






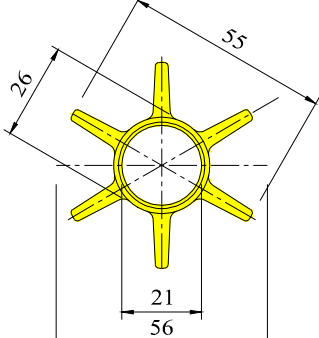

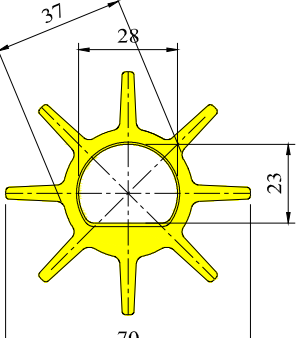

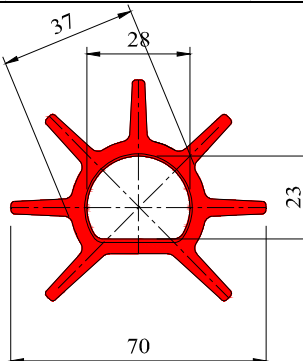

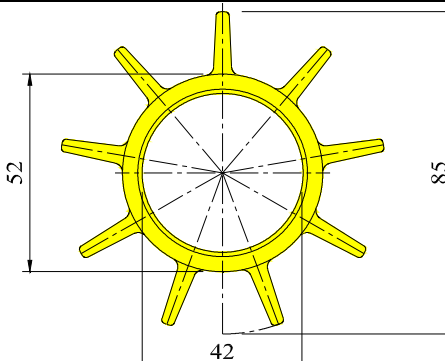

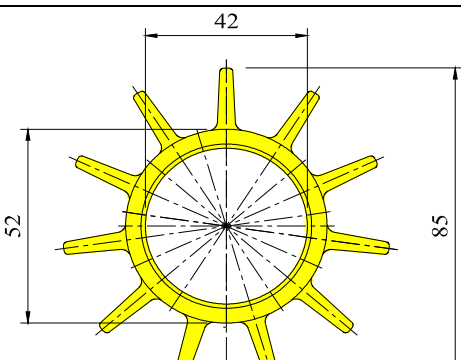








DD-DS internal spacers are designed to allow the anchor in the foundation to guarantee the sinusoid effect of the strands inside the corrugated sheaths, as well as the separation of the strands and tubes necessary for the grouting and vent activity. Internal spacers are only installed in the foundation.

Spacers are mounted manually according to the anchor assembly specifications, and in any case with a max. pitch of 1.5 m. They are fixed with metal or tape straps to allow a correct flow of the grouting flow with no obstructions.

