CHEMAR
RUROCIĄGI

CHEMAR Rurociągi Sp. z o.o.

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Poland

PIPING SUPPORT CATALOGUE
– 2009 –

We wish to present our new edition of **„Piping Support Catalogue”** prepared by Design &Technological Department of Chemar Rurociągi Sp. z o.o.

In this brochure we would like to perform supports, divided onto 5 groups.
We propose new technical solutions in produced elements.

All spring supports manufactured by Chemar Rurociągi Sp. z o.o. are calibrated and atested according to clients requirements.

Chemar Rurociągi Sp. z. o.o. manufacture complete pipings and pipings elements not only included in this catalogue but also supports according KER and other technical specifications individual agreed with customer technical conditions. Supports produced by our company are used all over the world and are the best references for our company.

All equipment manufactured in Chemar Rurociągi Sp. z o.o. and all services are constantly monitored to confirm high quality according to Quality Management System EN ISO 9001:2008 and PED 97/23/WE.

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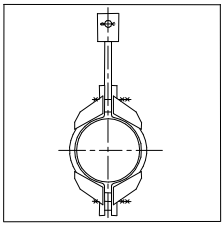
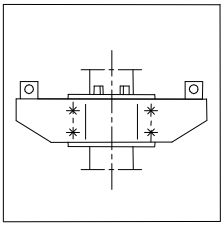
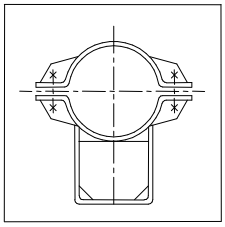
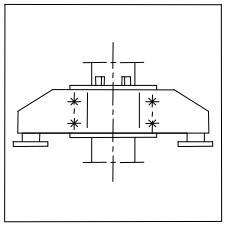
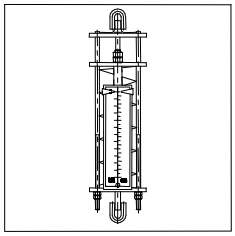
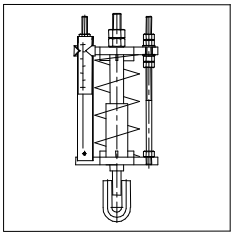
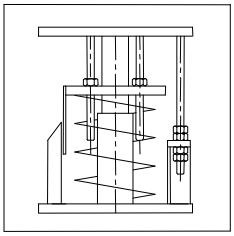
INDEX

Clamps, Bases

A

Hangers, Supports

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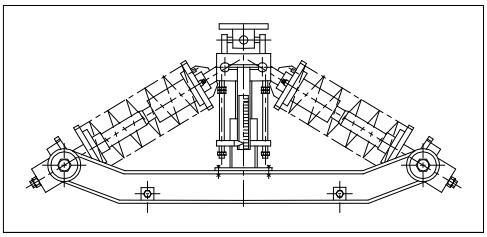
Constant units



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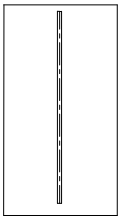
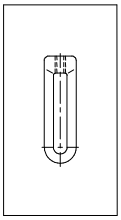
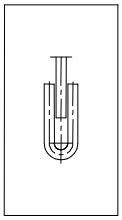
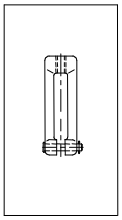
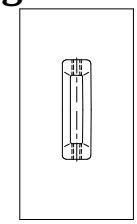
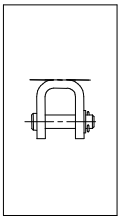
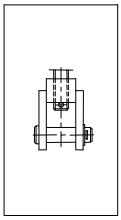
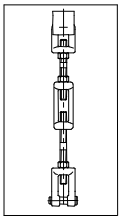
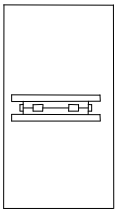
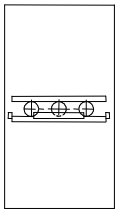
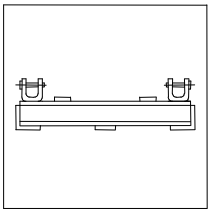
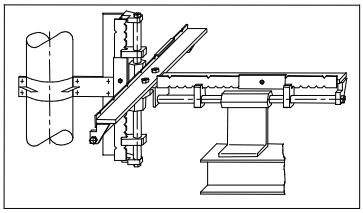
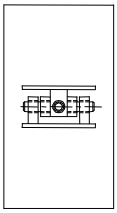
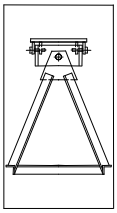
Connecting elements

D

Others

E

Pipe clamps, clamp bases		A
Replace	Name	Item No.
Z059/2000	Horizontal pipe clamps I (up to 450°C)	A01
Z058/2000	Horizontal pipe clamps I (up to 550°C)	A02
Z085/2000	Horizontal pipe clamps I (up to 560°C)	A03
Z064/2000	Horizontal pipe clamps II (up to 450°C)	A04
Z063/2000	Horizontal pipe clamps II (up to 550°C)	A05
Z086/2000	Horizontal pipe clamps II (up to 560°C)	A06
Z046/2000	Vertical pipe clamps I (up to 450°C)	A07
Z045/2000	Vertical pipe clamps I (up to 550°C)	A08
Z087/2000	Vertical pipe clamps I (up to 560°C)	A09
Z003/2000	Vertical pipe clamps II (up to 450°C)	A10
Z004/2000	Vertical pipe clamps II (up to 550°C)	A11
Z088/2000	Vertical pipe clamps II (up to 560°C)	A12
Z012/2000	Horizontal clamp bases (up to 450°C)	A13
Z013/2000	Horizontal clamp bases (up to 550°C)	A14
Z090/2000	Horizontal clamp bases (up to 560°C)	A15
Z005/2000	Vertical clamp bases (up to 450°C)	A16
Z006/2000	Vertical clamp bases (up to 550°C)	A17
Z089/2000	Vertical clamp bases (up to 560°C)	A18
Z079/2000	Self-alignig vertical clamp bases I (up to 450°C)	A19
Z080/2000	Self-alignig vertical clamp bases I (up to 550°C)	A20
Z083/2000	Self-alignig vertical clamp bases I (up to 560°C)	A21
Z081/2000	Self-alignig vertical clamp bases II (up to 450°C)	A22
Z082/2000	Self-alignig vertical clamp bases II (up to 550°C)	A23
Z084/2000	Self-alignig vertical clamp bases II (up to 560°C)	A24

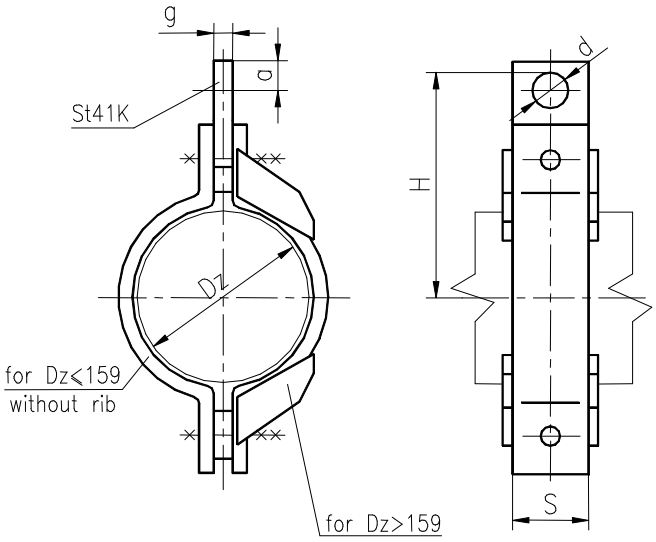
Spring hangers, spring supports		B
Replace	Name	Item No.
Z074/2000	One-spring hangers (f_n=70 i f_n=140)	B01
Z075/2000	Double-spring hangers (f_n=210)	B02
Z076/2000	Double-spring hangers (f_n=280)	B03
Z077/2000	Triple-spring hangers (f_n=420)	B04
Z048/2000	Spring hangers with small force deviation	B05
Z073/2000	Spring hangers (seated)	B06
Z050/2000	Spring hangers with low force deviation (seated)	B07
Z052/2000	Spring supports	B08
Z078/2000	Spring supports with low force deviation	B09

Constant units		C
Replace	Name	Item No.
Z053/2000	Constant units ZST-83 (hangers and supports)	C01

Connecting elements		D
Replace	Name	Item No.
Z023/2000	Tie rods (right-right)	D01
Z024/2000	Tie rods (right-left)	D02
Z025/2000	Eye nuts	D03
Z031/2000	Fasteners U	D04
Z026/2000	Clevises	D05
Z027/2000	Turnbuckles	D06
Z028/2000	Rod couplings	D07
Z029/2000	Fastenings	D08
Z030/2000	Ceiling holders	D09
Z065/2000	Tie rod units I	D10
Z066/2000	Tie rod units II	D11
Z067/2000	Tie rod units III	D12
Z068/2000	Tie rod units IV	D13
Z069/2000	Tie rod units V	D14
Z070/2000	Tie rod units VI	D15
Z071/2000	Tie rod units VII	D16
Z072/2000	Tie rod units VIII	D17

	Other elements	E
Replace	Name	Item No.
Z056/2000	Sliding bases	E01
Z015/2000	Ball bases	E02[1)]
Z016/2000	Beams type A	E03
Z017/2000	Beams type B	E04
Z018/2000	Beams type C	E05
Z055/2000	Three-dimensional movement indicators	E06
Z057/2000	Universal joints	E07
Z060/2000	Nameplates	E08
Z061/2000	Anti-rotational wedge	E09
Z019/2000	Hangers for constant units	E10
Z002/2000	Cylindrical helical springs	E11

[1)] There is recommended to use the sliding base acc. to figure E01.
Use the ball base when using sliding base is impossible eg. where there is not enough place for sliding base.



Technical Data:
Load range: 10 ÷ 90 kN

Pipe Outside Diameter of range (Dz)
From 48,3 to 813 mm

Max. temperature of medium: 450°C

Application:
For horizontal piping hangers

Marking example: For Horizontal pipe clamp I Dz = 273 mm, and temperature 450°C:

Horizontal pipe clamp 273/450 RSZ0Z025-A01

Drawing No.	Dz of Pipe	F	H	S	g	a	D	Weight
	mm	kN	Mm					kg
RSZ0Z356	48,3	10	210	50	8	27,5	25	1,8
RSZ0Z034	57		220					1,8
RSZ0Z355	60,3		225					1,9
RSZ0Z033	76,1		230					2,0
RSZ0Z032	88,9		260					2,3
RSZ0Z031	108	15	270	60	12			4,2
RSZ0Z354	114,3		275					4,4
RSZ0Z030	133		310					4,7
RSZ0Z353	139,7		315					4,9
RSZ0Z029	159		330					5,2
RSZ0Z352	168,3		340					6,6
RSZ0Z028	193,7	25	355		16	37,5	35	8,3
RSZ0Z027	219,1		370					8,7
RSZ0Z026	244,5		405					9,6
RSZ0Z025	273	42	430	80	20	40,5		17,6
RSZ0Z024	323,9		475					19,6
RSZ0Z023	355,6		490					20,5
RSZ0Z022	406,4	70	525	100	24	50	48	37,7
RSZ0Z021	457		550					39,9
RSZ0Z020	508		575					42,9
RSZ0Z019	610	90	655		30	54		66,1
RSZ0Z351	711		710					69,5
RSZ0Z018	813		855					85,2

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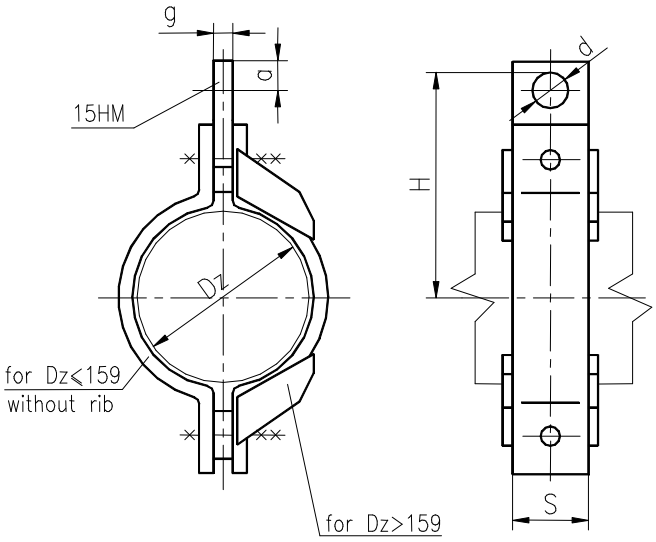

Technical Data:
Load range: 10 ÷ 90 kN

Pipe Outside Diameter of range (Dz)
From 48,3 to 813 mm

Max. temperature of medium: 550°C

Application:
For horizontal piping hangers

Marking example: For Horizontal pipe clamp I Dz = 273 mm, and temperature 450°C:

Horizontal pipe clamp I 273/550 RSZ0Z008-A02

Drawing No.	Dz of Pipe	F	H	S	g	a	d	Weight
	mm	kN	mm					kg
RSZ0Z362	48,3	10	210	50	8	27,5	25	1,8
RSZ0Z017	57		220					1,8
RSZ0Z361	60,3		225					1,9
RSZ0Z016	76,1		230					2,0
RSZ0Z015	88,9		260					2,3
RSZ0Z014	108	15	270	60	12			4,2
RSZ0Z360	114,3		275					4,4
RSZ0Z013	133		310					4,7
RSZ0Z359	139,7		315					4,9
RSZ0Z012	159		330					5,2
RSZ0Z358	168,3		340					6,6
RSZ0Z011	193,7	25	355		16	37,5	35	8,3
RSZ0Z010	219,1		370					8,7
RSZ0Z009	244,5		405					9,6
RSZ0Z008	273	42	430	80	20	40,5		17,6
RSZ0Z007	323,9		475					19,6
RSZ0Z006	355,6		490					20,5
RSZ0Z005	406,4	70	525	100	24	50	48	37,7
RSZ0Z004	457		550					39,9
RSZ0Z003	508		575					42,9
RSZ0Z002	610	90	655		30	54		66,1
RSZ0Z357	711		710					69,5
RSZ0Z001	813		855					85,2

