

HOOKS FOR BRACINGS

- Hooks, disks and tensioners for the construction of bracing systems
- Bracing rods are not supplied

HOOK FOR BRACINGS

Spheroidal gusset GJS-400-18-LT

Hot dip galvanising 85 µm

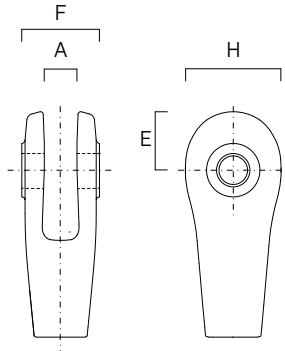
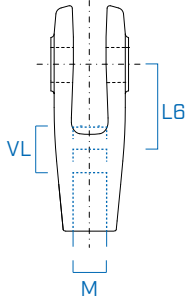
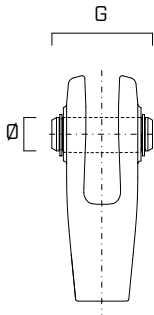
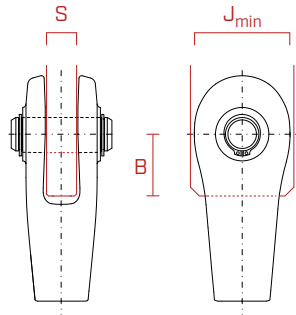
CODE	rod	thread ⁽¹⁾	S _{plate}		pcs
			[mm]	[in]	
ZVBDX10	M10	R	8	0.32	1
ZVBSX10	M10	L	8	0.32	1
ZVBDX12	M12	R	10	0.40	1
ZVBSX12	M12	L	10	0.40	1
ZVBDX16	M16	R	15	0.60	1
ZVBSX16	M16	L	15	0.60	1
ZVBDX20	M20	R	18	0.71	1
ZVBSX20	M20	L	18	0.71	1
ZVBDX24	M24	R	20	0.79	1
ZVBSX24	M24	L	20	0.79	1
ZVBDX30	M30	R	25	0.99	1
ZVBSX30	M30	L	25	0.99	1

⁽¹⁾R = right-hand thread | L = left-hand thread

Hook for M27 rod available upon request.

Cover for thread available upon request.



													
HOOK				ROD			PIN		PLATE				
A	E	F	H	M	VL	L6	Ø	G	S	B	J _{min}	hole	
[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	
M10	9,2	17,5	23,0	29,0	M10	16	28	10	32,3	8	20	35	11
M12	11,2	21,0	27,2	35,4	M12	18	32	12	38,4	10	23	41	13
M16	16,4	27,5	38,5	45,6	M16	22	42	16	48,4	15	31	52	17
M20	19,6	35,0	46,5	56,0	M20	28	51	20	59,9	18	37	62	21
M24	21,8	42,0	54,5	69,0	M24	36	63	24	67,8	20	45	75	25
M30	27,0	52,5	67,6	86,0	M30	44	78	30	82,1	25	56	93	31

DISK FOR BRACINGS

S355 carbon steel

Hot dip galvanising 85 µm

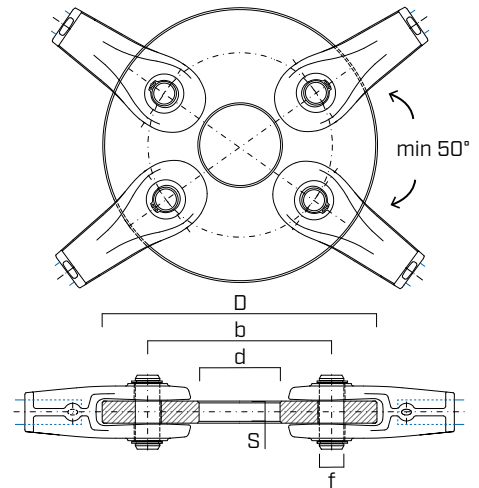
CODE	hook	no. holes ⁽¹⁾ [pcs]	pcs
ZVBDISC10	M10	2	1
ZVBDISC12	M12	2	1
ZVBDISC16	M16	2	1
ZVBDISC20	M20	2	1
ZVBDISC24	M24	2	1
ZVBDISC30	M30	2	1

⁽¹⁾Depending on the number of hooks converging on the disk, additional holes must be provided with diameter suitable to accommodate the joining pin.

Disk for M27 hook available upon request.

