



**GROWER**  
**SPHERATECH®**

**SMART  
SPHERICAL  
SOLUTION**



# DESCRIPTION

**Grower SpheraTech®** is an innovative preassembled set of a spherical (top) washer and a conical seat (down) washer. Thanks to their coupling, the two pieces guarantee a safe locking function on non-parallel bearing surfaces, avoiding damages or breakages of the bolted joint connection caused

by the bending of the head or the shank of the screw. The maximum angle of inclination between the axis of the spherical washer and the axis of the conical seat washer can be 3 degrees.

# VERSIONS

**Grower SpheraTech®** is manufactured by Growermetal in 2 standard versions:

**TYPE A** for hard bearing surfaces (> 200 Hv) and standard holes.

**TYPE B** for soft bearing surfaces and enlarged or slotted holes.

## Material

Carbon steel quenched and tempered with hardness of 350-420 Hv 10.

## GROWER SPHERATECH® | TYPE A

Spherical washer and conical seat washer with the same outer diameter.



## GROWER SPHERATECH® | TYPE B

Conical seat washer with enlarged outer diameter.



# ADVANTAGES

## ○ Smart solution

**Grower SpheraTech®** provides one inseparable set instead of two different pieces, ensuring that the top washer and the seat washer are loosely preassembled and permanently connected to each other. As the parts are inseparable, during the application there is no risk of incorrect mounting, making the assembling easy, quick and safe, especially in areas that are difficult to reach.

## ○ Excellent locking performance

The particular design, the coatings available and the preassembling between the spherical top washer and the conical seat washer make **Grower SpheraTech®** a reliable bolted connection and locking.

## ○ Compensation of non-parallel surfaces

**Grower SpheraTech®** is used in screw connections for clamping of two or more surfaces which are not lying parallel to one-another or clamping of uneven surfaces, with a maximum angle of inclination of 3 degrees.

## ○ Suitable for different mechanical applications

With two different versions and many sizes available, the **Grower SpheraTech®** locking technology is suitable for several mechanical applications and fields, including railway, automotive and industrial machinery.

## STANDARD COATINGS

- Burnishing with light oil film protection
- Zinc-flake Delta Protekt® KL 100 - VH 302
- Phosphating
- Other coatings upon customer request

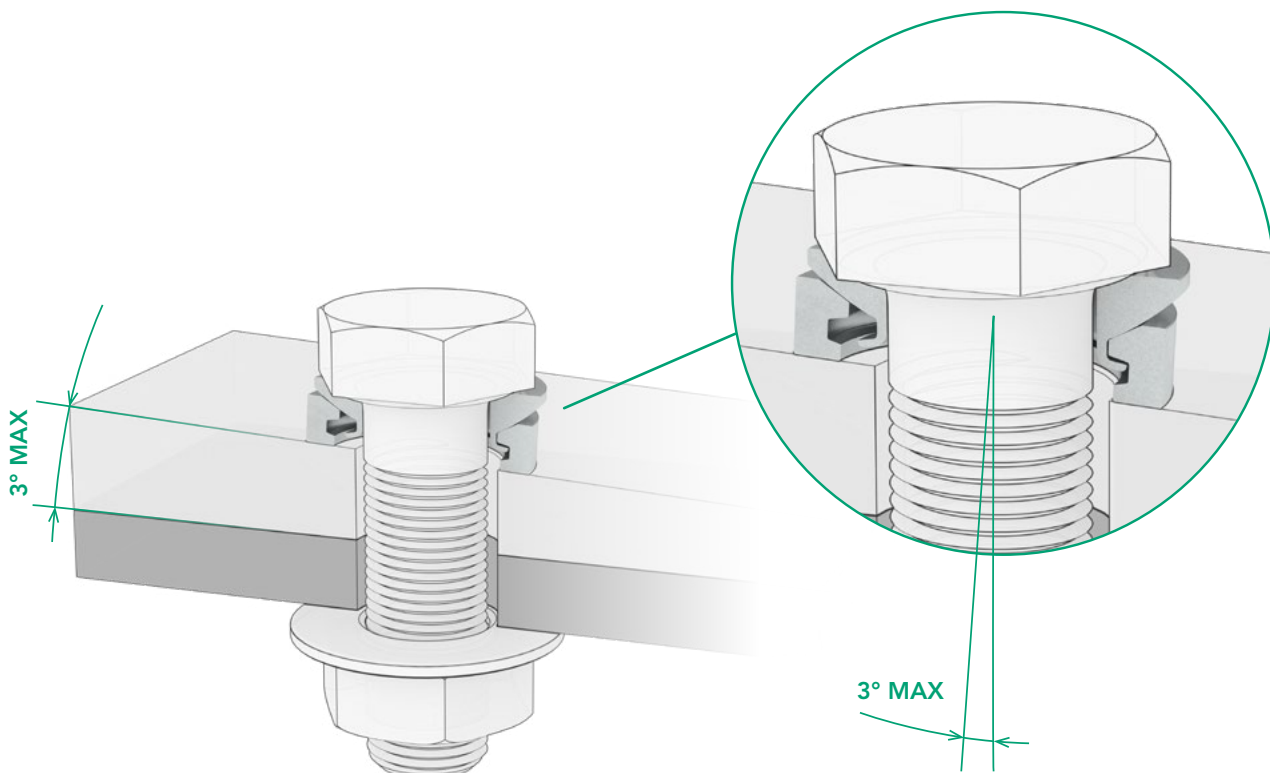
## APPLICATIONS

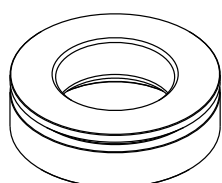
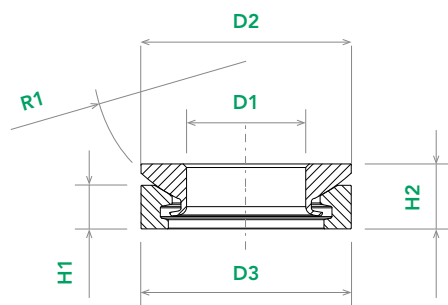