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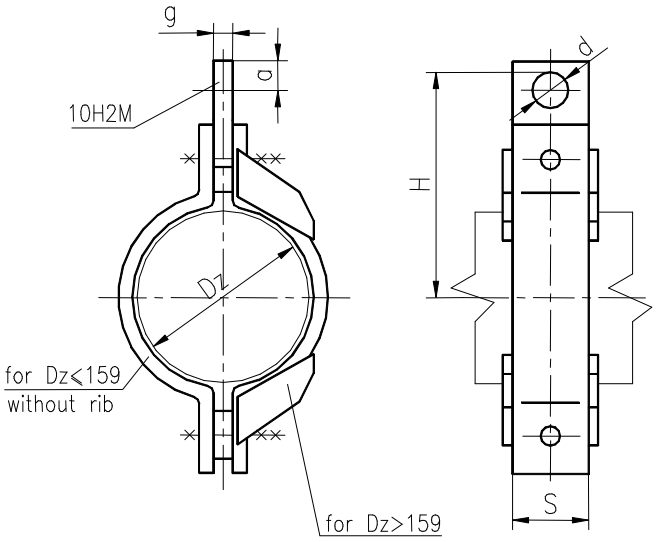

Technical Data:
Load range: 10 ÷ 90 kN

Pipe Outside Diameter of range (Dz)
From 48,3 to 813 mm

Max. temperature of medium: 560°C

Application:
For horizontal piping hangers

Marking example: For Horizontal pipe clamp I Dz = 273 mm, and temperature 560°C:

Horizontal pipe clamp I 273/560 RSZ0Z249-A03

Drawing No.	Dz of Pipe	F	H	S	g	a	d	Weight
	mm	kN	mm					kg
RSZ0Z368	48,3	10	210	50	8	27,5	25	1,8
RSZ0Z240	57		220					1,8
RSZ0Z367	60,3		225					1,9
RSZ0Z241	76,1		230					2,0
RSZ0Z242	88,9		260					2,3
RSZ0Z243	108	15	270	60	12			4,2
RSZ0Z366	114,3		275					4,4
RSZ0Z244	133		310					4,7
RSZ0Z365	139,7		315					4,9
RSZ0Z245	159		330					5,2
RSZ0Z364	168,3		340					6,6
RSZ0Z246	193,7	25	355		16	37,5	35	8,3
RSZ0Z247	219,1		370					8,7
RSZ0Z248	244,5		405					9,6
RSZ0Z249	273	42	430	80	20	40,5		17,6
RSZ0Z250	323,9		475					19,6
RSZ0Z251	355,6		490					20,5
RSZ0Z252	406,4	70	525	100	24	50	48	37,7
RSZ0Z253	457		550					39,9
RSZ0Z254	508		575					42,9
RSZ0Z255	610	90	655		30	54		66,1
RSZ0Z363	711		710					69,5
RSZ0Z256	813		855					85,2

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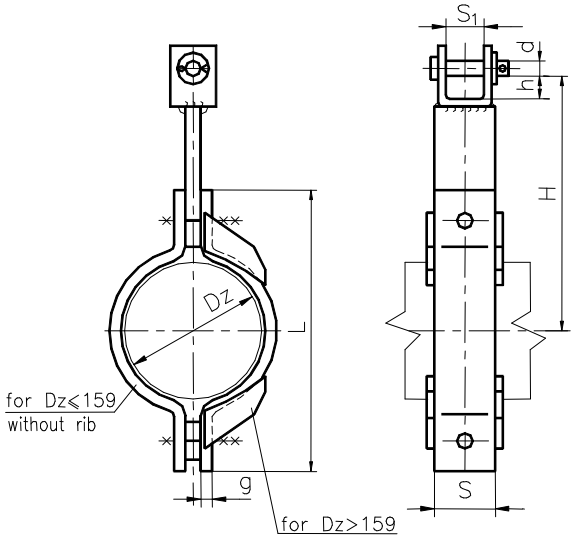

Technical Data:
Load range: 6 ÷ 90 kN

Pipe Outside Diameter of range (Dz)
From 48,3 to 813 mm

Max. temperature of medium: 450°C

Application:
For horizontal piping hangers

Marking example: For Horizontal pipe clamp II Dz = 273 mm, and temperature 450°C:

Horizontal pipe clamp II 273/450 RSZ0Z051-A04

Drawing No.	Dz of Pipe	F	H	S	L	S_1	h	d	g	Masa
	mm	kN	mm							kg
RSZ0Z379	48,3	6	210	50	140	22	20,5	13	8	1,9
RSZ0Z035	57		220		155					1,95
RSZ0Z378	60,3		225		160					2,1
RSZ0Z036	76,1		230		180					2,15
RSZ0Z037	88,9		260		190					2,43
RSZ0Z038	108		270	60	235				10	4,21
RSZ0Z039		12				25		17		4,2
RSZ0Z376	114,3	6	275		240	22		13		4,4
RSZ0Z377		12				25		17		4,6
RSZ0Z040	133	6	310		260	22		13		4,94
RSZ0Z041		15				28	24,5	21		4,74
RSZ0Z374	139,7	6	315		265	22	20,5	13		5,0
RSZ0Z375		15				28	24,5	21		5,4
RSZ0Z042	159	6	330		280	22	20,5	13		5,67
RSZ0Z043		15				28	24,5	21		5,08
RSZ0Z372	168,3	6	340		295	22	20,5	13		6,6
RSZ0Z373		15				28	24,5	21		7,0
RSZ0Z044	193,7	12	355		345	25	20,5	17		8,43
RSZ0Z045		25				35	28	26		9,38
RSZ0Z046	219,1	12	370		375	25	20,5	17		8,82
RSZ0Z047		25				35	28	26		9,76
RSZ0Z048	244,5	12	405		400	25	20,5	17		9,79
RSZ0Z049		25				35	28	26		10,74
RSZ0Z050	273	20	430	80	480	28	24,5	21	12	17,68
RSZ0Z051		30				35	28	26		18,37
RSZ0Z052		42	435			40	32	32		18,95
RSZ0Z053	323,9	20	475		530	28	24,5	21		19,75
RSZ0Z054		30				35	28	26		20,45
RSZ0Z055		42	480			40	32	32		21,27

Nr rysunku wyrobu	Dz rury	F	H	S	L	S_1	h	d	g	Masa
	mm	kN	mm							kg
RSZ0Z056	355,6	20	490	80	560	28	24,5	21	12	20,58
RSZ0Z057		30				35	28	26		21,27
RSZ0Z058		42	495			40	32	32		21,85
RSZ0Z059	406,4	30	525	100	650	35	28	26	16	38,22
RSZ0Z060		50	530			40	32	32		38,8
RSZ0Z061		70				50	40	38		40,34
RSZ0Z062	457	30	550		700	35	28	26		41,59
RSZ0Z063		50	555			40	32	32		42,18
RSZ0Z064		70				50	40	38		43,71
RSZ0Z065	508	30	575		760	35	28	26		44,5
RSZ0Z066		50	580			40	32	32		45,08
RSZ0Z067		70				50	40	38		46,71
RSZ0Z068	610	50	660		870	40	32	32	20	66,9
RSZ0Z069		70				50	40	38		68,39
RSZ0Z070		90	655			56	42	42		69,54
RSZ0Z369	711	50	710		995	40	32	32		68,7
RSZ0Z370		70				50	40	38		70,4
RSZ0Z371		90				56	42	42		71,6
RSZ0Z071	813	50	755		1075	40	32	32		83,47
RSZ0Z072		70				50	40	38		84,95
RSZ0Z073		90	750			58	42	42		86,11

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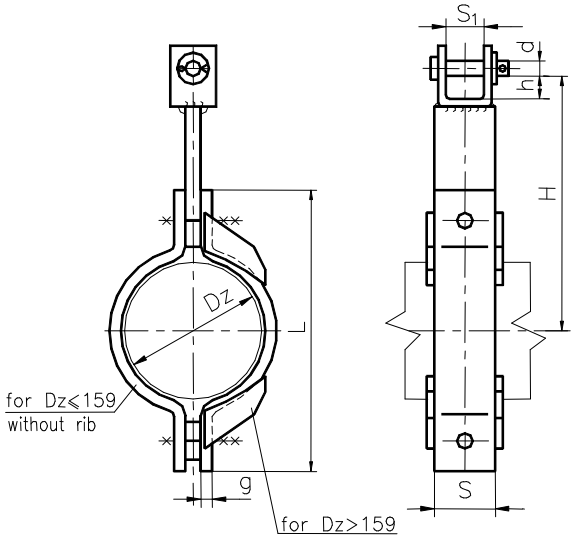

Technical Data:
Load range: 6 ÷ 90 kN

Pipe Outside Diameter of range (Dz)
From 48,3 to 813 mm

Max. temperature of medium: 550°C

Application:
For horizontal piping hangers

Marking example: For Horizontal pipe clamp I Dz = 273 mm, and temperature 550°C

Horizontal pipe clamp II 273/550 RSZ0Z089-A05

Drawing No.	Dz of Pipe	F	H	S	L	S_1	h	d	g	Weight
	mm	kN	mm							kg
RSZ0Z390	48,3	6	210	50	140	22	20,5	13	8	1,9
RSZ0Z074	57		220		155					1,95
RSZ0Z389	60,3		225		160					2,1
RSZ0Z075	76,1		230		180					2,15
RSZ0Z076	88,9		260		190					2,43
RSZ0Z077	108		270	60	235				10	4,21
RSZ0Z078		12				25		17		4,2
RSZ0Z387	114,3	6	275		240	22		13		4,4
RSZ0Z388		12				25		17		4,6
RSZ0Z079	133	6	310		260	22		13		4,94
RSZ0Z080		15				28	24,5	21		4,74
RSZ0Z385	139,7	6	315		265	22	20,5	13		5,0
RSZ0Z386		15				28	24,5	21		5,4
RSZ0Z081	159	6	330		280	22	20,5	13		5,67
RSZ0Z082		15				28	24,5	21		5,08
RSZ0Z383	168,3	6	340		295	22	20,5	13		6,6
RSZ0Z384		15				28	24,5	21		7,0
RSZ0Z083	193,7	12	355		345	25	20,5	17		8,43
RSZ0Z084		25				35	28	26		9,38
RSZ0Z085	219,1	12	370		375	25	20,5	17		8,82
RSZ0Z086		25				35	28	26		9,76
RSZ0Z087	244,5	12	405		400	25	20,5	17		9,79
RSZ0Z088		25				35	28	26		10,74
RSZ0Z089	273	20	430	80	480	28	24,5	21	12	17,68
RSZ0Z090		30				35	28	26		18,37
RSZ0Z091		42	435			40	32	32		18,95
RSZ0Z092	323,9	20	475		530	28	24,5	21		19,75
RSZ0Z093		30				35	28	26		20,45
RSZ0Z094		42	480			40	32	32		21,27

Nr rysunku wyrobu	Dz rury	F	H	S	L	S_1	h	d	g	Weight
	mm	kN	mm							kg
RSZ0Z095	355,6	20	490	80	560	28	24,5	21	12	20,58
RSZ0Z096		30				35	28	26		21,27
RSZ0Z097		42	495			40	32	32		21,85
RSZ0Z098	406,4	30	525	100	650	35	28	26	16	38,22
RSZ0Z099		50	530			40	32	32		38,8
RSZ0Z100		70				50	40	38		40,34
RSZ0Z101	457	30	550		700	35	28	26		41,59
RSZ0Z102		50	555			40	32	32		42,18
RSZ0Z103		70				50	40	38		43,71
RSZ0Z104	508	30	575		760	35	28	26		44,5
RSZ0Z105		50	580			40	32	32		45,08
RSZ0Z106		70				50	40	38		46,71
RSZ0Z107	610	50	660		870	40	32	32	20	66,9
RSZ0Z108		70				50	40	38		68,39
RSZ0Z109		90	655			56	42	42		69,54
RSZ0Z380	711	50	710		995	40	32	32		68,7
RSZ0Z381		70				50	40	38		70,4
RSZ0Z382		90				56	42	42		71,6
RSZ0Z110	813	50	755		1075	40	32	32		83,47
RSZ0Z111		70				50	40	38		84,95
RSZ0Z112		90	750			58	42	42		86,11

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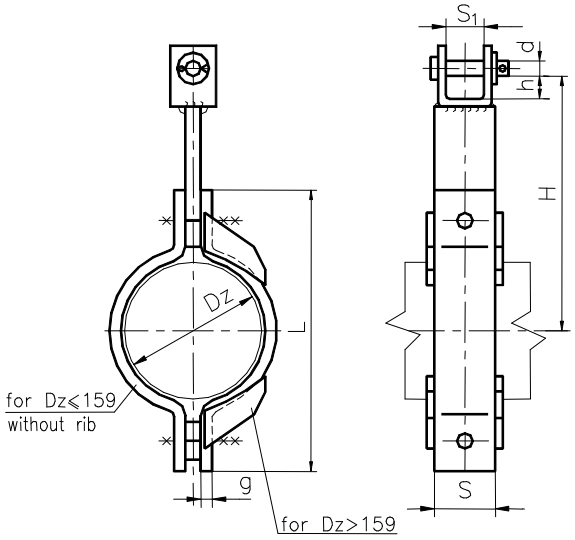

