

**GS-HYDRO**

# CLAMPS

REVISION FEBRUARY 2016



**GS-PIPING WITHOUT WELDING™**



## General Information

GS-Hydro distributes the market leading Clamp solutions. Application of these clamps are almost unlimited, far beyond mere pipe support. Please ask us about noise, vibration, crevice corrosion, fire-safe and other challenges. Due to the wide product range, all areas of pipe, tube and hose installation are covered:

- Industrial Hydraulics
- Mobile Hydraulics
- Marine Hydraulics
- Offshore
- General Industrial Pipe Construction
- Mining Industry
- Nuclear Reactor Construction
- Instrumentation and Control Technology
- Pneumatics

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## Technical Information

### Product code breakdown examples

Series	GSH Group	Outside diameter [mm]	Material and design of clamp body	Part No
Standard/Light	1A	6	PP	106a PP
	3	25		325 PP
Twin	3	25/25	PA	325/25 PA
Heavy	4S	26.9	PA	4026.9 PA
	8S	115	PPH	8115 PPH

### Material and design of clamp body

LIGHT/ STANDARD	PP	Polypropylene Profiled Inside
	PPH	Polypropylene Smooth Inside
	PPR	Polypropylene for Rubber Insert
	PA	Polyamide Profiled Inside
	PAH	Polyamide Smooth Inside
	PAR	Polyamide for Rubber Insert
	AL	Aluminum Profiled Inside
	SAH	Santoprene Rubber Smooth Inside
TWIN	PP	Polypropylene Profiled Inside
	PPH	Polypropylene Smooth Inside
	PPR	Polypropylene for Rubber Insert
	PA	Polyamide Profiled Inside
HEAVY	PP	Polypropylene Profiled Inside
	PPH	Polypropylene Smooth Inside
	PPR	Polypropylene for Rubber Insert
	PA	Polyamide Profiled Inside
	PAH	Polyamide Smooth Inside
	PAR	Polyamide for Rubber Insert
	SA	Santoprene Rubber Profiled Inside
	SAH	Santoprene Rubber Smooth Inside

### Clamp body size groups

Standard / Light Series				
DIN Group	GSH Group	O.D. [mm]	Pipe [SCH]	Imp. Tube
0	1	6–12	1/8"	1/4"–3/8"
1	1A	6–12	1/8"	1/4"–3/8"
2	2	12.7–18	1/4"–3/8"	1/2"–5/8"
3	3	19–25	1/2"	3/4"–1"
4	4	26.9–30	3/4"	
5	5	32–42	1"–1 1/4"	1 1/4"–1 1/2"

Twin Series				
DIN Group	GSH Group	O.D. [mm]	Pipe [SCH]	Imp. Tube
1	1D	6–12	1/8"	1/4"–3/8"
2	2D	12.7–18	1/4"–3/8"	1/2"–5/8"
3	3D	19–25	1/2"	3/4"–1"
4	4D	26.9–30	3/4"	
5	5D	32–42	1"–1 1/4"	1 1/4"–1 1/2"

Heavy Series				
DIN Group	GSH Group	O.D. [mm]	Pipe [SCH]	Imp. Tube
1	3S	6–18	1/8"–3/8"	1/8"–3/8"
2	4S	19–30	1/2"–3/4"	1/2"–3/4"
3	5S	30–42	1"–1 1/4"	1 1/4"–1 1/2"
4	6S	38–70	1 1/4"–2"	1 1/2"–2 1/2"
5	7S	70–90	2 1/2"–3"	2 7/8"–3 1/2"
6	8S	90–127	3 1/2"–4"	4"–5 1/4"
7	9S	127–168.3	5"–6"	5 1/4"–6 1/2"
8	10S	168.3–220	8"	7"–8 1/2"
9	11S	250–324	10"–12"	
10	12S	356–406	14"–16"	

### Inside form of the clamp bodies



#### Profiled inside with tension clearance

- to be used with rigid pipes and tubes
- clearance between the clamp halves provides tension of the tube or pipe
- available Polypropylene, Polyamide, Thermoplastic Elastomer and Aluminium
- other materials on request



#### Smooth inside (H)

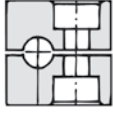
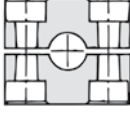
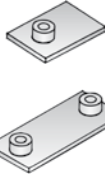
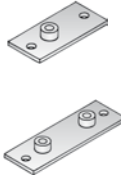
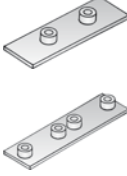
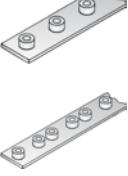

- to be used with hoses and cables
- smooth inside surface with rounded edges allow safe attachment of hose and cable
- no tension
- available Polypropylene, Polyamide and Thermoplastic Elastomer

# Technical Information

## Group designation overview

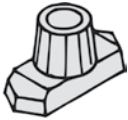
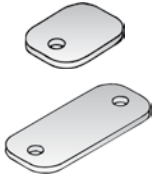
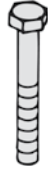

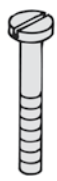

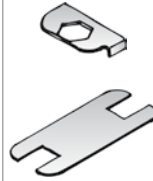

Standard/Light Series					Twin Series					Heavy Series												
Outside diameter			DIN Group	GSH Group	Outside diameter			DIN Group	GSH Group	Outside diameter			DIN Group	GSH Group	Outside diameter			DIN Group	GSH Group			
O.D. [mm]	SCH pipe	O.D. [inch]			O.D. [mm]	SCH pipe	O.D. [inch]			O.D. [mm]	SCH pipe	O.D. [inch]			O.D. [mm]	SCH pipe	O.D. [inch]			O.D. [mm]	SCH pipe	O.D. [inch]
6			0	1	6			1	1D	6			1	3S	88.9			6	8S			
8		5/16			8		5/16			6.4					90					97		
10	1/8				9.5		3/8			8		5/16			100					102		
12					12					9.5		3/8			108					114	4	
6			1	1A	6			2	2D	6			2	3S	115			7	9S			
8		5/16			8					10	1/8				127					130		
9.5		3/8			9.5					10					133					133		
10	1/8				10					12.7		1/2			139					139		
12			2	2	12			3	3D	12			3	4S	140			8	10S			
12.7		1/2			12.7		1/2			12					141	5				141	5	
13.5	1/4				13.5	1/4				12.7		1/2			150					152		
14					14					13.5	1/4				159					159		
15			3	3	15			4	4D	15			4	5S	165			9	11S			
16		5/8			15					16		5/8			168	6				168	6	
17.2	3/8				17.2	3/8				16					177.8					177.8		
18					18					17.2	3/8				190					190		
19			4	4	19		3/4	5	5D	19		3/4	5	6S	193.7			10	12S			
20					20					19		3/4			216					216		
21.3					21.3					20					219					219	8	
21.3					21.3					21.3		7/8			220					220		
22			5	5	22			6	6	22		7/8	6	7S	224.5			11	13S			
23					23					22		7/8			240					240		
25					25		1			23					244.5					244.5		
25					25					25		1			250					250		
26.9	3/4		6	6	26.9	3/4		7	7	26.9	3/4		7	8S	255			12	14S			
28					28					26.9	3/4				256					256		
30					30					28					263					263		
32					32					30					265					265		
33.7	1		7	7	33.7	1		8	8	33.7	1		8	9S	267			13	15S			
35					35					30					267					267		
38					38					32		1 1/4			270					270		
40					40					33.7	1				273	10				273	10	
42	1 1/4		8	8	42	1 1/4		9	9	42	1 1/4		9	10S	290			14	16S			
42					42					42					298.5					298.5		
44.5					44.5					42					310					310		
44.5					44.5					44.5		1 3/4			315					315		
48.3	1 1/2		9	9	48.3	1 1/2		10	10	48.3	1 1/2		10	11S	318			15	17S			
50					50					48.3	1 1/2				320					320		
50.8					50.8					50		2			324	12				324	12	
56					50.8					50.8		2			356					356		
56			10	10	56			11	11	56			11	12S	406			16	18S			
57.8					56					56												
60					60					57.8												
60.3	2				60					60												
63.5			11	11	63.5			12	12	63.5		2 1/2	12	13S				17	19S			
65					63.5					63.5		2 1/2										
66					65					65												
70					66					66												
72			12	12	72			13	13	72			13	14S				18	20S			
73					72					70												
76.1					73					70												
80					76.1					72												
88.9			13	13	88.9			14	14	88.9		3	14	15S				19	21S			
90					90					73												
97					97					76.1		3										
102					102					80												

