.5	30.0	0.8	1.0	X	X	X	X	X
12	TORRO 60-80/12	60-80	23/8-31/8	25	250	14.6	12.5	30.0	0.8	1.0	X	X	X	X	X
12	TORRO 70-90/12	70-90	23/4-31/2	25	250	14.6	12.5	36.0	0.8	1.0	X	X	X	X	X
12	TORRO 80-100/12	80-100	31/8-4	25	100	14.6	12.5	36.0	0.8	1.0	X	X	X	X	X
12	TORRO 90-110/12	90-110	31/2-43/8	25	100	14.6	12.5	36.0	0.8	1.0	X	X	X	X	X
12	TORRO 100-120/12	100-120	4-43/4	-	100	14.6	12.5	36.0	0.8	1.0	X	X	X	X	X
12	TORRO 110-130/12	110-130	43/8-51/8	-	100	14.6	12.5	36.0	0.8	1.0	X	X	X	X	X
12	TORRO 120-140/12	120-140	43/4-51/2	-	100	14.6	12.5	36.0	0.8	1.0	X	X	X	X	X
12	TORRO 130-150/12	130-150	51/8-57/8	-	100	14.6	12.5	36.0	0.8	1.0	X	X	X	X	X
12	TORRO 140-160/12	140-160	51/2-61/4	-	100	14.6	12.5	36.0	0.8	1.0	X	X	X	X	X

Further sizes on request

B = total width (housing)  
h = total height (screw and housing)  
L = total length (screw and housing)  
s = band thickness (clamp band)

# NORMACLAMP® – Hose Clamps

## Survey of sizes, band widths & materials NORMACLAMP® TORRO® WF

Band width	Description	Clamping Range		Packaging		B	h	L	s	W2	W3	W4
		in mm	in inches	PU	IC							
9	TORRO 8-16/9 WF	8-16	5/16-5/8	100	1000	13.0	11.0	21.0	0.7	X	X	X
9	TORRO 12-22/9 WF	12-22	1/2-7/8	100	1000	13.0	11.0	24.0	0.7	X	X	X
9	TORRO 16-27/9 WF	16-27	5/8-11/16	100	1000	13.0	11.0	24.0	0.7	X	X	X
9	TORRO 20-32/9 WF	20-32	3/4-11/4	100	1000	13.0	11.0	24.0	0.7	X	X	X
9	TORRO 25-40/9 WF	25-40	1-15/8	100	1000	13.0	11.0	26.0	0.7	X	X	X
9	TORRO 30-45/9 WF	30-45	13/16-2	100	500	13.0	11.0	26.0	0.7	X	X	X
9	TORRO 35-50/9 WF	35-50	13/8-2	50	500	13.0	11.0	26.0	0.7	X	X	X
9	TORRO 40-60/9 WF	40-60	15/8-23/8	50	250	13.0	11.0	26.0	0.7	X	X	X
9	TORRO 50-70/9 WF	50-70	2-23/4	50	250	13.0	11.0	26.0	0.7	X	X	X
9	TORRO 60-80/9 WF	60-80	23/8 - 31/8	25	250	13.0	11.0	26.0	0.7	X	X	X
9	TORRO 70-90/9 WF	70-90	23/4-31/2	25	250	13.0	11.0	26.0	0.7	X	X	X
9	TORRO 80-100/9 WF	80-100	31/8-4	25	200	13.0	11.0	26.0	0.7	X	X	X
9	TORRO 90-110/9 WF	90-110	31/2-43/8	25	200	13.0	11.0	26.0	0.7	X	X	X
9	TORRO 100-120/9 WF	100-120	4-43/4	-	200	13.0	11.0	26.0	0.7	X	X	X
9	TORRO 110-130/9 WF	110-130	43/8-51/8	-	200	13.0	11.0	26.0	0.7	X	X	X