Technical Data:
Load range: 6 ÷ 90 kN

Pipe Outside Diameter of range (Dz)
From 48,3 to 813 mm

Max. temperature of medium: 560°C

Application:
For horizontal piping hangers

Marking example: For Horizontal pipe clamp I Dz = 273 mm, and temperature 560°C:

Horizontal pipe clamp II 273/560 RSZ0Z288-A06

Drawing No.	Dz of Pipe	F	H	S	L	S_1	h	d	g	Weight
	mm	kN	mm							kg
RSZ0Z401	48,3	6	210	50	140	22	20,5	13	8	1,9
RSZ0Z273	57		220		155					1,95
RSZ0Z400	60,3		225		160					2,1
RSZ0Z274	76,1		230		180					2,15
RSZ0Z275	88,9		260		190					2,43
RSZ0Z276	108		270	60	235				10	4,21
RSZ0Z277		12				25		17		4,2
RSZ0Z398	114,3	6	275		240	22		13		4,4
RSZ0Z399		12				25		17		4,6
RSZ0Z278	133	6	310		260	22		13		4,94
RSZ0Z279		15				28	24,5	21		4,74
RSZ0Z396	139,7	6	315		265	22	20,5	13		5,0
RSZ0Z397		15				28	24,5	21		5,4
RSZ0Z280	159	6	330		280	22	20,5	13		5,67
RSZ0Z281		15				28	24,5	21		5,08
RSZ0Z394	168,3	6	340		295	22	20,5	13		6,6
RSZ0Z395		15				28	24,5	21		7,0
RSZ0Z282	193,7	12	355		345	25	20,5	17		8,43
RSZ0Z283		25				35	28	26		9,38
RSZ0Z284	219,1	12	370		375	25	20,5	17		8,82
RSZ0Z285		25				35	28	26		9,76
RSZ0Z286	244,5	12	405		400	25	20,5	17		9,79
RSZ0Z287		25				35	28	26		10,74
RSZ0Z288	273	20	430	80	480	28	24,5	21	12	17,68
RSZ0Z289		30				35	28	26		18,37
RSZ0Z290		42	435			40	32	32		18,95
RSZ0Z291	323,9	20	475		530	28	24,5	21		19,75
RSZ0Z292		30				35	28	26		20,45
RSZ0Z293		42	480			40	32	32		21,27

Nr rysunku wyrobu	Dz rury	F	H	S	L	S_1	h	d	g	Weight
	mm	kN	mm							kg
RSZ0Z294	355,6	20	490	80	560	28	24,5	21	12	20,58
RSZ0Z295		30				35	28	26		21,27
RSZ0Z296		42	495			40	32	32		21,85
RSZ0Z297	406,4	30	525	100	650	35	28	26	16	38,22
RSZ0Z298		50	530			40	32	32		38,8
RSZ0Z299		70				50	40	38		40,34
RSZ0Z300	457	30	550		700	35	28	26		41,59
RSZ0Z301		50	555			40	32	32		42,18
RSZ0Z302		70				50	40	38		43,71
RSZ0Z303	508	30	575		760	35	28	26		44,5
RSZ0Z304		50	580			40	32	32		45,08
RSZ0Z305		70				50	40	38		46,71
RSZ0Z306	610	50	660		870	40	32	32	20	66,9
RSZ0Z307		70				50	40	38		68,39
RSZ0Z308		90	655			56	42	42		69,54
RSZ0Z391	711	50	710		995	40	32	32		68,7
RSZ0Z392		70				50	40	38		70,4
RSZ0Z393		90				56	42	42		71,6
RSZ0Z309	813	50	755		1075	40	32	32		83,47
RSZ0Z310		70				50	40	38		84,95
RSZ0Z311		90	750			58	42	42		86,11

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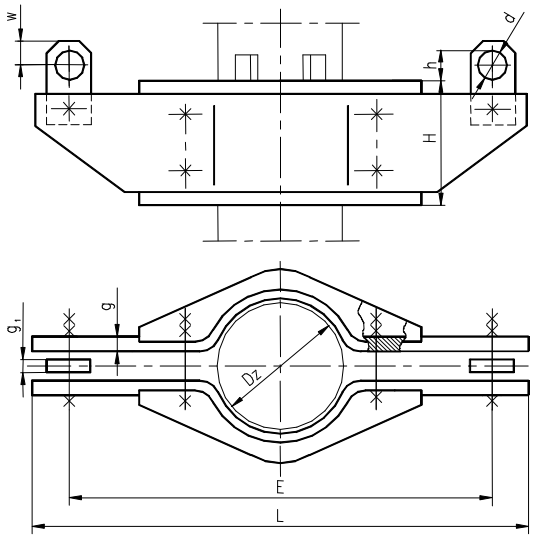

Technical Data:
Load range: 11 ÷ 90 kN

Pipe Outside Diameter of range (Dz)
From 159 to 813 mm

Max. temperature of medium: 450°C

Application:
For vertical piping hangers

Marking example: For vertical pipe clamp I Dz = 273 mm, and temperature 450°C:

Vertical pipe clamp I 273/450 RSZ0P086-A07

Drawing No.	Dz of Pipe	F	L	E	H	h	d	g	g_1	w	Wright
	mm	kN	mm								Kg
RSZ0P090	159	11	830	760	132	31	25	8	12	25	18,6
RSZ0P226	168,3		850	780							19,4
RSZ0P089	193,7	25	920	850	200	27		10	16	30	36,7
RSZ0P088	219,1		970								39,7
RSZ0P087	244,5		1000	930							44,9
RSZ0P086	273	40	1020		225				20	35	55,7
RSZ0P085	323,9		1210	1120				12			73,9
RSZ0P084	355,6				229	25					79,7
RSZ0P083	406,4	60	1230		269	40	35	16	24	45	121,1
RSZ0P082	457		1350	1240							137,7
RSZ0P081	508										140,7
RSZ0P080	610	90	1490	1360	292	36		20	30	50	184,3
RSZ0P225	711		1560	1430							227,2
RSZ0P079	813		1630	1500							252,5

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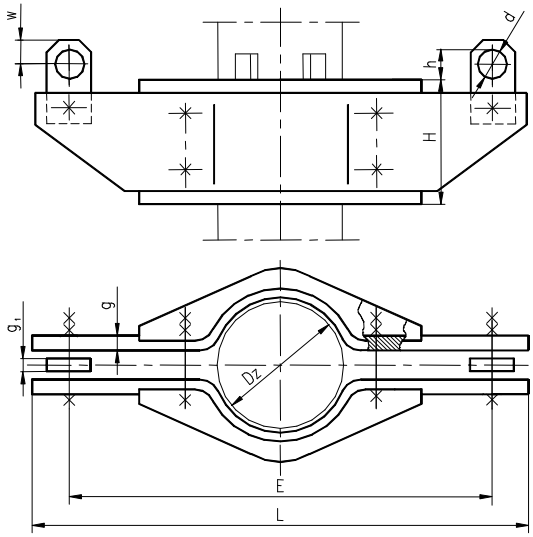

Technical Data:
Load range: 11 ÷ 90 kN

Pipe Outside Diameter of range (Dz)
From 159 to 813 mm

Max. temperature of medium: 550°C

Application:
For vertical piping hangers

Marking example: For vertical pipe clamp I Dz = 273 mm, and temperature 550°C:

Vertical pipe clamp I 273/550 RSZ0P074-A08

Drawing No.	Dz of Pipe	F	L	E	H	h	d	g	g_1	w	Weight
	mm	kN	mm								kg
RSZ0P078	159	11	830	760	132	31	25	8	12	25	18,6
RSZ0P224	168,3		850	780							19,4
RSZ0P077	193,7	25	920	850	200	27		10	16	30	36,7
RSZ0P076	219,1		970								39,7
RSZ0P075	244,5		1000	930							44,9
RSZ0P074	273	40	1020		225				20	35	55,7
RSZ0P073	323,9		1210	1120				12			73,9
RSZ0P072	355,6				229	25					79,7
RSZ0P071	406,4	60	1230		269	40	35	16	24	45	121,1
RSZ0P070	457		1350	1240							137,7
RSZ0P069	508										140,7
RSZ0P068	610	90	1490	1360	292	36			30	50	184,3
RSZ0P223	711		1560	1430				20			227,2
RSZ0P067	813		1630	1500							252,5

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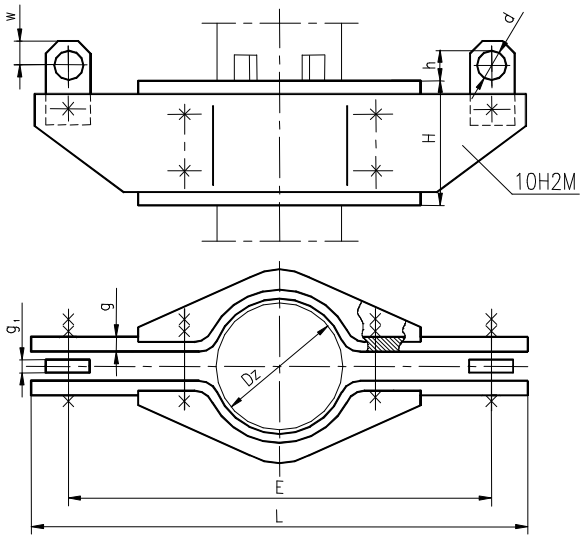

Technical Data:
Load range: 11 ÷ 90 kN

Pipe Outside Diameter of range (Dz)
From 159 to 813 mm

Max. temperature of medium: 560°C

Application:
For vertical piping hangers

Marking example: For vertical pipe clamp I Dz = 273 mm, and temperature 560°C:

Vertical pipe clamp I 273/560 RSZ0P182-A09

Drawing No.	Dz of Pipe	F	L	E	H	h	d	g	g_1	w	Weight
	mm	kN	mm								kg
RSZ0P178	159	11	830	760	132	31	25	8	12	25	18,6
RSZ0P228	168,3		850	780							19,4
RSZ0P179	193,7	25	920	850	200	27		10	16	30	36,7
RSZ0P180	219,1		970								39,7
RSZ0P181	244,5		1000	930							44,9
RSZ0P182	273	40	1020		225				20	35	55,7
RSZ0P183	323,9		1210	1120				12			73,9
RSZ0P184	355,6				229	25					79,7
RSZ0P185	406,4	60	1230		269	40	35	16	24	45	121,1
RSZ0P186	457		1350	1240							137,7
RSZ0P187	508										140,7
RSZ0P188	610	90	1490	1360	292	36			30	50	184,3
RSZ0P227	711		1560	1430				20			227,2
RSZ0P189	813		1630	1500							252,5

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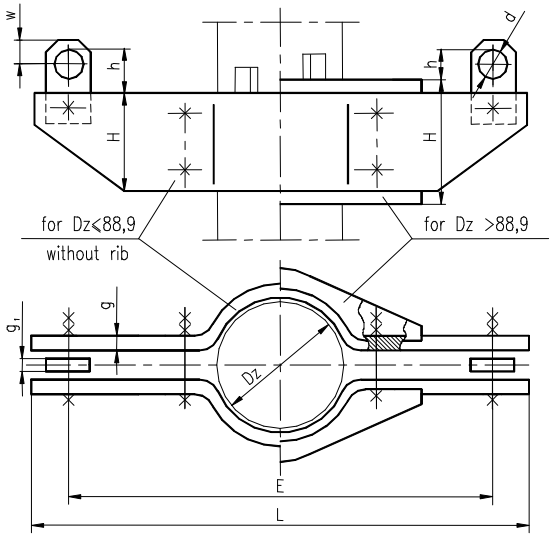

Technical Data:
Load range: 3 ÷ 90 kN

Pipe Outside Diameter of range (Dz)
From 48,3 to 813 mm

Max. temperature of medium: 450°C

Application:
For vertical piping hangers

Marking example: For vertical pipe clamp II Dz = 273 mm, and temperature 450°C:

Vertical pipe clamp II 273/450 RSZ0P008-A10

Drawing No.	Dz of Pipe	F	L	E	H	h	d	g	g_1	w	Weight
	mm	kN	mm								Kg
RSZ0P208	48,3	3	450	390	80	37	25	6	8	25	4,34
RSZ0P017	57		460	400							4,5
RSZ0P207	60,3		465	405							4,6
RSZ0P016	76,1	4	510	450	100						5,7
RSZ0P015	88,9										5,7
RSZ0P014	108	7	670	600	112	31		8	12		13,2
RSZ0P206	114,3		680	610							13,5
RSZ0P013	133		720	650							15,0
RSZ0P205	139,7		730	660							15,1
RSZ0P012	159	11	930	860	132						21,8
RSZ0P204	168,3		950	880							22,2
RSZ0P011	193,7	25	1170	1100	200	27		12	16	30	55,7
RSZ0P010	219,1		1220	1150							59,9
RSZ0P009	244,5										63,1
RSZ0P008	273	40	1340	1250	229	25		16	20	35	103,0
RSZ0P007	323,9		1410	1320							111,8
RSZ0P006	355,6										114,8
RSZ0P005	406,4	60	1530	1420	277	36	35	20	24	45	184,9
RSZ0P004	457		1590	1480							197,7
RSZ0P003	508		1640	1530							208,5
RSZ0P002	610	90	1790	1660	292				30	50	243,2
RSZ0P203	711		1900	1770							265,6
RSZ0P001	813		2000	1870							288,1