## Standard/Light Series

Clamp body size group		Pipe/Tube outside diameter		Nominal bore (in)	xxx= material code	Replace xxx by selected code	Clamp body	Clamp materials	Weld plate	Elongated weld plate	Twin weld plate	Group weld plate	Mounting rail
							Group 1	Group 1A to 8	SP	SPV	DSP	RAP	TS
GS# Group	DIN Group	mm	in					std. Steel phosphated. Add 316 for stainless steel	std. Steel phosphated. Add 316 for stainless steel	std. Steel phosphated. Add 316 for stainless steel	std. Steel phosphated. Add 316 for stainless steel	std. Steel untreated. Add Cr6f for Zn plating and 316 for stainless steel	
1	0	6			106 xxx	PP=Polypropylene Profiled inside PPH=Polypropylene smooth inside PA=Polyamide PAH=Polyamide smooth inside SA=Thermoplastic Elastomer AL=Aluminium							
		6,4	1/2		106.4 xxx								
		8	5/16		108 xxx								
		9,5	3/8		109.5 xxx								
		10		1/8	110 xxx								
1a	1	12			112 xxx								
		6			106a xxx								
		6,4	1/2		106.4a xxx								
		8	5/16		108a xxx								
		9,5	3/8		109.5a xxx								
2	2	10		1/8	110a xxx								
		12			112a xxx								
		12,7	1/2		212.7 xxx								
		13,5		1/4	213.5 xxx								
		14			214 xxx								
		15			215 xxx								
3	3	16	5/8		216 xxx								
		17,2		3/8	217.2 xxx								
		18			218 xxx								
		19	3/4		319 xxx								
		20			320 xxx								
4	4	21,3		1/2	321.3 xxx								
		22	7/8		322 xxx								
		25	1		325 xxx								
5	5	26,9		3/4	426.9 xxx								
		28			428 xxx								
		30			430 xxx								
		32	1 1/4		532 xxx								
		33,7		1	533.7 xxx								
6	6	35			535 xxx								
		38	1 1/2		538 xxx								
		40			540 xxx								
7	7	42		1 1/4	542 xxx								
		44,5	1 3/4		644.5 xxx								
		48,3		1 1/2	648.3 xxx								
		50,8	2		650.8 xxx								
		57,2	2 1/4		757.2 xxx								
8	8	60,3		2	760.3 xxx								
		63,5	2 1/2		763.5 xxx								
		70	2 3/4		770 xxx								
		73	2 7/8		773 xxx								
		76,1	3		761.1 xxx								
8	8	88,9		3	888.9 xxx								
			4		8102L xxx								

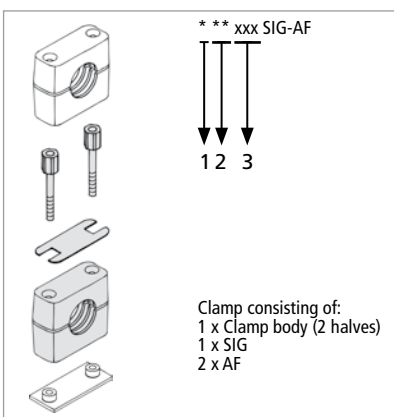
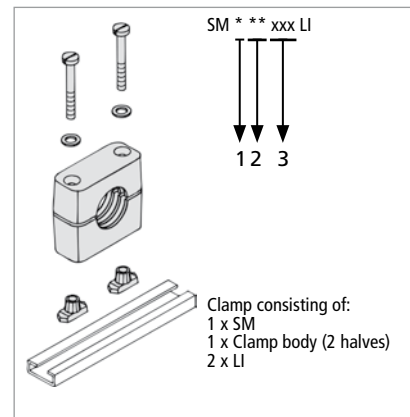
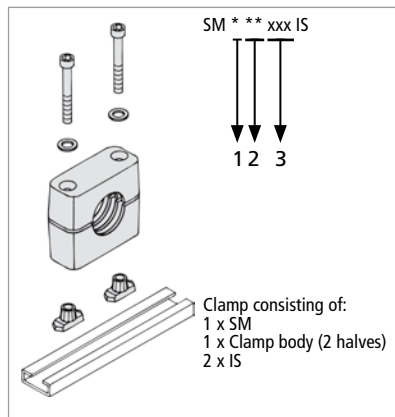
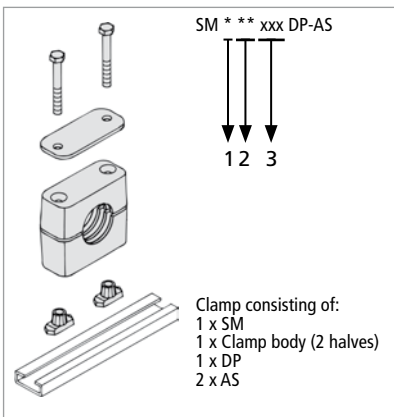
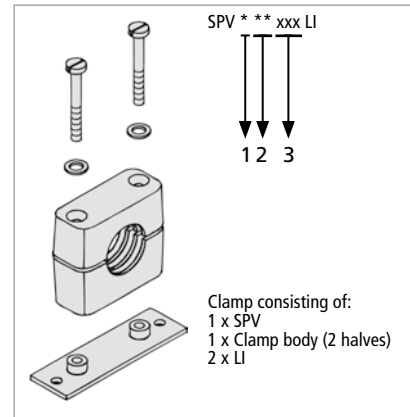
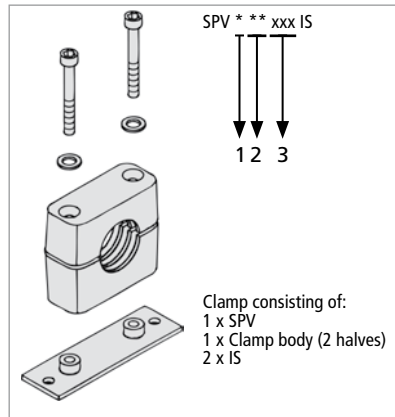
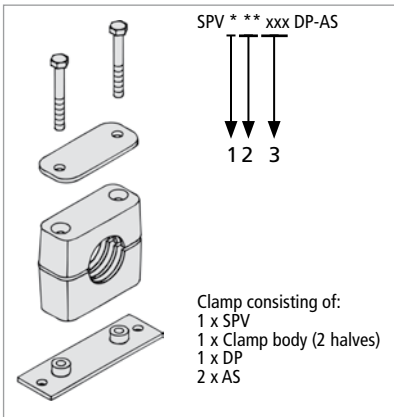
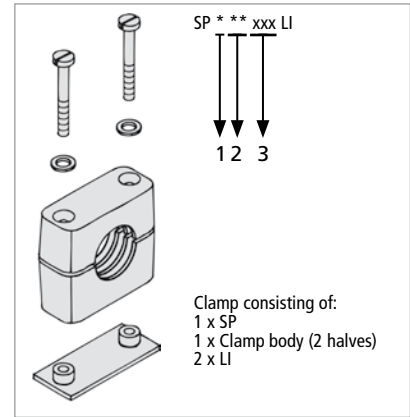
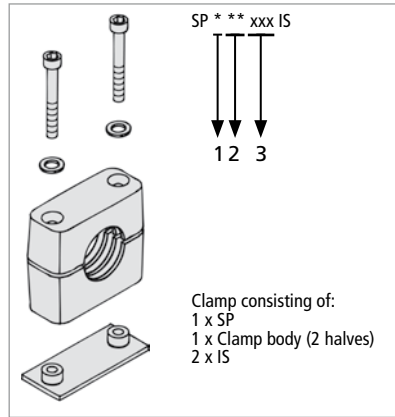
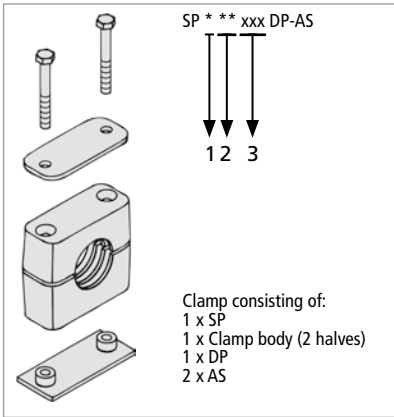
Continue next page