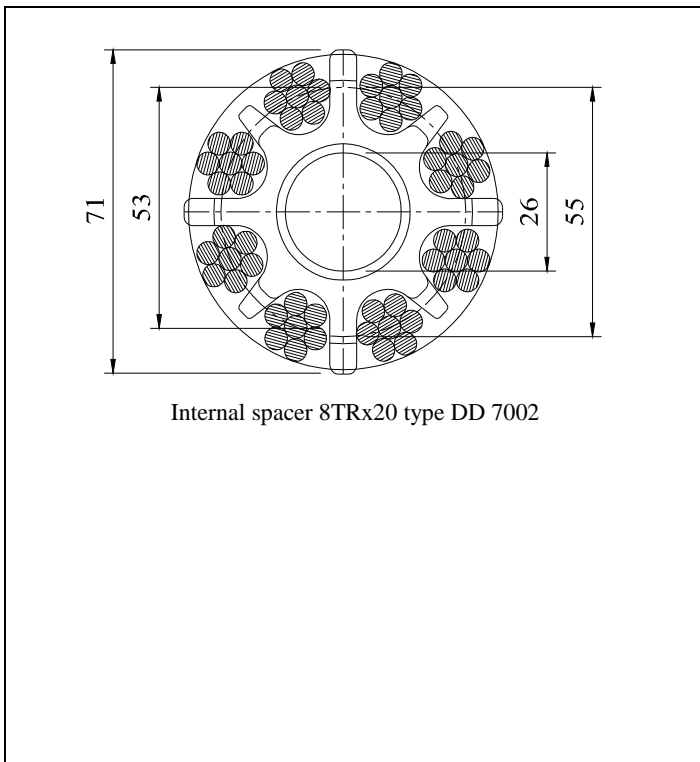
“DD-DS” INTERNAL SPACER

	DD21023	Internal spacer type DD06x20DS55 Weight/pc.: 0.021 kg/pc. Colour: Black or yellow
	DD21024	Internal spacer type DD 06x28DS68 Weight/pc.: 0.046 kg/pc. Colour: Black or red
	DD21025	Internal spacer type DD 08x28DS70 Weight/pc.: 0.049 kg/pc. Colour: Black or yellow
	DD21030	Internal spacer type DD 09x42-DS85 Weight/pc.: 0.064 kg/pc. Colour: Black or Blue
	DD21026	Internal spacer type DD 11x42-DS85 Weight/pc.: 0.057 kg/pc. Colour: Black or Blue

		<p>Internal spacer type DD06x20DS55 Internal hole diam 21 mm</p> <p>Dimensions:</p> <ul style="list-style-type: none"> - Diameter 55 mm +/- 3 mm - Length 58 mm +/- 3 mm - Hole 21 mm +/- 1.5mm
		<p>Internal spacer type DD 08x28DS70 Internal hole diam 28 mm</p> <p>Dimensions:</p> <ul style="list-style-type: none"> - Diameter 70 mm +/- 3 mm - Length 60 mm +/- 3 mm - Hole 23 mm +/- 2 mm
		<p>Internal spacer type DD 06x28DS68 Internal hole diam 28 mm</p> <p>Dimensions:</p> <ul style="list-style-type: none"> - Diameter 70 mm +/- 3 mm - Length 60 mm +/- 3 mm - Hole 23 mm +/- 2 mm
		<p>Internal spacer type DD 09x42-DS85 Internal hole diam 42 mm</p> <p>Dimensions:</p> <ul style="list-style-type: none"> - Diameter 85 mm +/- 3 mm - Length 65 mm +/- 3 mm - Hole 42 mm +/- 2 mm
		<p>Internal spacer type DD 11x42-DS85 Internal hole diam 42 mm</p> <p>Dimensions:</p> <ul style="list-style-type: none"> - Diameter 85 mm +/- 3 mm - Length 65 mm +/- 3 mm - Hole 42 mm +/- 2 mm

	DD 7002	6TRSx20 small spacer , for anchors requiring only a 16x20 mm tube to pass through the central hole and a max. capacity of 8 strands to the outside.
	DD 7003	6TRx20 small spacer , for anchors requiring only a 16x20 mm tube to pass through the central hole and a max. capacity of 6 strands to the outside.
	DD 7001	6TRx4 small spacer , for anchors requiring a 27x34 mm valvate tube to pass through the central hole and a max. capacity of 8 strands to the outside.
	DD 7007	10TRx40 spacer for anchors to allow the radial fixing of 10 strands.
	DD 7008	13TRx40 spacer for anchors to allow the radial fixing of 13 strands and of a 27/34 mm valvate tube into the central hole.

Dimensions and tolerances

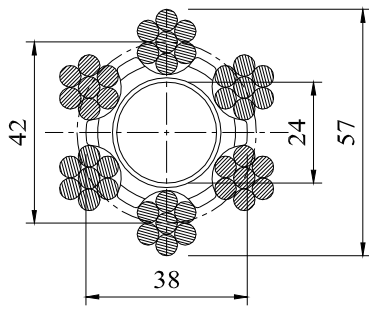


The **8TRx20 DD 7002** spacer has a capacity of 8 seats per strand and an inside passing for a tube with a diam. 26 mm