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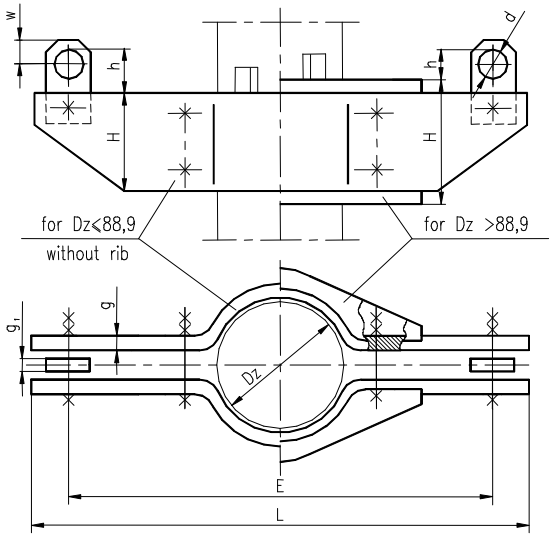

Technical Data:
Load range: 3 ÷ 90 kN

Pipe Outside Diameter of range (Dz)
From 48,3 to 813 mm

Max. temperature of medium: 550°C

Application:
For vertical piping hangers

Marking example: For vertical pipe clamp II Dz = 273 mm, and temperature 550°C:

Vertical pipe clamp II 273/550 RSZ0P025-A11

Drawing No.	Dz of Pipe	F	L	E	H	h	d	g	g_1	w	Weight
	mm	kN	mm								kg
RSZ0P214	48,3	3	450	390	80	37	25	6	8	25	4,34
RSZ0P034	57		460	400							4,5
RSZ0P213	60,3		465	405							4,6
RSZ0P033	76,1	4	510	450	100						5,7
RSZ0P032	88,9										5,7
RSZ0P031	108	7	670	600	112	31		8	12		13,2
RSZ0P212	114,3		680	610							13,5
RSZ0P030	133		720	650							15,0
RSZ0P211	139,7		730	660							15,1
RSZ0P029	159	11	930	860	132						21,8
RSZ0P210	168,3		950	880							22,2
RSZ0P028	193,7	25	1170	1100	200	27		12	16	30	55,7
RSZ0P027	219,1		1220	1150							59,9
RSZ0P026	244,5										63,1
RSZ0P025	273	40	1340	1250	229	25		16	20	35	103,0
RSZ0P024	323,9		1410	1320							111,8
RSZ0P023	355,6										114,8
RSZ0P022	406,4	60	1530	1420	277	36	35	20	24	45	184,9
RSZ0P021	457		1590	1480							197,7
RSZ0P020	508		1640	1530							208,5
RSZ0P019	610	90	1790	1660	292				30	50	243,2
RSZ0P209	711		1900	1770							265,6
RSZ0P018	813		2000	1870							288,1

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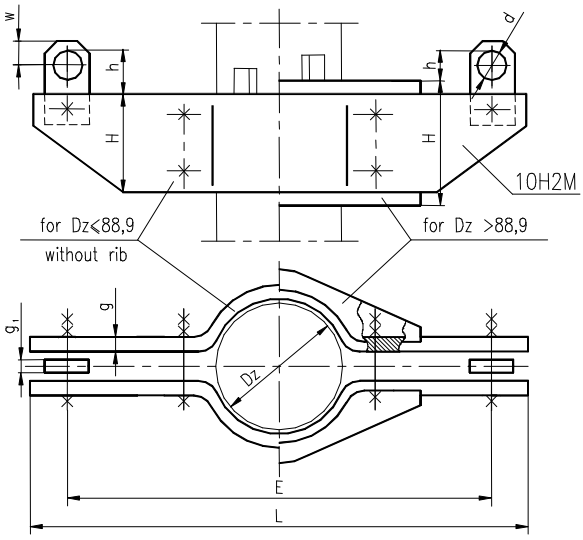

Technical Data:
Load range: 3 ÷ 90 kN

Pipe Outside Diameter of range (Dz)
From 48,3 to 813 mm

Max. temperature of medium: 560°C

Application:
For vertical piping hangers

Marking example: For vertical pipe clamp II Dz = 273 mm, and temperature 560°C:

Vertical pipe clamp II 273/560 RSZ0P154-A12

Drawing No.	Dz of Pipe	F	L	E	H	h	d	G	g_1	w	Weight
	mm	kN	Mm								Kg
RSZ0P234	48,3	3	450	390	80	37	25	6	8	25	4,34
RSZ0P145	57		460	400							4,5
RSZ0P233	60,3		465	405							4,6
RSZ0P146	76,1	4	510	450	100						5,7
RSZ0P147	88,9										5,7
RSZ0P148	108	7	670	600	112	31		8	12		13,2
RSZ0P232	114,3		680	610							13,5
RSZ0P149	133		720	650							15,0
RSZ0P231	139,7		730	660							15,1
RSZ0P150	159	11	930	860	132						21,8
RSZ0P230	168,3		950	880							22,2
RSZ0P151	193,7	25	1170	1100	200	27		12	16	30	55,7
RSZ0P152	219,1		1220	1150							59,9
RSZ0P153	244,5										63,1
RSZ0P154	273	40	1340	1250	229	25		16	20	35	103,0
RSZ0P155	323,9		1410	1320							111,8
RSZ0P156	355,6										114,8
RSZ0P157	406,4	60	1530	1420	277	36	35	20	24	45	184,9
RSZ0P158	457		1590	1480							197,7
RSZ0P159	508		1640	1530							208,5
RSZ0P160	610	90	1790	1660	292				30	50	243,2
RSZ0P229	711		1900	1770							265,6
RSZ0P161	813		2000	1870							288,1

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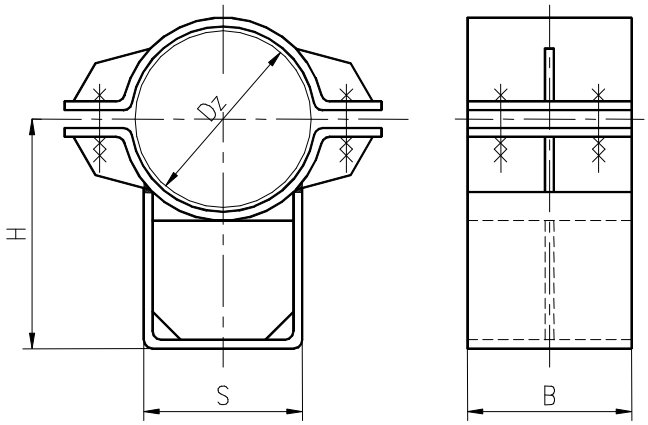

Technical Data:
Load range: 10 ÷ 90 kN

Pipe Outside Diameter of range (Dz)
From 60,3 to 813 mm

Max. temperature of medium: 450°C

Application:
For horizontal piping supports

Marking example: For horizontal clamp base Dz = 273 mm, and temperature 450°C:

Horizontal clamp base 273/450 RSZ0S008-A13

Drawing No.	Dz of Pipe	F	H	S	B	Weight
	mm	kN	mm			kg
RSZ0S201	60,3	10	215	64	100	5,5
RSZ0S016	76,1		223	90		6,9
RSZ0S015	88,9		233			7,1
RSZ0S014	108	15	246	94	120	11,8
RSZ0S202	114,3		257			12,0
RSZ0S013	133		268	114		13,3
RSZ0S203	139,7		270			13,6
RSZ0S012	159		284			14,3
RSZ0S204	168,3			132		15,0
RSZ0S011	193,7	25	323			17,5
RSZ0S010	219,1		337			18,4
RSZ0S009	244,5		351			19,3
RSZ0S008	273	42	367	136	160	33,7
RSZ0S007	323,9		394	204		38,5
RSZ0S006	355,6		413			40,4
RSZ0S005	406,4	70	442	212	200	72,0
RSZ0S004	457		470			75,9
RSZ0S003	508		497			80,6
RSZ0S002	610	90	550	490		129,4
RSZ0S205	711		580			139,1
RSZ0S001	813		650			148,4

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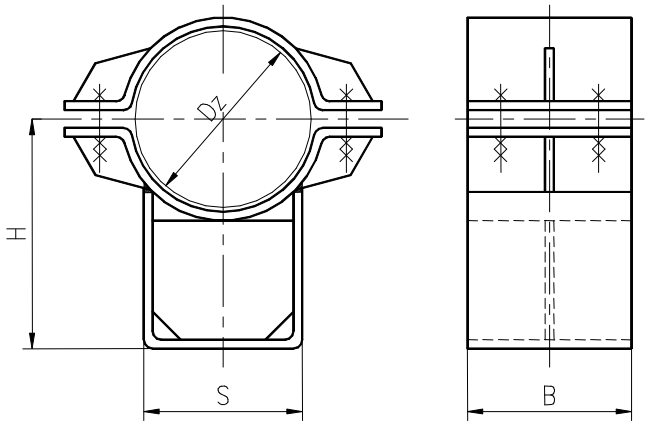

Technical Data:
Load range: 10 ÷ 90 kN

Pipe Outside Diameter of range (Dz)
From 60,3 to 813 mm

Max. temperature of medium: 550°C

Application:
For horizontal piping supports

Marking example: For horizontal clamp base Dz = 273 mm, and temperature 550°C:

Horizontal clamp base 273/550 RSZ0S024-A14

Drawing No.	Dz of Pipe	F	H	S	B	Weight
	mm	kN	mm			kg
RSZ0S171	60,3	10	215	64	100	5,5
RSZ0S032	76,1		223	90		6,9
RSZ0S031	88,9		233			7,1
RSZ0S030	108	15	246	94	120	11,8
RSZ0S172	114,3		257			12,0
RSZ0S029	133		268	114		13,3
RSZ0S173	139,7		270			13,6
RSZ0S028	159		284			14,3
RSZ0S174	168,3			132		15,0
RSZ0S027	193,7	25	323			17,5
RSZ0S026	219,1		337			18,4
RSZ0S025	244,5		351			19,3
RSZ0S024	273	42	367	136	160	33,7
RSZ0S023	323,9		394	204		38,5
RSZ0S022	355,6		413			40,4
RSZ0S021	406,4	70	442	212	200	72,0
RSZ0S020	457		470			75,9
RSZ0S019	508		497			80,6
RSZ0S018	610	90	550	490		129,4
RSZ0S175	711		580			139,1
RSZ0S017	813		650			148,4

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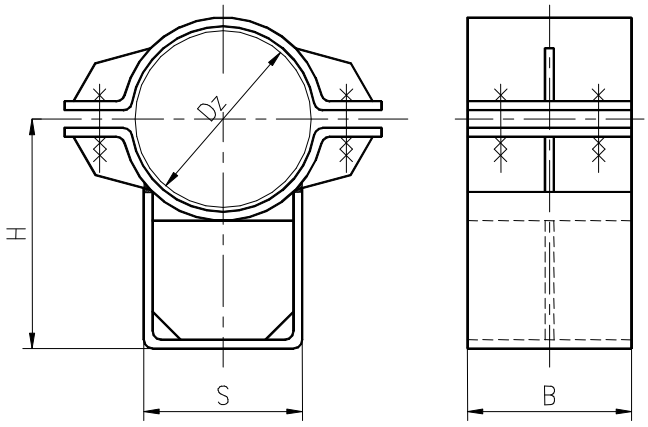

Technical Data:
Load range: 10 ÷ 90 kN

Pipe Outside Diameter of range (Dz)
From 60,3 to 813 mm

Max. temperature of medium: 560°C

Application:
For horizontal piping supports

Marking example: For horizontal clamp base Dz = 273 mm, and temperature 560°C:

Horizontal clamp base 273/560 RSZ0S163-A15

Drawing No.	Dz of Pipe	F	H	S	B	Weight
	mm	kN	mm			kg
RSZ0S231	60,3	10	215	64	100	5,5
RSZ0S155	76,1		223	90		6,9
RSZ0S156	88,9		233			7,1
RSZ0S157	108	15	246	94	120	11,8
RSZ0S232	114,3		257			12,0
RSZ0S158	133		268	114		13,3
RSZ0S233	139,7		270			13,6
RSZ0S159	159		284			14,3
RSZ0S234	168,3			132		15,0
RSZ0S160	193,7	25	323			17,5
RSZ0S161	219,1		337			18,4
RSZ0S162	244,5		351			19,3
RSZ0S163	273	42	367	136	160	33,7
RSZ0S164	323,9		394	204		38,5
RSZ0S165	355,6		413			40,4
RSZ0S166	406,4	70	442	212	200	72,0
RSZ0S167	457		470			75,9
RSZ0S168	508		497			80,6
RSZ0S169	610	90	550	490		129,4
RSZ0S235	711		580			139,1
RSZ0S170	813		650			148,4

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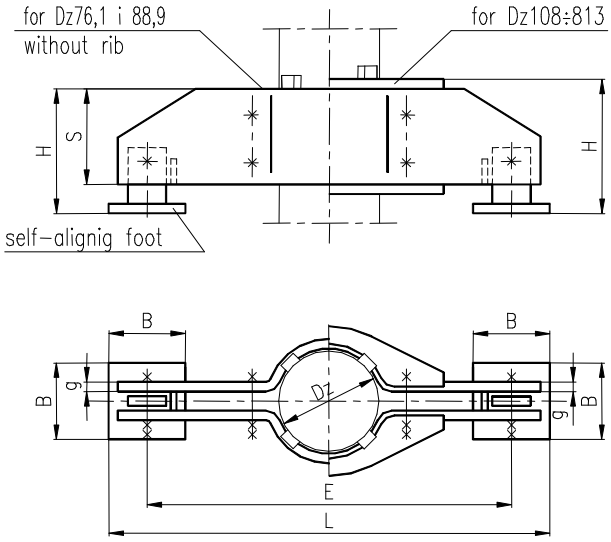

Technical Data
Load range: 4 ÷ 90 kN

Pipe Outside Diameter of range (Dz)
From 76,1 to 813 mm

Max. temperature of medium: 450°C

Application:
For vertical piping supports.
There is recommended to use the sliding base E01 and spring supports B08, B09