**Standard/Light Series**

Nut for TS mounting rail SM	Cover plate DP	Hexagon head bolt AS	Socket head bolt IS	Socket head bolt LI	Stacking bolt AF	Safety locking plate SIG	Safety washer SI
							
Std. Steel Zn plated. Add 316 for stainless steel	Std. Steel Zn plated. Add 316 for stainless steel	Std. Steel Zn plated. Add 316 for stainless steel	Std. Steel Zn plated. Add 316 for stainless steel	Std. Steel Zn plated. Add 316 for stainless steel	Std. Steel Zn plated. Add 316 for stainless steel	Std. Steel Zn plated. Add 316 for stainless steel	Std. Steel Zn plated.
SM	DP-1	AS-1/1a (M6x30)	IS-1/1a (M6x20)	LI-1/1a (M6x20)	AF-1/1a/1 D	SIG-1	SI
	DP-1a					SIG-1a	
	DP-2	AS-2/1 D (M6x35)	IS-2 (M6x25)	LI-2 (M6x25)	AF-2	SIG-2	
	DP-3	AS-3 (M6x40)	IS-3 (M6x30)	LI-3 (M6x30)	AF-3	SIG-3	
	DP-4	AS-4 (M6x45)	IS-4 (M6x35)	LI-4 (M6x35)	AF-4	SIG-4	
	DP-5	AS-5 (M6x60)	IS-5 (M6x50)	LI-5 (M6x50)		SIG-5	
	DP-6	AS-6 (M6x70)	IS-6 (M6x60)	LI-6 (M6x60)		SIG-6	
	DP-7	AS-7 (M6x100)	IS-7 (M6x90)			SIG-7	
DP-8	AS-8 (M6x125)	IS-8 (M6x110)			SIG-8		

## Standard/Light Series

### Complete clamp KITS



1. GSH Group
2. Pipe O.D.
3. Material and design of clamp body

**Order Example:**

**SP 216 PP-DP-AS** consist of:

- |            |   |
|------------|---|
| 1 x SP-2   | Single weld plate, Group 2                                      |
| 1 x 216 PP | Clamp body, profiled inside, polyprop., Group 2 for Ø16 mm pipe |
| 1 x DP-2   | Cover plate, Group 2  |
| 2 x AS-2   | Hexagon bolt (M6X30), Group 2                                   |

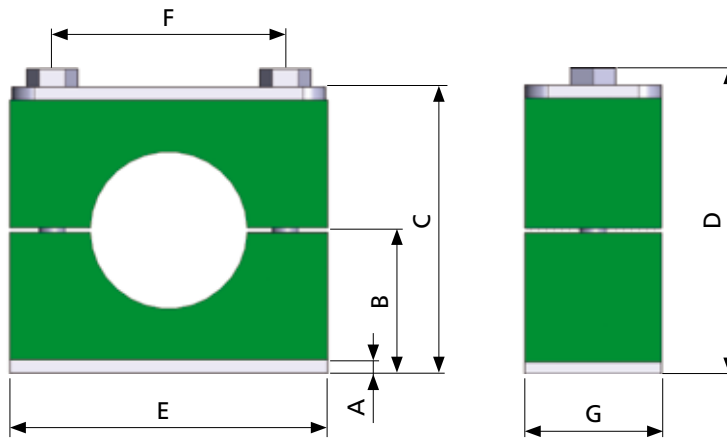
**Information**

In order to protect hexagon head bolts against unscrew caused by vibrations safety washers acc. to DIN 93 are recommended.  
Items are supplied non-assembled.



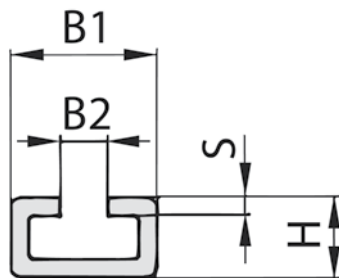
### Standard/Light Series

#### Dimensions clamp assembly



Clamp body size group										
GSH Group	DIN Group	A	B	C max.	D max.	E (plate SP)	E max. (plate SPV)	F	G	Approximate weight of clamp assembly [kg/pc]
1	0	3	16,5	33	37	31,5	58	-	30	0.06
1a	1	3	16,5	33	37	36	64	20	30	0.08
2	2	3	19,5	39	43	42	70	26	30	0.10
3	3	3	21	42	46	50	78	33	30	0.11
4	4	3	24	48	52	60	87	40	30	0.13
5	5	3	32	64	68	71	100	52	30	0.17
6	6	3	36	72	76	88	115	66	30	0.21
7	7	5	51,5	103	107	122	150	94	30	-
8	8	5	64	128	132	148	178	120	30	-

#### Dimensions of TS mounting rail



	H	B1	B2	S
TS11	11	28	11	2
TS14	14			
TS30	30			

Available in lengths 1m and 2m

#### Recommed tightening torques for bolt

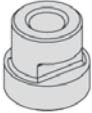
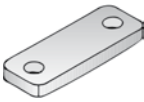
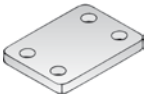



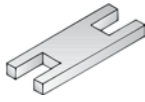
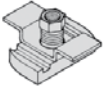
GSH Group	DIN Group	Clamp material		
		PP	PA	AL
1	0	8 Nm	10 Nm	12 Nm
1a	1			
2	2			
3	3			
4	4			
5	5			
6	6			
7	7			
8	8			