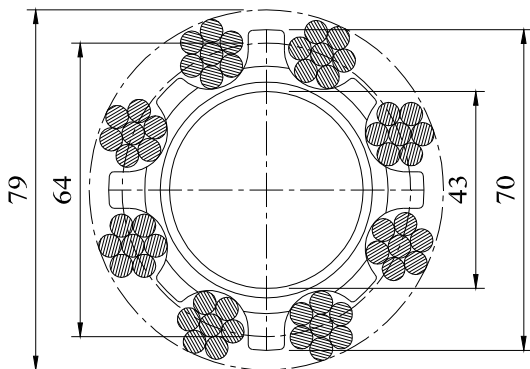


Internal spacer 8TRx20 type DD 7002

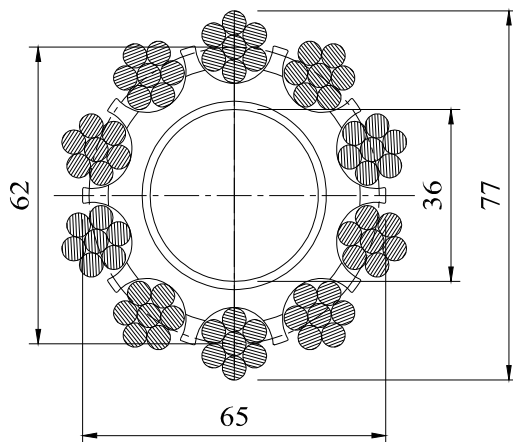
Strand installation outside diameter: 38 mm +/- 3 mm
Length: 60 mm +/- 3 mm
Internal hole: 26 mm +/- 2 mm



6Rx20 DD 7003 internal spacer



8TRx40 DD 7001 internal spacer



Distanziatore interno 10Rx40 tipo DD 7007

The **6TRx20 DD 7003** spacer has a capacity of 6 seats per strand and an inside passing for a tube with a diam. 23.5 mm



6TRx20 DD 7003 internal spacer

Strand installation outside diameter: 27 mm +/- 2 mm

Length: 60 mm +/- 3 mm

Internal hole: 23.5 mm +/- 2 mm

The **8TRx40 DD 7001** spacer has a capacity of 8 seats per strand and an inside passing for a tube with a diam. 27x34 mm (used with valvate tubes)



8TRx40 DD 7001 internal spacer

Strand installation outside diameter: 49 mm +/- 3 mm

Length: 55 mm +/- 3 mm

Internal hole: 43 mm +/- 2 mm

The **10TRx40 DD 7007** spacer has a capacity of 10 seats per strand and an inside passing for a tube with a diam. 36 mm

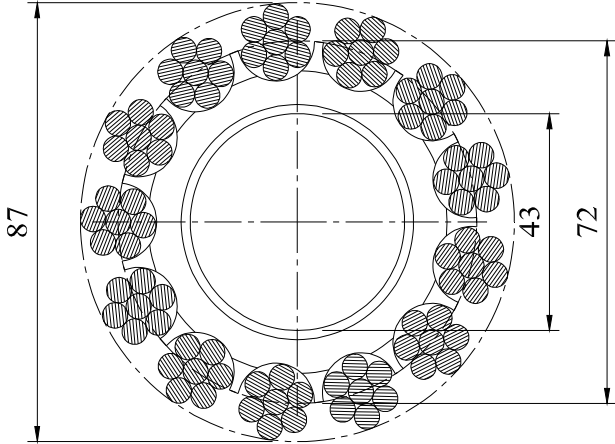


10TRx40 DD 7007 internal spacer

Strand installation outside diameter: 47 mm +/- 3 mm


Length: 60 mm +/- 3 mm

Internal hole: 36 mm +/- 2 mm



Distanziatore interno 13Rx40 tipo DD 7008







The **13TRx40 DD 7008** spacer has a capacity of 13 seats per strand and an inside passing for a tube with a diam. 43 mm