Marking example :For vertical clamp base Dz = 273 mm, and temperature 450°C
Vertical clamp base 273/450 RSZ0P042-A16

Drawing No.	Dz of Pipe	F	L	E	H	S	B	g	Weight
	mm	kN	mm						kg
RSZ0P050	76,1	4	550	450	135	100	100	6	7,0
RSZ0P049	88,9								6,9
RSZ0P048	108	7	720	600			120	8	15,4
RSZ0P218	114,3		730	610					15,8
RSZ0P047	133		770	650					16,8
RSZ0P217	139,7		780	660					17,4
RSZ0P046	159	11	980	860	155	120			24,0
RSZ0P216	168,3		1000	880					24,6
RSZ0P045	193,7	25	1220	1100	219	180		12	58,5
RSZ0P044	219,1		1270	1150					62,7
RSZ0P043	244,5								65,9
RSZ0P042	273	42	1370	1250	251	205		16	105,9
RSZ0P041	323,9		1440	1320					115,1
RSZ0P040	355,6								117,9
RSZ0P039	406,4	60	1560	1420	301	245	140	20	190,9
RSZ0P038	457		1620	1480					203,5
RSZ0P037	508		1670	1530					213,5
RSZ0P036	610	90	1800	1660	320	260			249,6
RSZ0P215	711		1900	1760					277,2
RSZ0P035	813		2010	1870					295,2

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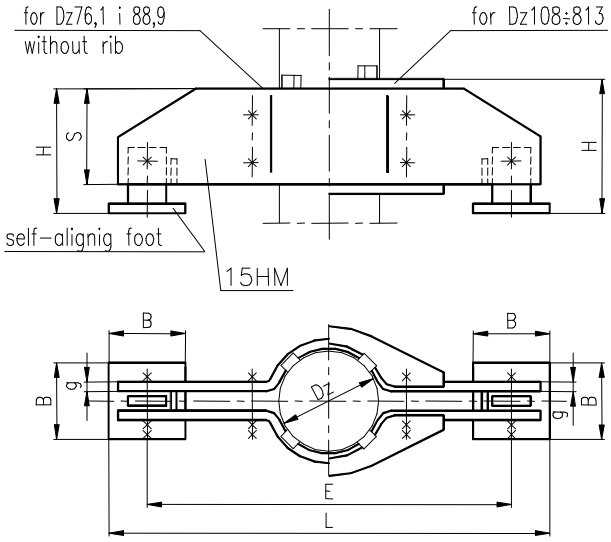


Technical Data:
Load range: 4 ÷ 90 kN

Pipe Outside Diameter of range (Dz)
From 76,1 to 813 mm

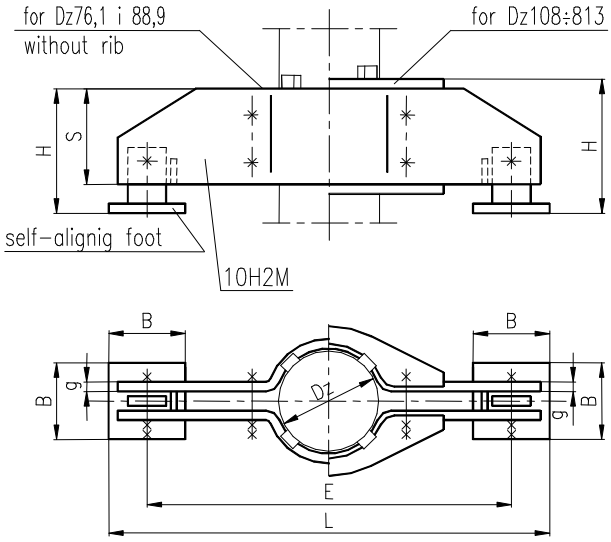
Max. temperature of medium: 550°C

Application:
For vertical piping supports.
There is recommended to use the sliding base E01 and spring supports B08, B09

Marking example :For vertical clamp base Dz = 273 mm, and temperature 550°C:

Vertical clamp base 273/550 RSZ0P058-A17

Drawing No.	Dz of Pipe	F	L	E	H	S	B	g	Weight
	mm	kN	mm						kg
RSZ0P066	76,1	4	550	450	135	100	100	6	7,0
RSZ0P065	88,9								6,9
RSZ0P064	108	7	720	600			120	8	15,4
RSZ0P222	114,3		730	610					15,8
RSZ0P063	133		770	650					16,8
RSZ0P221	139,7		780	660					17,4
RSZ0P062	159	11	980	860	155	120			24,0
RSZ0P220	168,3		1000	880					24,6
RSZ0P061	193,7	25	1220	1100	219	180		12	58,5
RSZ0P060	219,1		1270	1150					62,7
RSZ0P059	244,5								65,9
RSZ0P058	273	42	1370	1250	251	205		16	105,9
RSZ0P057	323,9		1440	1320					115,1
RSZ0P056	355,6								117,9
RSZ0P055	406,4	60	1560	1420	301	245	140	20	190,9
RSZ0P054	457		1620	1480					203,5
RSZ0P053	508		1670	1530					213,5
RSZ0P052	610	90	1800	1660	320	260			249,6
RSZ0P219	711		1900	1760					277,2
RSZ0P051	813		2010	1870					295,2



Technical Data:
Load range: 4 ÷ 90 kN

Pipe Outside Diameter of range (Dz)
From 76,1 to 813 mm

Max. temperature of medium: 560°C

Application:
For vertical piping supports.
There is recommended to use the sliding base E01 and spring supports B08, B09

Marking example :For vertical clamp base Dz = 273 mm, and temperature 560°C:

Vertical clamp base 273/560 RSZ0P170-A18

Drawing No.	Dz of Pipe	F	L	E	H	S	B	g	Weight
	mm	kN	mm						kg
RSZ0P162	76,1	4	550	450	135	100	100	6	7,0
RSZ0P163	88,9								6,9
RSZ0P164	108	7	720	600			120	8	15,4
RSZ0P238	114,3		730	610					15,8
RSZ0P165	133		770	650					16,8
RSZ0P237	139,7		780	660					17,4
RSZ0P166	159	11	980	860	155	120			24,0
RSZ0P236	168,3		1000	880					24,6
RSZ0P167	193,7	25	1220	1100	219	180		12	58,5
RSZ0P168	219,1		1270	1150					62,7
RSZ0P169	244,5								65,9
RSZ0P170	273	42	1370	1250	251	205		16	105,9
RSZ0P171	323,9		1440	1320					115,1
RSZ0P172	355,6								117,9
RSZ0P173	406,4	60	1560	1420	301	245	140	20	190,9
RSZ0P174	457		1620	1480					203,5
RSZ0P175	508		1670	1530					213,5
RSZ0P176	610	90	1800	1660	320	260			249,6
RSZ0P235	711		1900	1760					277,2
RSZ0P177	813		2010	1870					295,2

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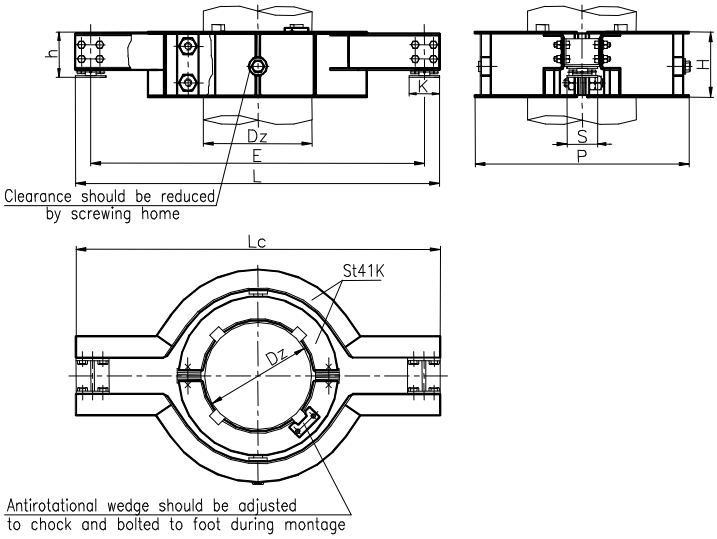

Technical Data:
Load range: 18 ÷ 90 kN

Pipe Outside Diameter of range (Dz)
From 159 to 508 mm

Max. temperature of medium: 450°C

Application:
For vertical self-alignig piping supports
There is recommended to use the sliding base E01

Marking example: For Self-alignig vertical clamp base I Dz = 273 mm, and temperature 450°C:

Self-alignig vertical clamp base I 273/450 RSZ0S053-A19

Drawing No.	Dz of Pipe	F	E	L	L_c	P	H	h	K	S	Weight
	mm	kN	mm								kg
RSZ0S049	159	18	1030	1150	1170	432	165	175	120	130	75,4
RSZ0S050	193,7	22	1100	1220	1240	508	185	180			95,0
RSZ0S051	219,1	28	1150	1270	1290	534	195	190			119,1
RSZ0S052	244,5	31	1180	1340	1350	560	215	210	160	160	142,9
RSZ0S053	273	36	1250	1410	1420	628	230	220			169,6
RSZ0S054	323,9	52	1320	1490	1500	728	265	242	170	170	249,0
RSZ0S055	355,6	62				800	280				281,9
RSZ0S056	406,4	71	1420	1590	1600	850	295	252			343,4
RSZ0S057	457	82	1480	1650	1660	902	310				414,0
RSZ0S058	508	90	1530	1700	1710	980	330				468,4

ATTENTION:
This figure contains typical self-alignig vertical clamp bases for temperature 450°C. We can also manufacture and design non typical elements for clients .

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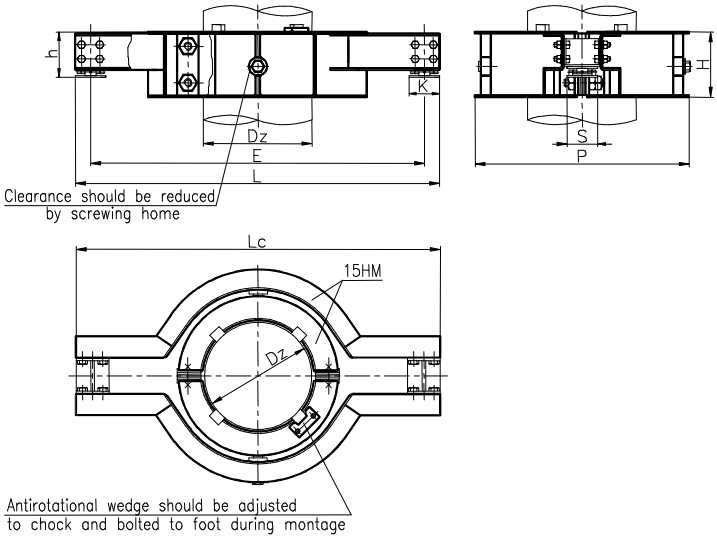

Technical Data:
Load range: 20 ÷ 100 kN

Pipe Outside Diameter of range (Dz)
From 159 to 508 mm

Max. temperature of medium: 550°C

Application:
For self-aligning supports of vertical piping
There is recommended to use the sliding base E01

Marking example: Self-alignig vertical clamp base I Dz = 273 mm, and temperature 550°C:

Self-alignig vertical clamp base I 273/550 RSZ0S063-A20

Drawing No.	Dz of Pipe	F	E	L	L_c	P	H	h	K	S	Weight
	mm	kN	mm								kg
RSZ0S059	159	20	1030	1150	1170	432	165	175	120	130	75,4
RSZ0S060	193,7	25	1100	1220	1240	508	185	180			95,0
RSZ0S061	219,1	30	1150	1270	1290	534	195	190			119,1
RSZ0S062	244,5	35	1180	1340	1350	560	215	210	160	160	142,9
RSZ0S063	273	40	1250	1410	1420	628	230	220			169,6
RSZ0S064	323,9	60	1320	1490	1500	728	265	242	170	170	249,0
RSZ0S065	355,6	70				800	280				281,9
RSZ0S066	406,4	80	1420	1590	1600	850	295	252			343,4
RSZ0S067	457	90	1480	1650	1660	902	310				414,0
RSZ0S068	508	100	1530	1700	1710	980	330				468,4

ATTENTION:
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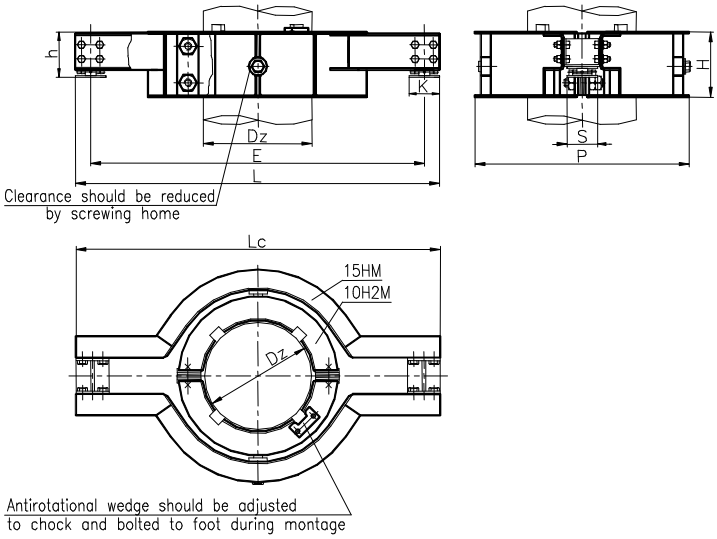

Technical Data:
Load range 20 ÷ 100 kN

Pipe Outside Diameter of range (Dz)
From 159 to 508 mm

Max. temperature of medium: 560°C

Application:
For self-aligning supports of vertical piping
There is recommended to use the sliding base E01

Marking example: Self-alignig vertical clamp base I Dz = 273 mm, and temperature 560°C:

Self-alignig vertical clamp base 273/560 RSZAS050-A21

Drawing No.	Dz of Pipe	F	E	L	L_c	P	H	h	K	S	Weight
	mm	kN	mm								kg
RSZAS046	159	20	1030	1150	1170	432	165	175	120	130	75,4
RSZAS047	193,7	25	1100	1220	1240	508	185	180			95,0
RSZAS048	219,1	30	1150	1270	1290	534	195	190			119,1
RSZAS049	244,5	35	1180	1340	1350	560	215	210	160	160	142,9
RSZAS050	273	40	1250	1410	1420	628	230	220			169,6
RSZAS051	323,9	60	1320	1490	1500	728	265	242	170	170	249,0
RSZAS052	355,6	70				800	280				281,9
RSZAS053	406,4	80	1420	1590	1600	850	295	252			343,4
RSZAS054	457	90	1480	1650	1660	902	310				414,0
RSZAS055	508	100	1530	1700	1710	980	330				468,4

ATTENTION:
This figure contains typical self-alignig vertical clamp bases for temperature 560°C. We can also manufacture and design non typical elements for clients .