# NORMACLAMP® – Hose Clamps

Band width	Description	Clamping Range		Packaging		B	h	L	s	W2	W3	W4
		in mm	in inches	PU	IC							
12	TORRO 16-27/12 WF	16-27	5/8-11/16	-	500	14.6	12.5	30.0	0.8	X	X	X
12	TORRO 20-32/12 WF	20-32	3/4-11/4	-	500	14.6	12.5	30.0	0.8	X	X	X
12	TORRO 25-40/12 WF	25-40	1-15/8	-	500	14.6	12.5	30.0	0.8	X	X	X
12	TORRO 30-45/12 WF	30-45	13/16-13/4	50	500	14.6	12.5	30.0	0.8	X	X	X
12	TORRO 35-50/12 WF	35-50	13/8-2	50	500	14.6	12.5	30.0	0.8	X	X	X
12	TORRO 40-60/12 WF	40-60	15/8-23/8	25	250	14.6	12.5	30.0	0.8	X	X	X
12	TORRO 50-70/12 WF	50-70	2-23/4	25	250	14.6	12.5	30.0	0.8	X	X	X
12	TORRO 60-80/12 WF	60-80	23/8-31/8	25	250	14.6	12.5	30.0	0.8	X	X	X
12	TORRO 70-90/12 WF	70-90	23/4-31/2	25	250	14.6	12.5	36.0	0.8	X	X	X
12	TORRO 80-100/12 WF	80-100	31/8-4	25	100	14.6	12.5	36.0	0.8	X	X	X
12	TORRO 90-110/12 WF	90-110	31/2-43/8	25	100	14.6	12.5	36.0	0.8	X	X	X
12	TORRO 100-120/12 WF	100-120	4-43/4	-	100	14.6	12.5	36.0	0.8	X	X	X
12	TORRO 110-130/12 WF	110-130	43/8-51/8	-	100	14.6	12.5	36.0	0.8	X	X	X
12	TORRO 120-140/12 WF	120-140	43/4-51/2	-	100	14.6	12.5	36.0	0.8	X	X	X

Further sizes on request

B = total width (housing)  
h = total height (screw and housing)  
L = total length (screw and housing)  
s = band thickness (clamp band)

# NORMACLAMP® – Hose Clamps

## Survey of sizes, band widths & materials NORMACLAMP® TORRO® HD

Band width	Description	Clamping Range		Packaging		B	h	L	s	W4
		in mm	in Inches	PU	IC					
16	HD 25-45/16 C8 W4	25-45	1-13/4	50	250	23.0	13.0	37.0	0.7	X
16	HD 32-54/16 C8 W4	32-54	1 1/4-2 1/8	50	250	23.0	13.0	37.0	0.7	X
16	HD 45-67/16 C8 W4	45-67	1 3/4-2 5/8	50	250	23.0	13.0	37.0	0.7	X
16	HD 57-79/16 C8 W4	57-79	2 1/4-3 1/8	50	250	23.0	13.0	37.0	0.7	X
16	HD 70-92/16 C8 W4	70-92	2 3/4-3 5/8	25	250	23.0	13.0	37.0	0.7	X
16	HD 83-105/16 C8 W4	83-105	3 1/4-4 1/8	10	100	23.0	13.0	37.0	0.7	X
16	HD 95-118/16 C8 W4	95-118	3 3/4-4 5/8	10	100	23.0	13.0	37.0	0.7	X
16	HD 108-130/16 C8 W4	108-130	4 1/4-5 1/8	10	100	23.0	13.0	37.0	0.7	X
16	HD 121-143/16 C8 W4	121-143	4 3/4-5 5/8	10	100	23.0	13.0	37.0	0.7	X
16	HD 133-156/16 C8 W4	133-156	5 1/4-6 1/8	10	100	23.0	13.0	37.0	0.7	X
16	HD 146-168/16 C8 W4	146-168	5 3/4-6 5/8	10	100	23.0	13.0	37.0	0.7	X
16	HD 159-181/16 C8 W4	159-181	6 1/4-7 1/8	10	50	23.0	13.0	37.0	0.7	X
16	HD 172-194/16 C8 W4	172-194	6 3/4-7 5/8	10	50	23.0	13.0	37.0	0.7	X
16	HD 184-206/16 C8 W4	184-206	7 1/4-8 1/8	10	50	23.0	13.0	37.0	0.7	X
16	HD 197-219/16 C8 W4	197-219	7 3/4-8 5/8	10	50	23.0	13.0	37.0	0.7	X
16	HD 210-232/16 C8 W4	210-232	8 1/4-9 1/8	10	50	23.0	13.0	37.0	0.7	X

### Enquiries/ordering:

When making enquiries or placing an order please indicate as follows:

B = total width (housing)  
h = total height (screw and housing)  
L = total length (screw and housing)  
s = band thickness (clamp band)

Further sizes on request

Example	1. Type	2. Clamping Range	3. Band width	4. Screw	5. Material
	TORRO® with spring insert	35-50/	9	C7	W4

## NORMACLAMP® – Hose Clamps

### NORMACLAMP® TORRO® Modular System

The TORRO® modular system offers several accessories that can be added to the clip. Thus its technical features can be modified. You are free to combine two or more of these accessories according to your requirements.

#### The Notch



The notch is a clever means for pre-positioning the TORRO® hose clip on the hose. In this case the oval hole in the clamp band finds its exact counter part on the hose surface. Thus the TORRO® is safely and accurately kept in place prior to the final assembly.

**Advantage:**

- Safe pre-assembly on the hose.

#### The Clip



With this accessory the TORRO® can also be pre-positioned on the hose. The two 'teeth' of this device keep the TORRO® hose clip safely in place if it needs to be stocked or transported prior to its final assembly.