## Heavy Series – GSH Group 3S-6S

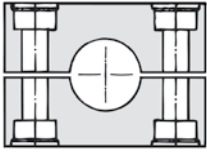
Clamp body size group		Pipe/Tube outside diameter		Clamp body		Clamp material		Weld plate	Weld plate for double clamps	Elongated weld plate	Elongated weld plate for double clamps	Mounting rail
								SPAL	SPAS	SPAL/DUB	SPAS/DUB	STSV
GSH Group	DIN Group	mm	in	Nominal bore (in)	xxx= material code	Replace xxx by selected code	std. Steel phosphated. Add 316 for stainless steel	std. Steel phosphated. Add 316 for stainless steel	std. Steel phosphated. Add 316 for stainless steel	std. Steel phosphated. Add 316 for stainless steel	std. Steel untreated. Add Cr6f for Zn plating and 316 for stainless steel	
3S	1	6			3006 xxx	PP=Polypropylene Profiled inside PPH=Polypropylene smooth inside PA=Polyamide PAH=Polyamide smooth inside SA=Thermoplastic Elastomer AL=Aluminium	SPAL-3 S	SPAS-3 S	SPAL/DUB-3 S	SPAS/DUB-3 S		
		6,4	1/4		3006,4 xxx							
		8	5/16		3008 xxx							
		9,5	3/8		3009,5 xxx							
		10		1/8	3010 xxx							
		12			3012 xxx							
		12,7	1/2		3012,7 xxx							
		13,5		1/4	3013,5 xxx							
		14			3014 xxx							
		15			3015 xxx							
16	5/8		3016 xxx									
17,2		3/8	3017,2 xxx									
18			3018 xxx									
20			3020 xxx									
4S	2	19	3/4		4019 xxx	PP=Polypropylene Profiled inside PPH=Polypropylene smooth inside PA=Polyamide PAH=Polyamide smooth inside SA=Thermoplastic Elastomer AL=Aluminium	SPAL-4 S	SPAS-4 S	SPAL/DUB-4 S	SPAS/DUB-4 S		
		20			4020 xxx							
		21,3		1/2	4021,3 xxx							
		22			4022 xxx							
		25			4025 xxx							
		25,4	1		4025,4 xxx							
		26,9		3/4	4026,9 xxx							
		28			4028 xxx							
30			4030 xxx									
5S	3	30			5030 xxx	PP=Polypropylene Profiled inside PPH=Polypropylene smooth inside PA=Polyamide PAH=Polyamide smooth inside SA=Thermoplastic Elastomer AL=Aluminium	SPAL-5 S	SPAS-5 S	SPAL/DUB-5 S	SPAS/DUB-5 S		
		32	1-1/4		5032 xxx							
		33,7		1	5033,7 xxx							
		35			5035 xxx							
		38	1-1/2		5038 xxx							
		40			5040 xxx							
		41,3			5041,3 xxx							
		42		1-1/4	5042 xxx							
6S	4	38	1-1/2		6038 xxx	PP=Polypropylene Profiled inside PPH=Polypropylene smooth inside PA=Polyamide PAH=Polyamide smooth inside SA=Thermoplastic Elastomer AL=Aluminium	SPAL-6 S	SPAS-6 S	SPAL/DUB-6 S	SPAS/DUB-6 S		
		42			6042 xxx							
		44,5	1-3/4		6044,5 xxx							
		48,3		1-1/2	6048,3 xxx							
		50,8	2		6050,8 xxx							
		54			6054 xxx							
		55			6055 xxx							
		57			6057 xxx							
		57,2	2-1/4		6057,2 xxx							
		60,3		2	6060,3 xxx							
		63,5	2-1/2		6063,5 xxx							
		65			6065 xxx							
70	2-3/4		6070 xxx									

Continue next page

### Heavy Series – GSH Group 3S-6S

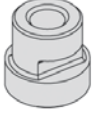
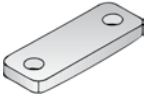
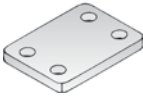



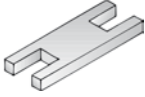
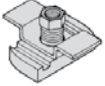
Mounting rail nut	Cover plate	Cover plate for double clamps	Hexagon head bolt	Socket head bolt	Stacking bolt	Safety locking plate	Channel rail adaptor
GMV	DPAL	DPAS	AS	IS	AF	SIP	CRA
							
std. Steel phosphated. Add 316 for stainless steel	Std. Steel Zn plated. Add 316 for stainless steel	Std. Steel Zn plated. Add 316 for stainless steel	Std. Steel Zn plated. Add 316 for stainless steel	Std. Steel Zn plated. Add 316 for stainless steel	Std. Steel Zn plated. Add 316 for stainless steel	Std. Steel Zn plated. Add 316 for stainless steel	Std. Steel Zn plated. Add 316 for stainless steel
GMV-10	DPAL-3 S	DPAS-3 S	AS-3 S (M10X45)	IS-3 S (M10X30)	AF-3 S	SIP-3 S	CRA-3-5 S
	DPAL-4 S	DPAS-4 S	AS-4 S (M10X60)	IS-4 S (M10X40)	AF-4 S	SIP-4 S	
	DPAL-5 S	DPAS-5 S	AS-5 S (M10X70)	IS-5 S (M10X50)	AF-5 S	SIP-5 S	
GMV-12	DPAL-6 S	DPAS-6 S	AS-6 S (M12X100)	IS-6 S (M12X80)	AF-6 S	SIP-6 S	CRA-6 S

## Heavy Series – GSH Group 7S-12S

Clamp body size group		Pipe/Tube outside diameter					Clamp body	Clamp material	Weld plate	Weld plate for double clamps	Elongated weld plate	Elongated weld plate for double clamps	Mounting rail
							SPAL	SPAS	SPAL/DUB	SPAS/DUB	STSV		
GSH Group	DIN Group	mm	in	Nominal bore (in)	xxx= material code	Replace xxx by selected code	std. Steel phosphated. Add 316 for stainless steel	std. Steel phosphated. Add 316 for stainless steel	std. Steel phosphated. Add 316 for stainless steel	std. Steel phosphated. Add 316 for stainless steel	std. Steel phosphated. Add 316 for stainless steel	std. Steel untreated. Add Cr6f for Zn plating and 316 for stainless steel	
7S	5	60,3			7060,3 xxx	PP=Polypropylene Profiled inside PPH=Polypropylene smooth inside PA=Polyamide PAH=Polyamide smooth inside SA=Thermoplastic Elastomer AL=Aluminium	SPAL-7 S	SPAS-7 S	SPAL/DUB-7 S	SPAS/DUB-7 S	-		
		65			7065 xxx								
		70	2-3/4		7070 xxx								
		73		2-1/2*	7073 xxx								
		75			7075 xxx								
		76,1	3	2-1/2**	7076,1 xxx								
		80			7080 xxx								
		82,5			7082,5 xxx								
88,9	3-1/2	3	7088,9 xxx	8S	6		SPAL-8 S	SPAS-8 S	SPAL/DUB-8 S	SPAS/DUB-8 S	-		
88,9	3-1/2	3	8088,9 xxx										
100			8100 xxx										
102	4	3-1/2	8102 xxx										
108			8108 xxx										
114	4-1/2	4	8114 xxx										
127	5		8127 xxx	9S	7		SPAL-9 S	SPAS-9 S	SPAL/DUB-9 S	SPAS/DUB-9 S	-		
133			8133 xxx										
127	5		9127 xxx										
133			9133 xxx										
140		5	9140 xxx										
152	6		9152 xxx										
159			9159 xxx	10S	8		SPAL-10 S	SPAS-10 S	SPAL/DUB-10 S	SPAS/DUB-10 S	-		
165			9165 xxx										
168		6	9168 xxx										
168		6	10168 xxx										
177,8			10177,8 xxx										
193,7			10193,7 xxx										
203	8		10203 xxx	11S	9	SPAL-11 S	SPAS-11 S	SPAL/DUB-11 S	SPAS/DUB-11 S	-			
216			10216 xxx										
219		8	10219 xxx										
219		8	11219 xxx	12S	10	SPAL-12 S	SPAS-12 S	SPAL/DUB-12 S	SPAS/DUB-12 S	-			
273		10	11273 xxx										
324		12	11324 xxx										
356		14	12356 xxx										
		16	12406 xxx										