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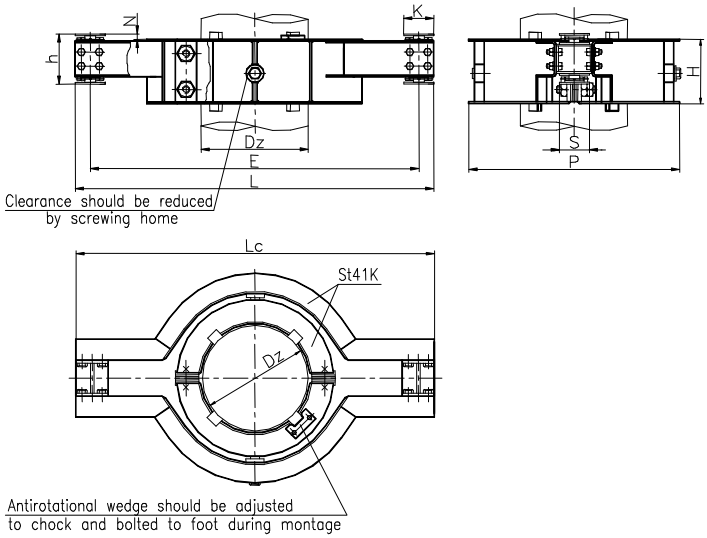

Technical Data:
Load range: 18 ÷ 90 kN

Pipe Outside Diameter of range (Dz)
From 159 to 508 mm

Max. temperature of medium: 450°C

Application:
For self-aligning supports of vertical piping as limiting element.
There is recommended to use the sliding base E01

Example marking : Self-alignig vertical clamp base II Dz = 273 mm, and temperature 450°C:

Self-alignig vertical clamp base II 273/450 RSZ0S073-A22

Drawing No.	Dz of Pipe	F	E	L	L_c	P	H	h	N	K	S	Weight
	mm	kN	mm									kg
RSZ0S069	159	18	1030	1150	1170	432	165	209	34	120	130	84,7
RSZ0S070	193,7	22	1100	1220	1240	508	185	214				104,2
RSZ0S071	219,1	28	1150	1270	1290	534	195	220	30			129,0
RSZ0S072	244,5	31	1180	1340	1350	560	215	250	40	160	160	160,7
RSZ0S073	273	36	1250	1410	1420	628	230	260				187,4
RSZ0S074	323,9	52	1320	1490	1500	728	265	290	48	170	170	271,7
RSZ0S075	355,6	62				800	280					304,6
RSZ0S076	406,4	71	1420	1590	1600	850	295	296	44			367,2
RSZ0S077	457	82	1480	1650	1660	902	310	292	40			438,9
RSZ0S078	508	90	1530	1700	1710	980	330					493,3

ATTENTION:
This figure contains typical self-alignig vertical clamp bases for temperature 450°C. We can also manufacture and design non typical elements for clients .

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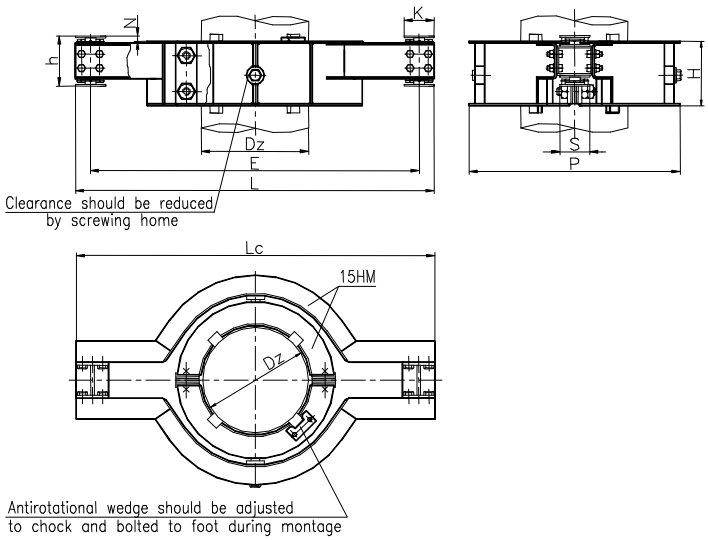

Technical Data:
Load range: 20 ÷ 100 kN

Pipe Outside Diameter of range (Dz)
From 159 to 508 mm

Max. temperature of medium: 550°C

Application:
For self-aligning supports of vertical piping as limiting element.

There is recommended to use with four sliding bases E01

Marking example: For Self-alignig vertical clamp base II Dz = 273 mm, and temperature 550°C:

Self-alignig vertical clamp base II 273/550 RSZ0S083-A23

Drawing No.	Dz of Pipe	F	E	L	L_c	P	H	h	N	K	S	Weight
	mm	kN	mm									kg
RSZ0S079	159	20	1030	1150	1170	432	165	209	34	120	130	84,7
RSZ0S080	193,7	25	1100	1220	1240	508	185	214				104,2
RSZ0S081	219,1	30	1150	1270	1290	534	195	220	30			129,0
RSZ0S082	244,5	35	1180	1340	1350	560	215	250	40	160	160	160,7
RSZ0S083	273	40	1250	1410	1420	628	230	260				187,4
RSZ0S084	323,9	60	1320	1490	1500	728	265	290	48	170	170	271,7
RSZ0S085	355,6	70				800	280					304,6
RSZ0S086	406,4	80	1420	1590	1600	850	295	296	44			367,2
RSZ0S087	457	90	1480	1650	1660	902	310	292	40			438,9
RSZ0S088	508	100	1530	1700	1710	980	330					493,3

ATTENTION:
This figure contains typical self-alignig vertical clamp bases for temperature 550°C. We can also manufacture and design non typical elements.

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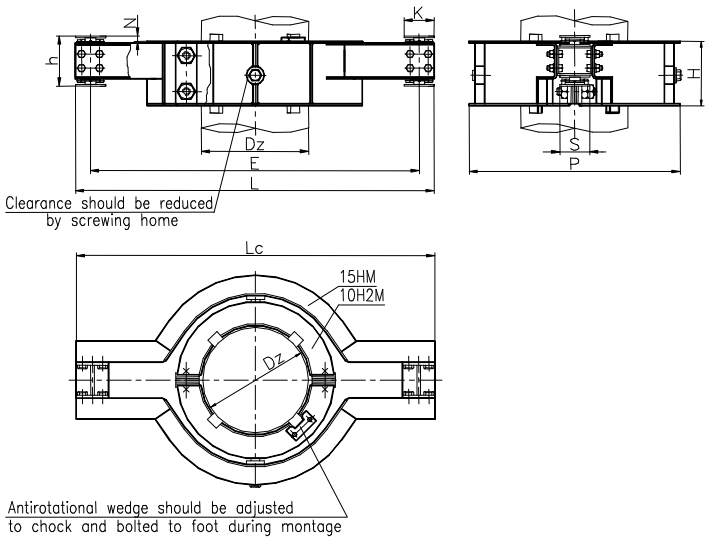

Technical Data:
Load range: 20 ÷ 100 kN

Pipe Outside Diameter of range (Dz)
From 159 to 508 mm

Max. temperature of medium: 560°C

Application:
For self-aligning supports of vertical piping as limiting element.

There is recommended to use with four sliding bases E01

Marking example: For self-alignig vertical clamp bases II Dz = 273 mm, and temperature 560°C:

Self-alignig vertical clamp base II 273/560 RSZAS060-A24

Drawing No.	Dz of Pipe	F	E	L	L_c	P	H	h	N	K	S	Weight
	mm	kN	mm									kg
RSZAS056	159	20	1030	1150	1170	432	165	209	34	120	130	84,7
RSZAS057	193,7	25	1100	1220	1240	508	185	214				104,2
RSZAS058	219,1	30	1150	1270	1290	534	195	220	30			129,0
RSZAS059	244,5	35	1180	1340	1350	560	215	250	40	160	160	160,7
RSZAS060	273	40	1250	1410	1420	628	230	260				187,4
RSZAS061	323,9	60	1320	1490	1500	728	265	290	48	170	170	271,7
RSZAS062	355,6	70				800	280					304,6
RSZAS063	406,4	80	1420	1590	1600	850	295	296	44			367,2
RSZAS064	457	90	1480	1650	1660	902	310	292	40			438,9
RSZAS065	508	100	1530	1700	1710	980	330					493,3

ATTENTION:
This figure contains typical self-alignig vertical clamp bases for temperature 560°C. We can also manufacture and design non typical elements for clients .

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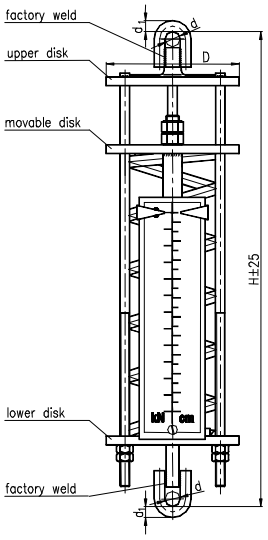

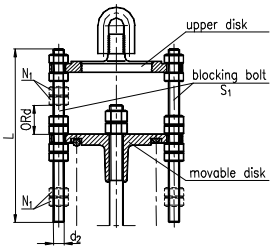

Technical Data:
Value H can be calibrate in order ± 25 mm. using springs figure E11. Elements are equipped with bolt S_1 using for blocking pipelines during montage and hydrostatic tests or to stop moving piping (ORd) by nut N_1. The reflective scale shows value of strength for springs.It is recommend to using with tie rod units which contains turnbuckles.

Application:
For piping supports

Marking example: Spring hanger with F_n = 0,95 kN, and f_n = 70 mm:

Spring hanger 0,95/70 RSZZW164-B01

Drawing No.	F_n	f_n	H		D	d	d_1	L	d_2	Weight
			doc.	odc.						
	kN	mm	mm							kg
RSZZW164	0,95	70	305	325	122	14	10	180	M10	4,12
RSZZW165		140	420	460				230		4,98
RSZZW166	1,4	70	320	340				180		4,39
RSZZW167		140	445	485				230		5,5
RSZZW168	2,04	70	330	350	147			180		6,44
RSZZW169		140	455	495				230		7,84
RSZZW170	3,6	70	350	370				180		7,26
RSZZW171		140	495	535				230		9,14
RSZZW172	5,55	70	390	410	165	16	12	200		10,9
RSZZW173		140	535	575				250		13,27
RSZZW174	8,15	70	455	475		20	16	210	M12	13,83
RSZZW175		140	625	665				260		17,44
RSZZW176	11,5	70	505	525	180			250	M16	20,53
RSZZW177		140	705	745				300		25,58
RSZZW178	15,5	70	525	545	222	25	20	250		33,9
RSZZW179		140	705	745				300		41,07
RSZZW180	20,5	70	595	615		30	24	260		37,1
RSZZW181		140	795	835				310		46,06
RSZZW182	25,4	70	645	665	266			290	M24	62,45
RSZZW183		140	865	905				340		75,49
RSZZW184	35	70	735	755		38	30	290		70,31
RSZZW185		140	1000	1040				340		87,8
RSZZW186	50	70	680	700	306			300		85,4
RSZZW187		140	925	965				350		107,7
RSZZW188	70	70	720	740	356	43		335	M30	123,2
RSZZW189		140	955	995				375		160,7
RSZZW190	100	70	745	765				335		150,0
RSZZW191		140	1000	1040				375		185,77

ATTENTION:
The reflective scale shows theoretical value of strength for springs.

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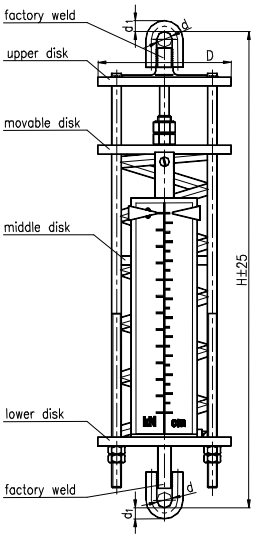

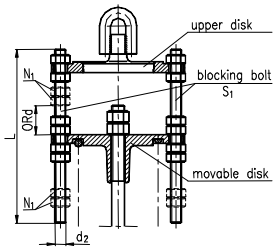

Technical Data:
Value H can be calibrate in order ± 25 mm. using springs figure E11. Elements are equipped with bolt S_1 using for blocking pipelines during montage and hydrostatic tests or to stop moving piping (ORd) by nut N_1. The reflective scale shows value of strength for springs.It is recommend to using with tie rod units which contains turnbuckles.