13TRx40 DD 7008 internal spacer

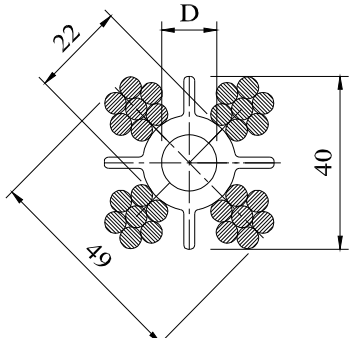

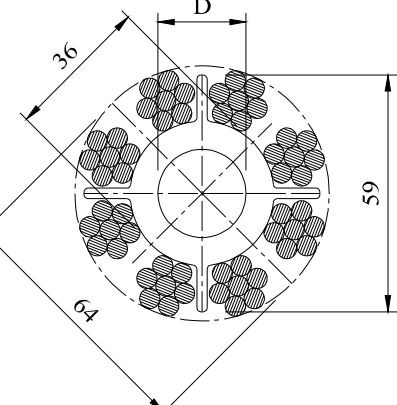

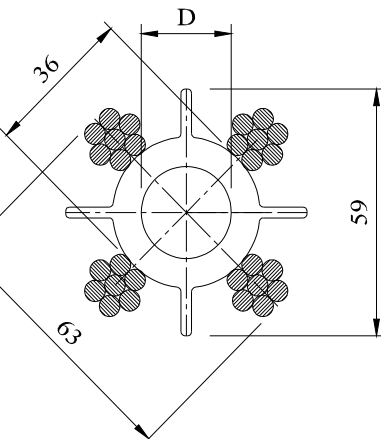

Strand installation outside diameter: 56.5 mm +/- 3 mm
Length: 60 mm +/- 3 mm
Internal hole: 43 mm +/- 3 mm

“DD-DP” spacers

	DD 1047	Internal spacer type DD1840DP-40 Internal hole 18 mm Weight/pc.: 0.008 Kg/pc. Colour.: red/Blue
	DD 1047	Internal spacer type DD1640DP-40 Internal hole 16 mm Weight/pc.: 0.007 Kg/pc. Colour.: red/Blue
	DD 1047	Internal spacer type DD1440DP-40 Internal hole 14 mm Weight/pc.: 0.006 Kg/pc. Colour.: red/Blue
	DD 1047	Internal spacer type DD1240DP-40 Internal hole 12 mm Weight/pc.: 0.005 Kg/pc. Colour.: red/Blue
	DD 1047	Internal spacer type DD1540DP-40 Internal hole 15.5 mm Weight/pc.: 0.004 Kg/pc. Colour.: red/Blue
	DD 1047	Internal spacer type DD3060DP-60 Internal hole 30 mm Weight/pc.: 0.009 Kg/pc. Colour.: red/Blue

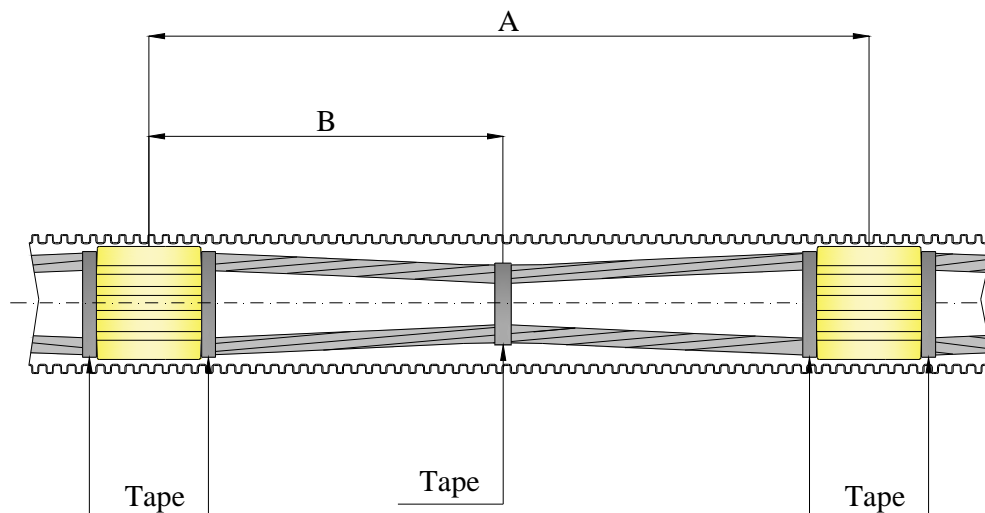
	<p>DD 1047</p>	<p>Internal spacer type DD2660DP-60 Internal hole 26 mm Weight/pc.: 0.013 Kg/pc. Colour.: red/Blue</p>
	<p>DD 1047</p>	<p>Internal spacer type DD2060DP-60 Internal hole 20 mm Weight/pc.: 0.019 Kg/pc. Colour.: red/Blue</p>