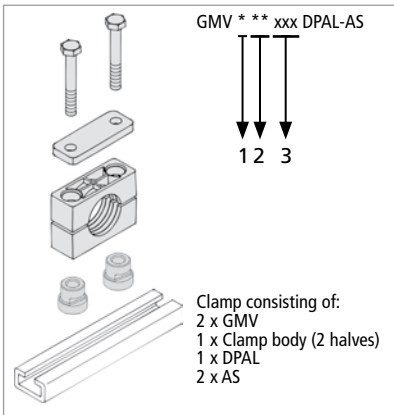
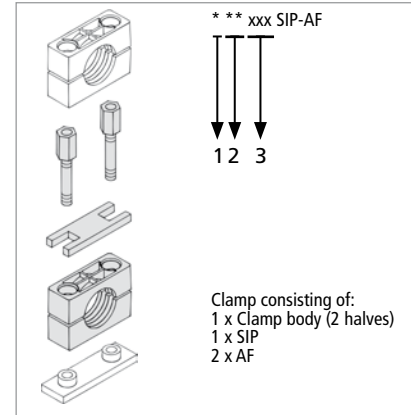
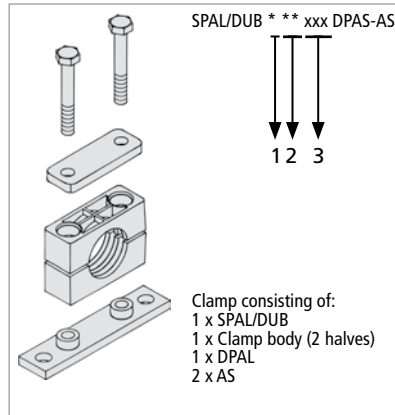
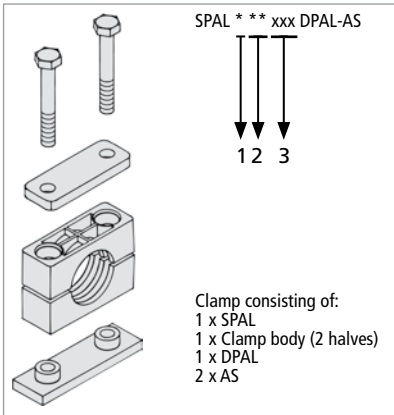
Continue next page

### Heavy Series – GSH Group 7S-12S

Mounting rail nut	Cover plate	Cover plate for double clamps	Hexagon head bolt	Socket head bolt	Stacking bolt	Safety locking plate	Channel rail adaptor
GMV	DPAL	DPAS	AS	IS	AF	SIP	CRA
							
std. Steel phosphated. Add 316 for stainless steel	Std. Steel Zn plated. Add 316 for stainless steel	Std. Steel Zn plated. Add 316 for stainless steel	Std. Steel Zn plated. Add 316 for stainless steel	Std. Steel Zn plated. Add 316 for stainless steel	Std. Steel Zn plated. Add 316 for stainless steel	Std. Steel Zn plated. Add 316 for stainless steel	Std. Steel Zn plated. Add 316 for stainless steel
–	DPAL-7 S	DPAS-7 S	AS-7 S (M16X130)	–	AF-7 S	SIP-7 S	–
–	DPAL-8 S	DPAS-8 S	AS-8 S (M20X190)	–	AF-8 S	SIP-8 S	–
–	DPAL-9 S	DPAS-9 S	AS-9 S (M24X220)	–	AF-9 S	SIP-9 S	–
–	DPAL-10 S	DPAS-10 S	AS-10 S (M30X300)	–	AF-10 S	SIP-10 S	–
–	DPAL-11 S	DPAS-11 S	AS-11 S (M30X450)	–	–	–	–
–	DPAL-12 S	DPAS-12 S	AS-12 S (M30X560)	–	–	–	–

## Heavy Series

### Complete clamp KITS



1. GSH Group
2. Pipe O.D./Pipe O.D.
3. Material and design of clamp body

**Order Example:**

**SPAL 3006 PP-DPAL-AS** consist of:

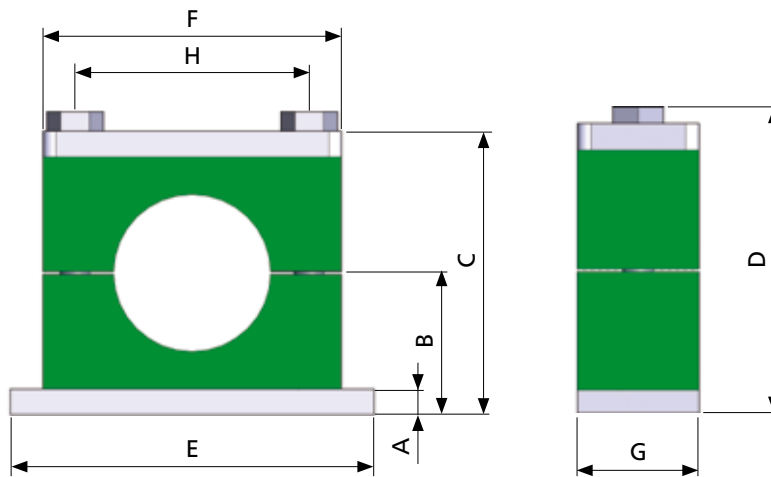
1 x SPAL-3 S	Single weld plate, Group 3S
1 x 3006 PP	Clamp body, profiled inside, polyprop., Group 3S for Ø6 mm pipe
1 x DPAL-3 S	Cover plate, Group 3S
2 x AS-3 S	Hexagon bolt (M10x45), Group 3S

**Information**

In order to protect hexagon head bolts against unscrew caused by vibrations safety washers acc. to DIN 93 are recommended.  
Items are supplied non-assembled.

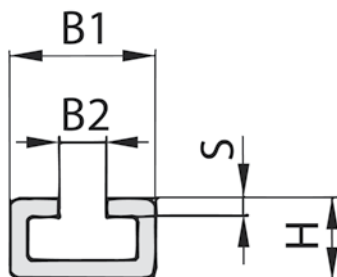
## Heavy Series

### Dimensions clamp assembly



Clamp body size group											
GSH Group	DIN Group	A	B	C Max.	D Max.	E (plate SPAL)	E (plate SPAL/DUB)	F	G	H	Approximate weight of clamp assembly [kg/pc]
3S	1	8	24	48	55	74	113	55	30	33	0.32
4S	2	8	32	64	71	86	125	70	30	45	0.41
5S	3	8	38	76	83	100	140	85	30	60	0.49
6S	4	10	54,5	109	117	140	187	115	45	90	1.28
7S	5	10	70	140	150	180	238	154	60	122	2.35
8S	6	15	99	198	211	226	309	206	80	168	6.16
9S	7	15	115	230	246	270	370	251	90	205	8.56
10S	8	25	160	320	340	340	440	336	120	265	23.6
11S	9	30	235	470	490	520	590	470	160	395	55.0
12S	10	30	295	590	610	680	750	630	180	534	–

### Dimensions of TS mounting rail



	B1	B2	S	H
STSV	40	13	5	22

Available in lengths 1m and 2m

### Recommed tightening torques for bolt

GSH Group	DIN Group	Clamp material		
		PP	PA	AL
3S	1	12 Nm	20 Nm	30 Nm
4S	2			
5S	3	15 Nm	25 Nm	35 Nm
6S	4	30 Nm	40 Nm	55 Nm
7S	5	45 Nm	55 Nm	120 Nm
8S	6	80 Nm	150 Nm	220 Nm
9S	7	110 Nm	200 Nm	250 Nm
10S	8	180 Nm	350 Nm	500 Nm
11S	9	200 Nm	370 Nm	500 Nm
12S	10	270 Nm	480 Nm	600 Nm



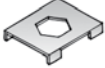
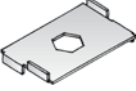
## Twin Series