Application:
For piping supports

Marking example: Double-spring hanger for parameters F_n = 0,95 kN, f_n = 70 mm and f_n = 140 mm:

Double-spring hanger 0,95/210 RSZZW192-B02

Drawing No.	F_n	f_n	H		D	d	d_1	L	d_2	Weight
			doc.	odc.						
	kN	mm	Mm							kg
RSZZW192	0,95	210	545	605	122	14	10	280	M10	6,22
RSZZW193	1,4		590	650						6,98
RSZZW194	2,04		600	660	147					9,94
RSZZW195	3,6		660	720						12,0
RSZZW196	5,55		700	760	165	16	12	300		16,86
RSZZW197	8,15		825	885		20	16	310	M12	22,2
RSZZW198	11,5		940	1000	180			345	M16	32,5
RSZZW199	15,5		920	980	222	25	20			52,85
RSZZW200	20,5		1040	1100		30	24	360		60,04
RSZZW201	25,4		1135	1195	266			390	M24	93,2
RSZZW202	35		1320	1380		38	30			113,86
RSZZW203	50		1235	1295	306			400		141,37
RSZZW204	70		1275	1335	356	43		414	M30	200,02
RSZZW205	100		1335	1395						241,83

ATTENTION:
The table contains theoretical value of strength for springs.

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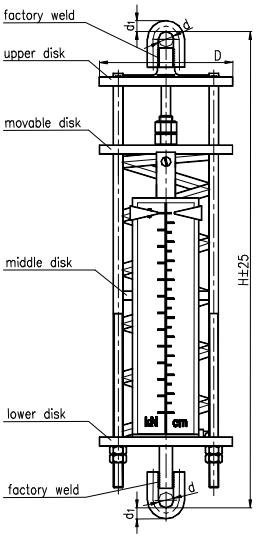

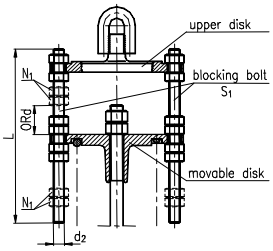

Technical Data:
Value H can be calibrate in order ± 25 mm. using springs figure E11. Elements are equipped with bolt S_1 using for blocking pipelines during montage and hydrostatic tests or to stop moving piping (ORd) by nut N_1. The reflective scale shows value of strength for springs.It is recommend to using with tie rod units which contains turnbuckles.

Application:
For piping supports

Marking example: Double-spring hanger with F_n = 0,95 kN, and f_n = 140 mm:

Double-spring hanger 0,95/280 RSZZW206-B03

Drawing No.	F_n	f_n	H		D	d	d_1	L	d_2	Weight
			doc.	odc.						
	kN	mm	Mm							kg
RSZZW206	0,95	280	660	740	122	14	10	340	M10	6,83
RSZZW207	1,4		715	795						7,9
RSZZW208	2,04		725	805	147					11,1
RSZZW209	3,6		800	880						13,6
RSZZW210	5,55		845	925	165	16	12	360		18,9
RSZZW211	8,15		995	1075		20	16	370	M12	25,5
RSZZW212	11,5		1135	1215	180			400	M16	38,4
RSZZW213	15,5		1100	1180	222	25	20			60,0
RSZZW214	20,5		1245	1325		30	24	420		69,0
RSZZW215	25,4		1355	1435	266			440	M24	108,7
RSZZW216	35		1585	1665		38	30			131,2
RSZZW217	50		1480	1560	306			450		163,6
RSZZW218	70		1515	1595	356	43		455	M30	237,5
RSZZW219	100		1590	1670						277,7

ATTENTION:
The table contains theoretical value of strength for springs.

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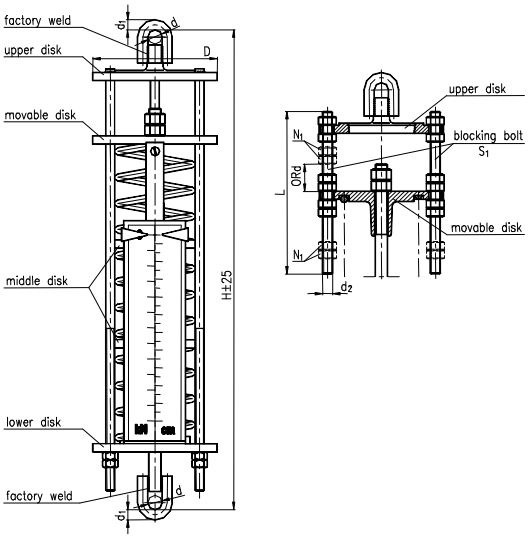

Technical Data:
Value H can be calibrate in order ± 25 mm. using springs figure E11. Elements are equipped with bolt S_1 using for blocking pipelines during montage and hydrostatic tests or to stop moving piping (ORd) by nut N_1. The reflective scale shows value of strength for springs.It is recommend to using with tie rod units which contains turnbuckles.

Application:
For piping supports

Marking example: Triple-spring hangers F_n = 0,95 kN, f_n = 140 mm:

Triple-spring hangers 0,95/420 RSZZW220-B04

Drawing No.	F_n	f_n	H		D	d	d_1	L	d_2	Weight
			doc.	odc.						
	kN	mm	mm							kg
RSZZW220	0,95	420	900	1020	122	14	10	420	M10	8,9
RSZZW221	1,4		985	1105						10,4
RSZZW222	2,04		995	1115	147					14,6
RSZZW223	3,6		1110	1230						18,4
RSZZW224	5,55		1155	1275	165	16	12	440		25,0
RSZZW225	8,15		1365	1485		20	16	450	M12	33,9
RSZZW226	11,5		1565	1685	180			486	M16	51,3
RSZZW227	15,5		1495	1615	222	25	20			79,1
RSZZW228	20,5		1690	1810		30	24	500		92,1
RSZZW229	25,4		1840	1960	266			520	M24	142,0
RSZZW230	35		2175	2295		38	30			174,8
RSZZW231	50		2035	2155	306			530		219,7
RSZZW232	70		2080	2200	356	43		534	M30	314,7
RSZZW233	100		2185	2305						369,7

ATTENTION:
The table contains theoretical value of strength for springs.

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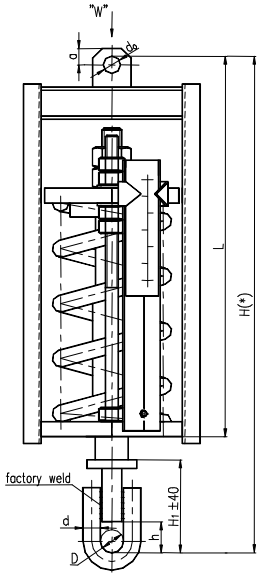

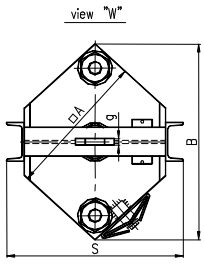

Technical Data:
Value H can be calibrate in order ± 40 mm with special springs acc. table for preliminary tension 100 mm. eliminated from work with sliding rings. Elements are equipped with bolt S_1 using for blocking pipelines during montage and hydrostatic tests or to stop moving piping. The reflective scale shows value of strength for springs. It is recommend to using with tie rod units which contains turnbuckles.

Application:
For piping supports.

(*) $H=L+H_1+f-100$; : f – deflexion of spring (depends on weight of piping and heat displacement)

Marking example: Spring hangers with F_n = 11,7 kN and f_n = 400 mm:

Spring hangers 11,7/400 RSZZG001-B05

Drawing No.	Spring data					D	d	d_0	g	h	H_1	A	B	S	L	a	Weight
	F_n	f_n	K	C	l_0												
	kN	mm		kN/mm	mm	Mm											kg
RSZZG001	11,7	400	17	0,028056	671	20	16	25	12	30	110	230	325	332	892	30	59,3
RSZZG002	19,7	413	29	0,04459	657	25	20	35	16		120	270	382	374	920	38	74,3
RSZZG003	36	381	27	0,0882	692	38	30		20	40	160	302	427	406	956	41	112,5
RSZZG004	59	336	0	0,1756	702	43		48	25	45	167	314	444	418	1018	54	149,0
RSZZG005	73	330	30	0,203	720							320	452	424	1068		171,2

Working displacement f_r [mm] can be calculate according to:

$$f_r = \frac{F_{rob}}{C} - K$$

F_{rob} – working strength [kN]
C – constant value of spring (acc. table) [kN/mm]
K – Correction faktor of spring (acc. table)[mm]

ATTENTION:
The reflective scale shows theoretical value of strength from 100 mm to f_n .

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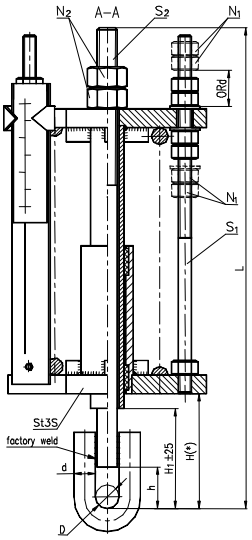

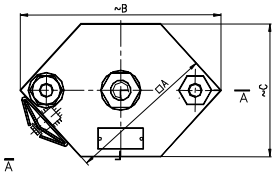

Technical Data:
Value H can be calibrate in order ± 25 mm. using springs figure E11. Elements are equipped with bolt S_1 using for blocking pipelines during montage and hydrostatic tests or to stop moving piping (ORd) by nut N_1. The reflective scale shows value of strength for springs.It is recommend to using with tie rod units which contains turnbuckles. Calibration of height of deflexion of springs by using nut N_2 and bolt S_2.

Application:
For piping supports

(*) $H=H_1+f$; : f – deflexion of spring (inldude weight of piping and heat displacement)

Marking example: Spring hanger(seated) with F_n = 0,95 kN and f_n = 70 mm:

Spring hanger(seated) 0,95/70 RSZZW001-B06

Drawing No.	F_n	f_n	A	B	C	L	H_1	h	D	d	Weight
	kN	mm	mm								kg
RSZZW001	0,95	70	115	160	106	235	60	15	14	10	2,91
RSZZW002		140				245					3,72
RSZZW003	1,4	70									3,25
RSZZW004		140				375					4,27
RSZZW005	2,04	70	130	186	127	260					4,35
RSZZW006		140				385					5,96
RSZZW007	3,6	70				285					5,99
RSZZW008		140				425					7,93
RSZZW009	5,55	70	145	208	141	305	70	20	16	12	8,83
RSZZW010		140				445					11,4
RSZZW011	8,15	70				355	85	30	20	16	11,66
RSZZW012		140				515					15,75
RSZZW013	11,5	70	155	223		410					15,35
RSZZW014		140				605					21,17
RSZZW015	15,5	70	185	263	184	405	95		25	20	22,78
RSZZW016		140				580					30,14
RSZZW017	20,5	70	195	278	191	460	115	40	30	24	30,9
RSZZW018		140				660					41,24
RSZZW019	25,4	70	210	294	205	505					38,85
RSZZW020		140				720					51,25
RSZZW021	35	70	220	310	212	575	140	45	43	30	53,33
RSZZW022		140				845					77,7
RSZZW023	50	70	250	352	248	595					73,75
RSZZW024		140				845					98,7
RSZZW025	70	70	290	411	283	630					108,69
RSZZW026		140				865					180,55
RSZZW027	100	70				680					131,59
RSZZW028		140				945					170,6

ATTENTION:
The table contains theoretical value of strength for springs.

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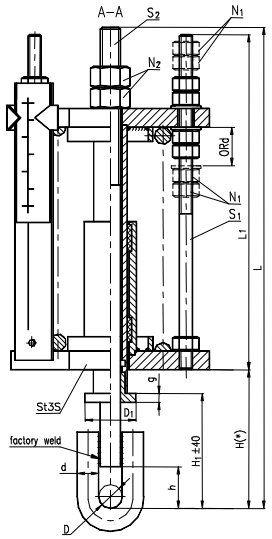

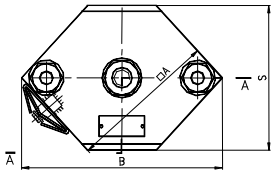

Technical Data:
Value H can be calibrate in order ± 40 mm with special springs acc. table for preliminary tension 100 mm. eliminated from work with sliding rings. The reflective scale shows value of strength for springs. Elements are equipped with bolt S_1 using for blocking pipelines during montage and hydrostatic tests or to stop moving piping (ORd) by nut N_1. It is recommend to using with tie rod units which contains turnbuckles.

Application:
For piping supports.

(*) $H=H_1+f-100$; f – f – deflexion of spring (depends on weight of piping and heat displacement)

Marking example: Spring hangers with low force deviation (seated) with F_n = 11,7 kN, f_n = 400 mm:

Spring hangers(seated) 11,7/400 RSZZG006-B07

Drawing No.	Spring data					D	d	D_1	g	h	H_1	A	B	S	L	L_1	Weight
	F_n	f_n	K	C	l_0												
	kN	mm		kN/mm	mm	Mm											kg
RSZZG006	11,7	400	17	0,028056	671	20	16	65	10	30	110	230	325	256	815	638	47,9
RSZZG007	19,7	413	29	0,04459	657	25	20				120	270	382	298	835	635	62,1
RSZZG008	36	381	27	0,0882	692	38	30			40	160	302	427	330	910	676	99,4
RSZZG009	59	336	0	0,1756	702	43		85	12	45	167	314	444	342	940	705	133,2
RSZZG010	73	330	30	0,203	720							320	452	348	970	732	153,7

Working displacement f_r [mm] can be calculate according to:

$$f_r = \frac{F_{rob}}{C} - K$$

F_{rob} – working strength [kN]
C – constant value of spring (acc. table) [kN/mm]
K – Correction faktor of spring (acc. table)[mm]

ATTENTION:
The reflective scale shows theoretical value of strength from 100 mm to f_n .