Dimensions and tolerances

		<p>Internal spacer type DD-DP-40 internal diameter D: 18, 16, 14 and 12 mm and external diameter 40 mm dwg. DD 1047 rev.A red/blue colour.</p> <p>Dimensions:</p> <ul style="list-style-type: none"> - External diameter 40 mm +/- 2 mm - Length 30 mm +/- 3 mm - Internal diameter D mm +/- 1.5 mm
		<p>Internal spacer type DD-DP-60 internal diameter D: 20, 26 and 30 mm and external diameter 59 mm dwg. DD 1047 rev.A red/blue colour.</p> <p>Dimensions:</p> <ul style="list-style-type: none"> - External diameter 59 mm +/- 2 mm - Length 30 mm +/- 3 mm - Internal diameter D mm +/- 1.5 mm <p>Application with max. 8 strands.</p>
		<p>Internal spacer type DD-DP-60 internal diameter D: 20, 26 and 30 mm and external diameter 59 mm dwg. DD 1047 rev.A red/blue colour.</p> <p>Dimensions:</p> <ul style="list-style-type: none"> - External diameter 59 mm +/- 2 mm - Length 30 mm +/- 3 mm - Internal diameter D mm +/- 1.5 mm <p>Application with max. 4 strands.</p>

Spacers step

The designer must ensure a minimum overlap of 10 mm of injection mortar around the strands in the stretch of foundation of provisional tie rods. In addition, must take into account that in certain conditions (for example, in the case of non-rectilinear holes) within the sheath (permanent tie rods), although locally, might not be assured is an overlap of at least 5 mm of mortar of the strands. This would result in a decrease in the adhesion strength between the strand and injection mixture. Therefore, this decrease must be considered in the dimensioning of the anchoring length of the strand with the mixture of injection, however, considering the need to reduce the distance between the centralizers, wheelbase that should in no case be greater than 1.5 m. The spacers DD-DS type are used with pitch $A = 1.5$ meters and are kept in position by two side taping that prevent sliding; taping performed to $B = A / 2$ ensures the sinusoidal shape of the strands. The DD-DS series has the characteristic of preventing the exit of the strand from its seat and assume an irregular shape within the corrugated sheath where they are installed.



Spacers application DD-DS (TTR-E anchors)

Spacers type DD-DS	Number of strands					
	2 - 3	4	5	6	7	8
	Spacers step (A)					
DD06x20DS55	1,50	1,50	1,50	1,50		
DD06x28DS68	1,50	1,50	1,50	1,50		
DD08x28DS70	1,50	1,50	1,50	1,50	1,50	1,50
DD09x42DS85	1,50	1,50	1,50	1,50	1,50	1,50
DD11x42DS85	1,50	1,50	1,50	1,50	1,50	1,50

Spacers application DD-DS (TTM – TTM-F anchors)

Spacers type DD-DS	Number of strands												
	2 - 3	4	5	6	7	8	9	10	11	12	13	14	15
	Spacers step (a)												
DD06x20DS55	1,50	1,50	1,50	1,50									
DD06x28DS68	1,50	1,50	1,50	1,50									
DD08x28DS70	1,50	1,50	1,50	1,50	1,50	1,50							
DD09x42DS85	1,50	1,50	1,50	1,50	1,50	1,50	1,50						
DD11x42DS85	1,50	1,50	1,50	1,50	1,50	1,50	1,50	1,50	1,50	1,50	1,50	1,50	1,50

Wire mesh are used only on cables > 7 strands and only boobies last two pairs of spacers in the middle part ($A / 2$).