					Clamp body	Clamp material	Weld plate	Group weld plate	Mounting rail	Nut for TS mounting rail	Cover plate			
					Pipe/Tube outside diameter		Nominal bore (in)		SP	RAP	TS	SM	GD	
Clamp body size group		Pipe/Tube outside diameter		Nominal bore (in)		xxx= material code		Replace xxx by selected code		std. Steel phosphated. Add 316 for stainless steel	std. Steel phosphated. Add 316 for stainless steel	std. Steel untreated. Add Cr6f for Zn plating and 316 for stainless steel	Std. Steel Zn plated. Add 316 for stainless steel	std. Steel phosphated. Add 316 for stainless steel
GSH Group	DIN Group	mm	in	Nominal bore (in)		Replace xxx by selected code		std. Steel phosphated. Add 316 for stainless steel	std. Steel phosphated. Add 316 for stainless steel	std. Steel untreated. Add Cr6f for Zn plating and 316 for stainless steel	Std. Steel Zn plated. Add 316 for stainless steel	std. Steel phosphated. Add 316 for stainless steel		
1D	1	6		106/06		PP=Polyprpylene Profiled inside PPH=Polypropylene smooth inside PA=Polyamide PAH=Polyamide smooth inside	SP-1 D	RAP-1 D/40/5	TS-11 TS-14 TS-30	SM	GD-1 D			
		6,4	1/2	106.4/06.4										
		8	5/16	108/08										
		9,5	3/8	109.5/09.5										
		10		1/8	110/10									
2D	2	12		112/12		PP=Polyprpylene Profiled inside PPH=Polypropylene smooth inside PA=Polyamide PAH=Polyamide smooth inside	SP-2 D	RAP-2 D/58/5	TS-11 TS-14 TS-30	SM-M8	GD-2 D			
		12,7	1/2	212.7/12.7										
		13,5		1/4	213.5/13.5									
		14			214/14									
		15			215/15									
3D	3	16	5/8	216/16		PP=Polyprpylene Profiled inside PPH=Polypropylene smooth inside PA=Polyamide PAH=Polyamide smooth inside	SP-3 D	RAP-3 D/72/5	TS-11 TS-14 TS-30	SM-M8	GD-3 D			
		17,2		3/8	217.2/17.2									
		18			218/18									
		19	3/4		319/19									
4D	4	20		320/20		PP=Polyprpylene Profiled inside PPH=Polypropylene smooth inside PA=Polyamide PAH=Polyamide smooth inside	SP-4 D	RAP-4 D/90/5	TS-11 TS-14 TS-30	SM-M8	GD-4 D			
		21,3		1/2	321.3/21.3									
		22	7/8		322/22									
5D	5	25	1	325/25		PP=Polyprpylene Profiled inside PPH=Polypropylene smooth inside PA=Polyamide PAH=Polyamide smooth inside	SP-5 D	RAP-5 D/112/5	TS-11 TS-14 TS-30	SM-M8	GD-5 D			
		26,9		3/4	429.9/26.9									
		28			428/28									
		30			430/30									
		32	1 1/4		532/32									
5D	5	33,7		1	533.7/33.7		PP=Polyprpylene Profiled inside PPH=Polypropylene smooth inside PA=Polyamide PAH=Polyamide smooth inside	SP-5 D	RAP-5 D/112/5	TS-11 TS-14 TS-30	SM-M8	GD-5 D		
		35			535/35									
		38	1 1/2		538/38									
		40			540/40									
			1 1/4		542/42									

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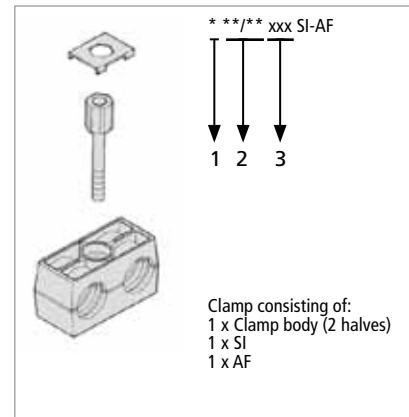
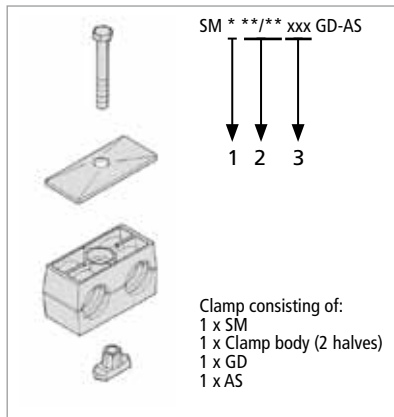
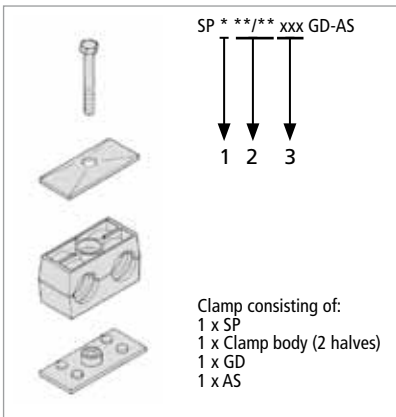


## Twin Series

Hexagon head bolt	Stacking bolt	Safety locking plate	Safety locking plate
AS	AF	SI	SIV
			
Std. Steel Zn plated. Add 316 for stainless steel	Std. Steel Zn plated. Add 316 for stainless steel	Std. Steel Zn plated. Add 316 for stainless steel	Std. Steel Zn plated. Add 316 for stainless steel
AS-2/1 D (M6X35)	AF-1/1a/1 D	SI-1 D	SIV-1 D
AS-2 D (M8X35)	AF-2 D	SI-2-5 D	SIV-2-5 D
AS-3 D (M8X45)	AF-3 D		
AS-4 D (M8X50)	AF-4 D		
AS-5 D (M8X60)	AF-5 D		

## Twin Series

### Complete clamp KITS



1. GSH Group
2. Pipe O.D./Pipe O.D.
3. Material and design of clamp body

#### Order Example:

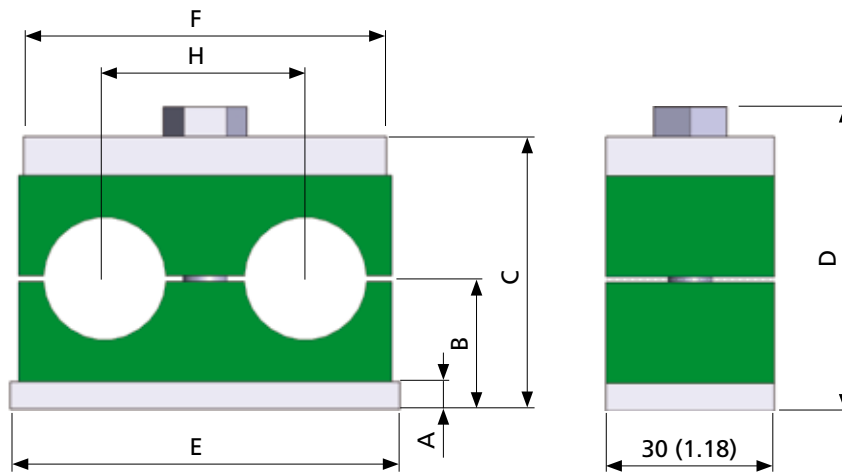
**SP 106/06 PP-GD-AS** consist of:

- 1 x SP-1 D      Single weld plate, Group 1D
- 1 x 106/06 PP      Twin clamp body, profiled inside, polypropylene, Group 1D for Ø6 mm pipe
- 1 x GD-1 D      Cover plate, Group 1D
- 1 x AS-1 D      Hexagon bolt (M6x35), Group 1D

#### Information

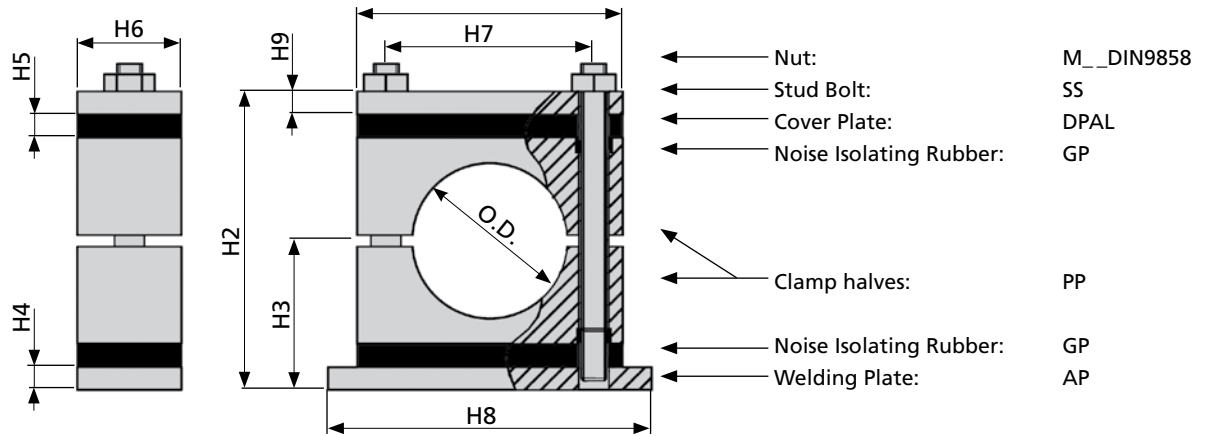
In order to protect hexagon head bolts against unscrew caused by vibrations safety washers acc. to DIN 93 are recommended. Items are supplied non-assembled.