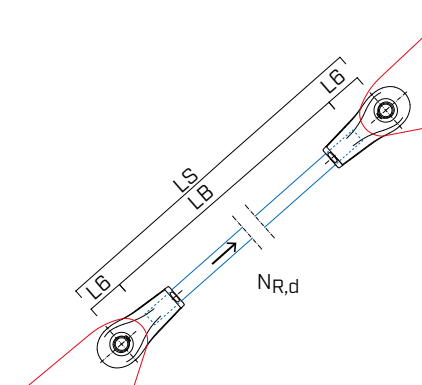
	D [mm]	d [mm]	b [mm]	S [mm]	f [mm]
M10	118	36	78	8	11
M12	140	42	94	10	13
M16	184	54	122	15	17
M20	224	66	150	18	21
M24	264	78	178	20	25
M30	334	98	222	25	31

f = hole diameter to join disk and hook.



STRUCTURAL VALUES - TENSILE STRENGTH

$N_{R,d}$ FOR DIFFERENT ROD - HOOK - DISK - JOINING PLATE COMBINATIONS



— Rod
— Hook
— Plate

LS = system length

LB = rod length = LS - 2 · L6

hook for Rothoblaas bracings	disk for Rothoblaas bracings	steel rod $f_{y,k}$ [N/mm ²]	joining plate steel ⁽¹⁾	$N_{R,d}$ [kN]					
				M10	M12	M16	M20	M24	M30
GJS-400-18-LT	S355	540	S355	31,0	43,7	81,4	127	183	291
		540	S235	25,6	38,5	76,9	110	148	230
		355	S235	19,6	28,5	53,1	82,9	120	190
		235	S235	15,0	21,9	40,7	63,5	91,5	145

⁽¹⁾The plate connecting the bracing system to the main structure needs to be dimensioned case by case, hence it cannot be provided by Rothoblaas.

GENERAL PRINCIPLES

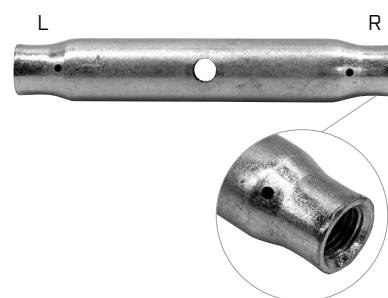
- Design values are consistent with EN 1993.
- The rod shall be dimensioned case by case.
- Dimensioning and verification of the connection between the bracing system and the main structure has to be carried out separately.

TENSIONER WITH INSPECTION HOLE

S355 bright zinc plated carbon steel
DIN 1478

CODE	rod	length		pcs
		[mm]	[in]	
ZVBTEN12	M12	125	4 15/16	1
ZVBTEN16	M16	170	6 3/4	1
ZVBTEN20	M20	200	8	1
ZVBTEN24	M24	255	10 1/16	1
ZVBTEN27(*)	M27	255	10 1/16	1
ZVBTEN30	M30	255	10 1/16	1

(*) Value not included in DIN 1478.

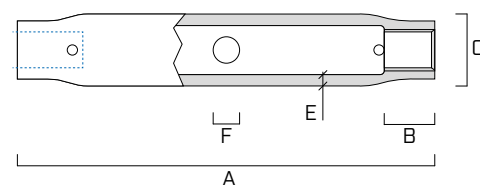


R = right-hand thread
L = left-hand thread

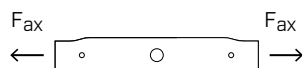
GEOMETRY OF THE TENSIONER ACCORDING TO DIN 1478

	C	A	B	E	F
	[mm]	[mm]	[mm]	[mm]	[mm]
M12	25	125	15	4,0	10
M16	30	170	20	4,5	10
M20	33,7	200	24	5,0	12
M24	42,4	255	29	5,6	12
M27(*)	42,4	255	40	5,6	12
M30	51	255	36	6,3	16

(*) Size not included in DIN 1478.



STRUCTURAL VALUES | TENSILE STRENGTH



		M12	M16	M20	M24	M27	M30
N _{ax,k}	[kN]	65,3	96,0	117,4	182,1	182,1	242,5

GENERAL PRINCIPLES

- The characteristic values $R_{ax,k}$ are according to EN 1993.
- Design values can be obtained from characteristic values as follows:

$$R_{ax,d} = \frac{R_{ax,k}}{\gamma_{M0}}$$

The coefficient γ_{M0} should be taken according to the current regulations used for the calculation.