**Advantage:**

- Safe pre-assembly on the hose

## NORMACLAMP® – Hose Clamps

### The Spring insert

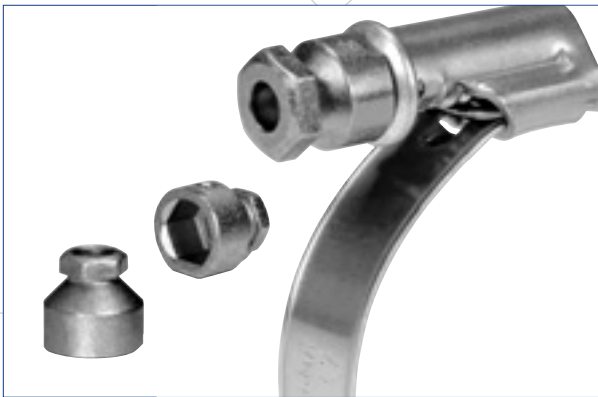


For this version of the NORMACLAMP® TORRO® the standard hose clip is equipped with a spring insert on the inside of the clip band. When tightening the screw the spring is loaded and stores sufficient clamping force to ensure a long-lasting automatic re-tensioning effect. Thus the radial clamping force achieved will be sufficient even under extremely low temperatures. Therefore, the TORRO® is an optimal solution for applications under extreme temperature changes.

#### Advantages:

- Automatic re-tensioning effect in the event of hose relaxation
- Increased sealing reliability across a wide temperature range

### The Torque Cap



The torque cap cuts off when the permissible torque is reached and thus saves the need for a torque wrench. Even without the cap the hose clip still remains adjustable and can be disassembled and/or retightened if necessary.

#### Advantages:

- Defined tightening torque without special tool
- Visual assembly control

TORRO® pre-positioned using the clip



## The Safety Collar



The safety collar is an assembly aid consisting of a plastic collar that is easily fixed on the screw head. It prevents the screwdriver from slipping off the screw head thus making the assembly much easier. The safety collar matches our standard screw head size 7.

### Advantage:

- The screwdriver is kept from slipping off the screw head during assembly

## The Thumbscrew



**The NORMACLAMP® TORRO® thumbscrew** is easily tightened by hand.

### Advantage:

- The TORRO® hose clip can be manually tightened and opened

## The Safety-Cap



The NORMACLAMP® TORRO® safety cap is used to prevent injuries during assembly work. The small plastic cap covering the end of the clamp band is one of our contributions to prevent accidents.

### Advantage:

- The NORMACLAMP® TORRO® safety cap is available to fit the band width 9 mm and 12 mm

**Please make sure that the NORMACLAMP® TORRO® accessory you wish to order is suitable for your application.**

# NORMA® Application Recommendations

## Technical features

- Type = In-house product description
- ∅ = Clamping range/diameter in mm
- a = Spigot diameter
- b = Thread size
- c = Spigot diameter
- s = Band thickness in mm
- B = Band width in mm
- C = Screw head size
- M = Thread diameter in mm
- NPT = Type of pipe thread, diameter in inch
- R = Type of pipe thread, diameter in inch
- ZWL = With two ears
- keg = Tapered thread

## Materials

-  W1 = All parts completely zinc plated steel
-  W2 = Band and housing: Stainless steel 1.4016  
Screw: Steel, zinc plated  
NORMACLAMP® TORRO®
-  W2 = Band: Stainless steel 1.4510 / 1.4511  
Clamping head: Steel, zinc plated  
NORMACLAMP® GBS
-  W3 = All parts completely stainless steel 1.4016
-  W4 = All parts completely stainless steel 1.4301
-  W5 = Completely stainless steel 1.4401  
NORMACLAMP® TORRO®  
= Stainless steel 1.4751 / 1.4401  
NORMACLAMP® TORRO®  
= Completely stainless steel 1.4751  
NORMACLAMP® GBS

	Materials					
	International Standard Designation					
	DIN	AISI/AS	BS	AFNOR NF	SS	SUS
<b>W1</b>	Completely zinc plated steel					
Band and Housing	1.4016	430	430 S 17	Z8 C17	2320	430
<b>W2</b>	Steel zinc plated					
Screw						
<b>W3</b>	1.4016	430	430 S 17	Z8 C17	2320	430
<b>W4</b>	1.4301	304	304 S 15	Z6 CN 18-09	2332	304
<b>W5</b>	1.4401	316	316 S 31	Z3 CND 17-11-1	2347	316
Spring	1.4310	301	301 S 22	Z12 CN 18-09	2331	301

## Screw Types

- Isk = Hexagonal socket screw
- M = Screw diameter in mm
- Sk = Hexagon head screw
- Sz = Hexagon head screw with slot
- Zy = Cylinder head screw

## Purchase Order Quantities

- Minimum quantities to be ordered
- PU = Packaging unit
- IC = Industrial carton