### Dimensions clamp assembly



GSH Group	DIN Group	A	B	C	D Max.	E	F	H
1D	1	3	16,5	37	41	37	36	20
2D	2	5	18,5	39	44	55	53	29
3D	3		23,5	49	54	70	67	36
4D	4		25	52	57	85	82	45
5D	5		31,5	65	70	110	106	56

### Heavy Series with noise isolating



DIN Group	Pipe O.D.	Body Part No*	Welding Plate Part No	Noise Isol. Rubber Part No	Cover Plate Part No*	Bolts DIN 931 Part no.	Nut DIN 9858 Part No	Total Weight [kg]	H1	H2	H3	H4	H5	H6	H7	H8	H9
3	30	5030 PP	AP-S3	GP-S3	DPAL-5 S	SS-S3 (M10x103)	M10DIN9858	0.5	85	97	52	15	7	30	60	100	8
	33.4	5033.4 PP															
	35	5035 PP															
	38	5038 PP															
	42	5042 PP															
42.2	5042.2 PP																
4	44.5	6044.5 PP	AP-S4	GP-S4	DPAL-6 S	SS-S4 (M12x143)	M12DIN9858	1.4	115	135	72	20	7	45	90	140	10
	48.3	6048.3 PP															
	50	6050 PP															
	54	6054 PP															
	57	6057 PP															
	60	6060 PP															
	60.3	6060.3 PP															
66	6066 PP																
5	73.3	7073.3 PP	AP-S5	GP-S5	DPAL-7 S	SS-S5 (M16x183)	M16DIN9858	2.6	152	166	88	20	7	60	122	180	10
	75	7075 PP															
	76.1	7076.1 PP															
	80	7080 PP															
	84	7084 PP															
90	7090 PP																
6	97	8097 PP	AP-S6	GP-S6	DPAL-8 S	SS-S6 (M20x260)	M20DIN9858	6.6	206	231	121	25	11	80	168	228	15
	101	8101 PP															
	104	8104 PP															
	106	8106 PP															
	114.3	8114.3 PP															
	115	8115 PP															
	130	8130 PP															
131	8131 PP																
7	133	9133 PP	AP-S7	GP-S7	DPAL-9 S	SS-S7 (M24x305)	M24DIN9858	8.6	251	290	162	50	11	90	205	270	15
	141.3	9141.3 PP															
	150	9150 PP															
	156	9156 PP															
	165	9165 PP															
168.3	9168.3 PP																
8	168.3	10168.3 PP	AP-S8	GP-S8	DPAL-10 S	SS-S8 (M30x400)	M30DIN9858	11.5	336	418	240	88	16	120	265	340	25
	190	10190 PP															
	204	10204 PP															
	206	10206 PP															
	219.1	10219.1 PP															
220	10220 PP																

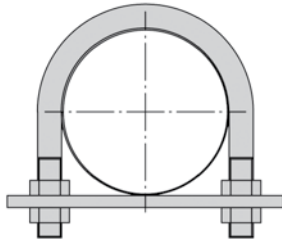
NOTE: Hardness of noise isolating rubber 70 shore.  
 \*) Body and Cover Plate Part No's according to the GSH Group.

Order example:  
 GSV-GSH Group + pipe O.D.  
 GSV-6115

Clamp halves see page 10, 12  
 Cover plates see page 11, 13

## Special clamps

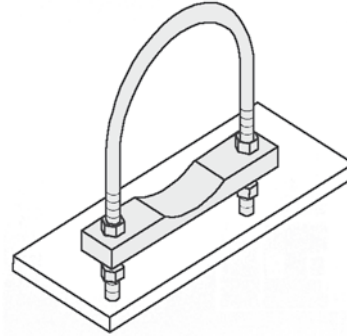
### U-Bolt



U-Bolt code breakdown	
Hot dip galvanized	UBOLT + pipe O.D.
Stainless steel	UBOLT + pipe O.D. + 316

Dimension data sheet upon request.

### U-Bolt with plastic saddle



U-Bolt code breakdown	
Untreated steel	RBW1-RUL/PP + Pipe O.D.
Zink plated steel	RBW3-RUL/PP + Pipe O.D.
Stainless steel AISI 316	RBW5-RUL/PP + Pipe O.D.
Plastic coated steel	RBW6-RUL/PP + Pipe O.D.

Polypropylene Plastic Saddle is standard. Polyamide available on request.

### Fire protection clamps



There is several clamp materials available for preventive fire protection. Please contact us for more information.

Fire protection clamps	
PA-VO	Tested and approved according to UL94 and other standards. UL-94 classification: 94V-0
PA-FF	Tested and approved according to DIN 5510, Part 2
	Combustibility classification: S4
	Smoke development classification: SR2 Dripping classification: ST2
PPDA	Tested and approved according to Def Stan 07-247
	Approved by the UK MoD
PP6853	Tested and approved according to BS 6853
	Assessment: category 1a

Other Possibilities:  
Standard clamps with alternative colors  
Rubber Clamps with different hardness

### ACT – Anti corrosion clamps



- Designed to protect piping from crevice corrosion caused by trapped seawater
- Special designed elastomeric strips avoid accumulation of seawater between clamp body and pipe.
- ACT clamp offers extended maintenance and service intervals

Available in most common metric and imperial pipe diameters from 6 mm to 42 mm.

Interchangeable and usable with all standard and twin clamp components manufactured according to DIN3015.