GROWER  
SPHERATECH® | **TYPE A**

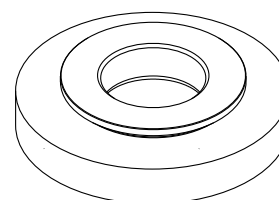
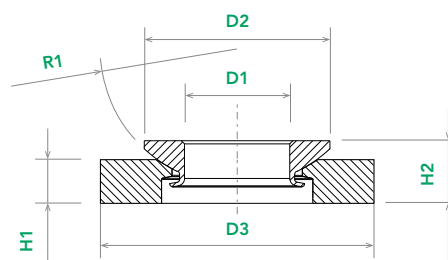


GROWER  
SPHERATECH® | **TYPE B**





**TYPE A**



**TYPE B**

## TYPE A

SCREW SIZE	INTERNAL DIAMETER D1 MIN. - MAX.	EXTERNAL DIAMETER D2-D3 MIN. - MAX.	THICKNESS H1 MIN. - MAX.	TOTAL HEIGHT OF THE PAIR H2 MIN. - MAX.	SPHERICAL RADIUS R1 MIN. - MAX.	N°PIECES STANDARD PACKAGING
6	6,40 - 6,62	11.80 - 12.20	2.70 - 2.90	~4.20	8.80 - 9.20	1.000
8	8.40 - 8.62	16.80 - 17.20	3.40 - 3.60	~5.60	11.80 - 12.20	1.000
10	10.50 - 10.77	20.80 - 21.20	4.10 - 4.30	~6.50	14.80 - 15.20	500
12	13.00 - 13.27	23.80 - 24.20	4.90 - 5.10	~8.00	16.80 - 17.20	250
14	15.00 - 15.27	27.80 - 28.20	5.50 - 5.70	~8.50	21.80 - 22.20	200
16	17.00 - 17.27	29.80 - 30.20	6.10 - 6.30	~9.60	21.80 - 22.20	100
20	21.00 - 21.33	35.70 - 36.30	7.30 - 7.70	~11.70	26.80 - 27.20	50
24	25.00 - 25.33	43.70 - 44.30	9.30 - 9.70	~15.20	31.70 - 32.30	50
30	31.00 - 31.39	55.70 - 56.30	11.80 - 12.20	~19.20	40.70 - 41.30	20
36	37.00 - 37.39	67.70 - 68.30	14.80 - 15.20	~23.50	49.70 - 50.30	20
42	43.00 - 43.39	77.70 - 78.30	17.80 - 18.20	~29.00	57.70 - 58.30	10
48	50.00 - 50.39	91.70 - 92.30	21.80 - 22.20	~35.50	66.70 - 67.30	3

Dimensions in mm

## TYPE B

SCREW SIZE	INTERNAL DIAMETER D1 MIN. - MAX.	EXTERNAL DIAMETER D2 MIN. - MAX.	EXTERNAL DIAMETER D3 MIN. - MAX.	THICKNESS H1 MIN. - MAX.	TOTAL HEIGHT OF THE PAIR H2 MIN. - MAX.	SPHERICAL RADIUS R1 MIN. - MAX.	N°PIECES STANDARD PACKAGING
6	6.40 - 6.62	11.80 - 12.20	16.80 - 17.20	3.90 - 4.10	~5.40	8.80 - 9.20	1.000
8	8.40 - 8.62	16.80 - 17.20	23.80 - 24.20	4.90 - 5.10	~7.10	11.80 - 12.20	500
10	10.50 - 10.77	20.80 - 21.20	29.80 - 30.20	4.90 - 5.10	~7.30	14.80 - 15.20	500
12	13.00 - 13.27	23.80 - 24.20	35.70 - 36.30	5.90 - 6.10	~9.00	16.80 - 17.20	250
14	15.00 - 15.27	27.80 - 28.20	39.70 - 40.30	5.90 - 6.10	~9.50	21.80 - 22.20	200
16	17.00 - 17.27	29.80 - 30.20	43.70 - 44.30	6.80 - 7.20	~10.40	21.80 - 22.20	100
20	21.00 - 21.33	35.70 - 36.30	49.70 - 50.30	7.80 - 8.20	~12.20	26.80 - 27.20	50
24	25.00 - 25.33	43.70 - 44.30	59.70 - 60.30	9.80 - 10.20	~15.70	31.70 - 32.30	50
30	31.00 - 31.39	55.70 - 56.30	67.70 - 68.30	11.80 - 12.20	~19.70	40.70 - 41.30	25

Dimensions in mm