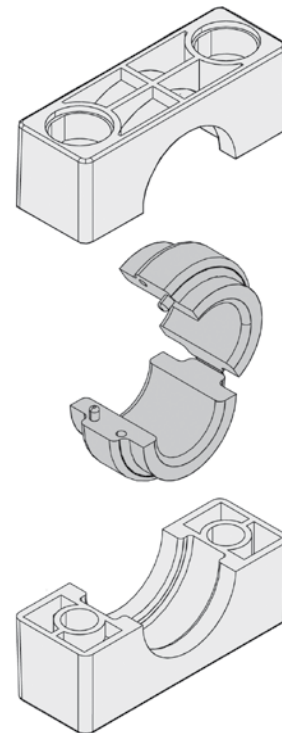
## Rubber insert

### Heavy Series

Clamp body size group		Pipe/Tube outside diameter		Clamp body	Clamp material	Spare Rubber insert	
GSH Group	DIN Group	mm	in				
45	2	6		4006 xx R	PPR=Polypropylene PAR=Polyamide	RI 6	
		8	5/16	4008 xx R		RI 8	
		10		4010 xx R		RI 10	
		12		4012 xx R		RI 12	
		12,7	1/2	4012,7 xx R		RI 12,7	
		14		4014 xx R		RI 14	
		15		4015 xx R		RI 15	
		16	5/8	4016 xx R		RI 16	
		17,2		4017,2 xx R		RI 17,2	
	18		4018 xx R	RI 18			
	19	3/4	4019 xx R	RI 19			
	55	3	20			5020 xx R	RI 20
			21,3			5021,3 xx R	RI 21,3
			22	7/8		5022 xx R	RI 22
			25			5025 xx R	RI 25
			26,9			5026,9 xx R	RI 26,9
			28			5028 xx R	RI 28
			30			5030 xx R	RI 30
	32	1 1/4	5032 xx R	RI 32 (6+55)			
65	4	32	1 1/4	6032 xx R	RI 32 (65)		
		33,7		6033,7 xx R	RI 33,7		
		35		6035 xx R	RI 35		
		38,7		3068,7 xx R	RI 38,7		
		40		6040 xx R	RI 40		
		42		6042 xx R	RI 42		
		45,5		6045,5 xx R	RI 45,5		
		48		6048 xx R	RI 48		
		51	2	6051 xx R	RI 51		
		53,4		6053,4 xx R	RI 53,4		
56,4		6056,4 xx R	RI 56,4				
75	5	55		7055 xx R	RI 55		
		57	2 1/4	7057 xx R	RI 57		
		60		7060 xx R	RI 60		
		63,5	2 1/2	7063,5 xx R	RI 63,5		
		65		7065 xx R	RI 65		
		70	2 3/4	7070 xx R	RI 70		
		72		7072 xx R	RI 72		
76	3	7076 xx R	RI 76				
85	6	80		8080 xx R	RI 80		
		88,9	3 1/2	8088,9 xx R	RI 88,9		
		102		8102 xx R	RI 102		
95	7	114		9114 xx R	RI 114		
		133	5 1/4	9133 xx R	RI 133		
		140		9140 xx R	RI 140		
105	8	150		10150 xx R	RI 150		
		165		10165 xx R	RI 165		
		168		10168 xx R	RI 168		
				10172 xx R	RI 172		

### Standard Series

Clamp body size group		Pipe/Tube outside diameter		Clamp body	Clamp material	Spare Rubber insert
GSH Group	DIN Group	mm	in			
4	4	6		406 xx R	PPR=Polypropylene PAR=Polyamide	RI 06
		8	5/16	408 xx R		RI 08
		10		410 xx R		RI 10
		12		412 xx R		RI 12
		12,7	1/2	412,7 xx R		RI 12,7
		14		414 xx R		RI 14
		15		415 xx R		RI 15
		16	5/8	416 xx R		RI 16
		17,2		417,2 xx R		RI 17,2
		18		418 xx R		RI 18
		19	3/4	419 xx R		RI 19
6	6	20		420 xx R	RI 20	
		21,3		421,3 xx R	RI 21,3	
		22	7/8	422 xx R	RI 22	
		25		425 xx R	RI 25	
		26,9		426,9 xx R	RI 26,9	
		28		428 xx R	RI 28	
		30		430 xx R	RI 30	
		32	1 1/4	432 xx R	RI 32 (6+55)	



Clamp with rubber insert is suitable when noise isolation or vibration dampening is needed. Available for common pipesizes.

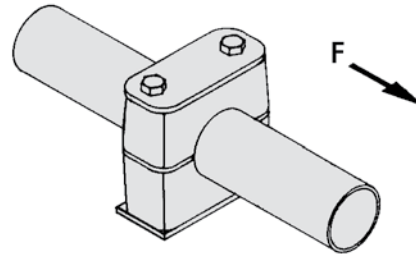
## Tightening torques and maximum loads in Pipe Direction

All tightening torques and max. loads in pipe direction refer to clamps with cover plates and hexagon head bolts acc. to DIN 931/933.

The maximum load in pipe direction (acc. to DIN 3015, part 10) is an average value, determined by three tests at 23°C with a steel pipe acc. to DIN 2448, St 37 – rolled surface – taking static friction into consideration.

Sliding starts when the shown values (F) are reached.

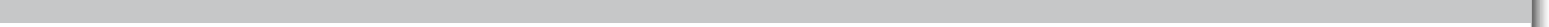
**NB: Load in pipe direction only for clamps profiled inside.**



Standard/Light Series							
Clamp Group	Hexagon Head Bolt DIN 931/933	Polypropylene		Polyamide		Aluminum	
		Tightening Torque [Nm]	Max. load in pipe direction F [kN]	Tightening Torque [Nm]	Max. load in pipe direction F [kN]	Tightening Torque [Nm]	Max. load in pipe direction F [kN]
0	M6	8	0.6	10	0.6	12	3.5
1		8	1.1	10	0.7	12	4.2
2		8	1.3	10	0.8	12	4.3
3		8	1.4	10	1.6	12	4.9
4		8	1.5	10	1.7	12	5.0
5		8	1.9	10	2.0	12	7.3
6		8	2.0	10	2.5	12	8.9

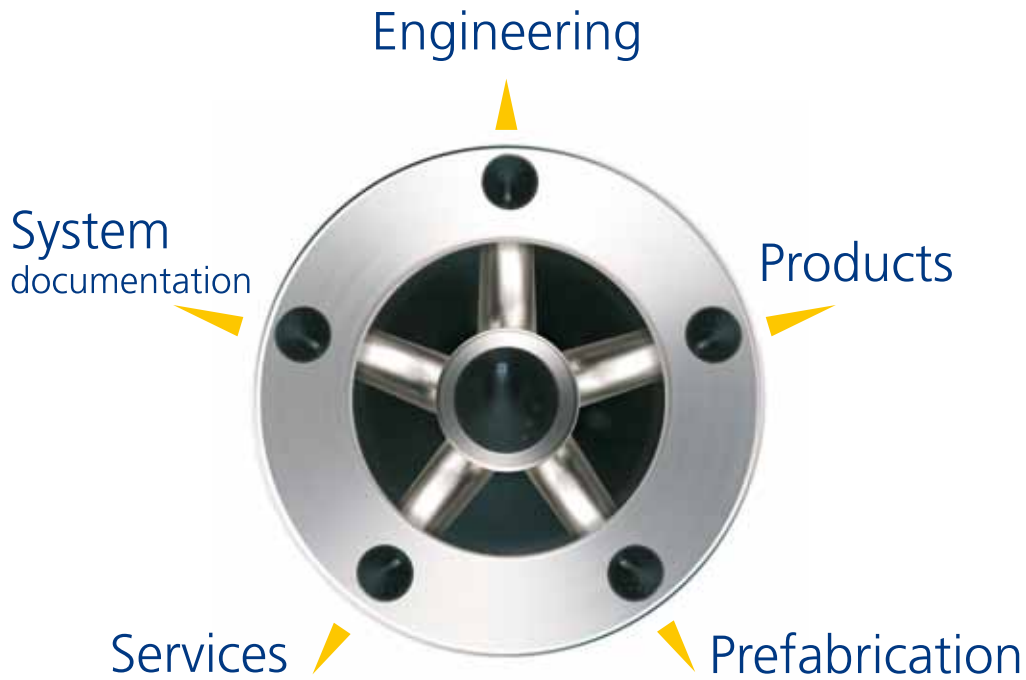
Heavy Series							
Clamp Group	Hexagon Head Bolt DIN 931/933	Polypropylene		Polyamide		Aluminum	
		Tightening Torque [Nm]	Max. load in pipe direction F [kN]	Tightening Torque [Nm]	Max. load in pipe direction F [kN]	Tightening Torque [Nm]	Max. load in pipe direction F [kN]
3S	M10	12	1.6	20	4.2	30	12.1
4S		12	2.9	20	4.5	30	15.1
5S		15	3.3	25	5.1	35	15.5
6S	M12	30	8.2	40	9.3	55	29.4
7S	M16	45	11.0	55	25.8	120	34.9
8S	M20	80	14.0	150	21.0	220	70.6
9S	M24	110	28.0	200	32.0	250	50.0
10S	M30	180	40.0	350	48.0	500	84.5
11S		200	119.0	370	125.0	500	181.5
12S		270	168.0	450	180.0	600	244.5

Twin Series					
Clamp Group	Hexagon Head Bolt DIN 931/933	Polypropylene		Polyamide	
		Tightening Torque [Nm]	Max. load in pipe direction F [kN]	Tightening Torque [Nm]	Max. load in pipe direction F [kN]
1D	M6	5	0.9	5	0.9
2D	M8	12	2.1	12	2.2
3D		12	1.9	12	2.0
4D		12	2.7	12	2.9
5D		8	1.7	8	2.5



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