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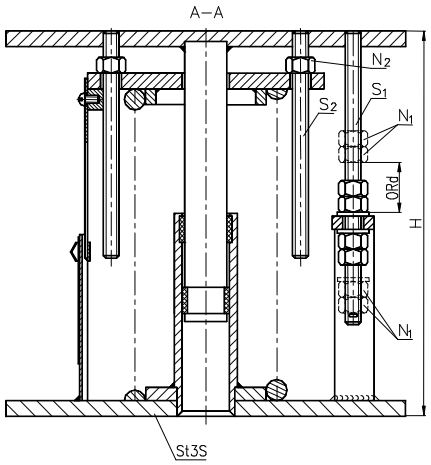

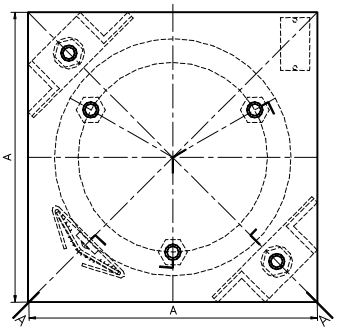

Technical Data:
Value H can be calibrate in order ± 25 mm. using springs figure E11. Elements are equipped with bolt S_1 using for blocking pipelines during montage and hydrostatic tests or to stop moving piping (ORd) by nut N_1. The reflective scale shows value of strength for springs. It is recommend to using with tie rod units which contains turnbuckles. Calibration of height of deflexion of springs by using nut N_2 and bolt S_2.

Application:
For piping supports

Marking example: Spring support with F_n = 0,95 kN and f_n = 70 mm:

Spring support 0,95/70 RSZPS001-B08

Drawing No.	F_n	f_n	A	H		Weight
				doc.	odc.	
	kN	mm	mm			kg
RSZPS001	0,95	70	185	305	280	10,61
RSZPS002		140		420	370	12,03
RSZPS003	1,4	70		305	280	10,73
RSZPS004		140		420	370	12,3
RSZPS005	2,04	70	205	305	280	12,81
RSZPS006		140		420	370	14,7
RSZPS007	3,6	70		310	285	15,2
RSZPS008		140		430	380	17,3
RSZPS009	5,55	70	220	315	290	19,3
RSZPS010		140		440	390	22,72
RSZPS011	8,15	70	225	315	290	21,0
RSZPS012		140		440	390	25,3
RSZPS013	11,5	70		315	290	22,2
RSZPS014		140		485	435	27,54
RSZPS015	15,5	70	275	340	315	41,43
RSZPS016		140		470	420	47,0
RSZPS017	20,5	70		340	315	44,0
RSZPS018		140		515	465	51,7
RSZPS019	25,4	70	310	345	320	54,7
RSZPS020		140		555	505	70,7
RSZPS021	35	70	320	405	380	70,0
RSZPS022		140		660	610	91,8
RSZPS023	50	70	350	400	375	90,2
RSZPS024		140		635	585	116,5
RSZPS025	70	70	390	415	390	109,3
RSZPS026		140		645	595	150,1
RSZPS027	100	70	400	440	415	141,2
RSZPS028		140		690	640	177,7

ATTENTION:
The table contains theoretical value of strength for springs.

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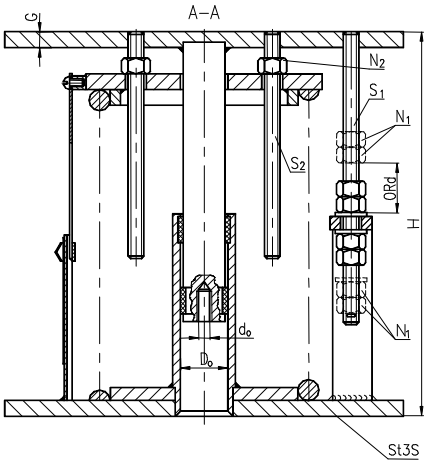
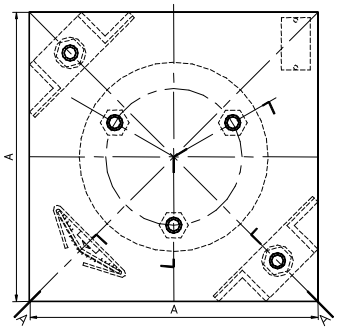




Technical Data:

Value H can be calibrate in order ± 25 mm. with special springs and sliding rings. Elements are equipped with bolt S_1 using for blocking pipelines during montage and hydrostatic tests or to stop moving piping (ORd) by nut N_1. The reflective scale shows value of strength for springs. It is recommend to using with tie rod units which contains turnbuckles. Calibration of height of deflexion of springs by using nut N_2 and bolt S_2.
Range of displacement:
Recommended – max 50 mm
Maximum 75 mm

Application:

For piping supports.

Marking example: Spring supports with low force deviation with F_n = 11,7 kN, f_n = 400 mm:

Spring supports with low force deviation 11,7/400 RSZZG011-B09

Drawing No.	Spring data					Working strength (recommend) $F_{rob.}$	Maxium spring deflection f	A	H		G	d_0	D_0	Weight
	F_n	f_n	K	C	l_0				Odc.	doc.				
	kN	mm		kN/mm	mm	Mm								kg
RSZZG011	11,7	400	17	0,028056	671^{+27}_{-7}	5,38÷7,49	100÷325	320	580	655	12	M24	74	70,8
RSZZG012						7,49÷9,59	175÷400		510	585	14			71,0
RSZZG013	19,7	413	29	0,04459	657^{+27}_{-6}	9,53÷12,88	110÷335	350	565	640	16			89,5
RSZZG014						12,88÷16,22	185÷410		495	570	18			88,2
RSZZG015	36	381	27	0,0882	692^{+30}_{-6}	16,05÷22,66	80÷305	390	640	715	20	M30		133,5
RSZZG016						22,66÷29,3	155÷380		565	640	22			132,7
RSZZG017	59	336	0	0,1756	702^{+30}_{-6}	28,09÷36,87	85÷285	425	660	735	26	M36	105	186,8
RSZZG018						36,87÷45,65	135÷335		615	690	28			188,5
RSZZG019	73	330	30	0,203	720^{+30}_{-6}	44,66÷57,87	115÷330	430	655	730	30			203,9

1. Selection of spring supports:

1.1. Spring supports should be select for recommended working strength acc. table.

1.2. Range of vertical heat displacement :
- recommended to50 mm,
- maximum to 75 mm,
- Deflection above 75 mm caused blocking of spring support.

1.3. Working deflection of spring f_{rob} [mm] can be calculate according to:

$$f_{rob} = \frac{F_{rob}}{C} - K :$$

F_{rob} – Working strength (ciężar odcinka rurociągu przypadającego na dane zamocowanie w stanie roboczym) [kN],
C – Constant value of spring according table [kN/mm],
K – współczynnik korekcyjny ugięcia sprężyny ustalony i podany w tabeli na podstawie statystycznych wyników pomisarów sił sprężyn przy określonych długościach [mmMatching the concrete spring support it is necessary to check every time influencing the pipeline by the proportional change of strength when warming up according to the pattern:

$$\Delta F = \frac{F - F_{rob}}{F_{rob}} \cdot 100\% \leq \Delta F_{\max}$$

where:
(F - proportional change of strength of the interaction,
(Fmax - legal proportional change determined in specifications of supplies of strength,
F - strength in cold condition [kN].

1.4. It is necessary in cold condition to calculate 1.4, bearing strength:

$$F = C \cdot (f + K)$$

where:
f - concrete bending of the spring [mm],
C - constant of the spring (increase in strength for the unit of the bend) given in the table [kN/mm],
K - corrective determined and given in the table on the basis of statistical effects of measurements of strength of springs at determined lengths ratio of the bend of the spring [mm].

1.5. Zakład Rurociągów "CHEMAR" Ltd. is delivering arranged and blocked to the validation in the position tables of supports is arranging the value for real labour forces given in the documentation or the order and additionally of thermal racing against one another in dependence on the trend of dislocations of the pipeline.
It is necessary in the specification sheet or the order to give:
- Frob [kN],
- the trend and the value of the dislocation where:
  sign "+" for springs loading , but sign "-" relieved of warming up of the pipeline in the time for springs,
- H. height

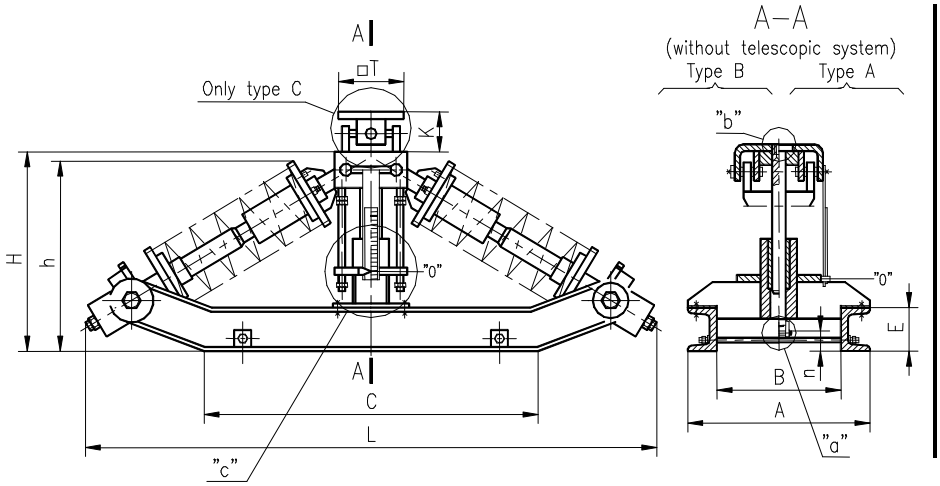
1.7. In case of lack of j/w data, the manufacturer is delivering tables arranged according to the table for the height in limits Hloading ÷ Hrelieved and of the range recommended in limits on the value of strength.

2. Information and recommendation to installation and operating

2.1. It is necessary to check setups of sprung tables and to make the adjustment alternatively in accordance to the documentation.

2.2. The ruler contains the rough scale of the value of strength in the function of the bend of the spring.

2.3. It is necessary to keep caution in case of disassembly of the table from consideration for big preliminary tautness of the spring. Rifled to opening in slide is making safe disassembly of the table possible behind help extra two-sided rifled ties with the special pad and nuts. These elements don't belong to the supply of tables.



Technical Data:
Manufacturing in 3 types:
A – for single tie rod units
B – for double tie rod units
C – for supports
Recommended deflexion of unit Δ_{rob} to150 mm
Max deflexion Δ_{max} = 200 mm
Max. temperature of unit: 70°C
Max friction force ± 5% of aerodynamic lift

Application:
For piping supports.

Marking example: Constant unit ZST – 83 type A, working load F = 46,2 kN, vertical down heat displacement 140 mm , Δ_m = 30 mm(*):

Unit ZST – 83 A RSZZS001-C01 (46,2kN/Δ_m=30mm/140/dół)

(*) Deflection during erection Δ_m [mm] should be calculate:

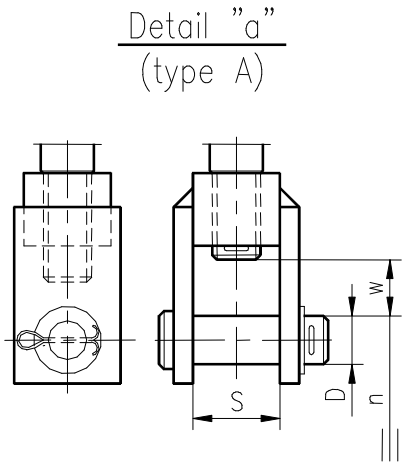
– Unit ZST – 83 capacity during heating of pipelines:

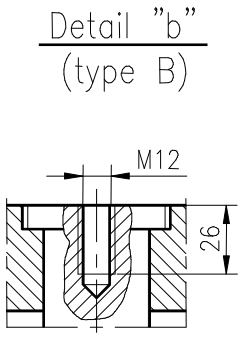
$$\Delta_m = \frac{200 - \Delta}{2}$$

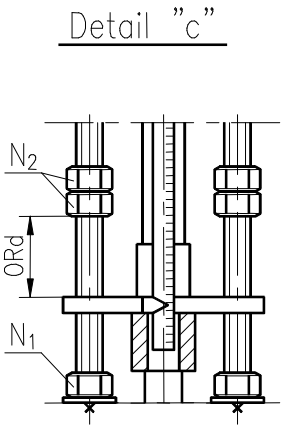
– Unit ZST – 83 relieving during heating of pipelines:

$$\Delta_m = \Delta + \frac{200 - \Delta}{2}$$

Δ_m – deflexion during erection [mm],
Δ – absolute value of vertical displacement of pipelines [mm].







Drawing No.	F[3]	Max. deflextion Δ_{max}	Type	H[2]		L[2]		H[2]		A	B	C	E	n[1]	S	D	w	K	T	d	Weight
				a	b	a	B	a	b												
	kN	mm		mm																	kg
RSZZS001	43,8÷50	200	A	611	411	1689	1719	598	450	480	350	967	160	39	50	38	35	-	-	M24	413,0
RSZZS002			B											-	-	-	-	-	-		409,0
RSZZS003			C											-	-	-	-	62	170		413,0
RSZZS004	31÷39,3		A						448	470		952	140	51	40	32	28	-	-		363,0
RSZZS005			B											-	-	-	-	-	-		359,0
RSZZS006			C											-	-	-	-	62	170		365,0
RSZZS007	17,4÷23		A			1674	1704	589	440	440	330	935	120	81	35	26	28	-	-	M20	273,0
RSZZS008			B											-	-	-	-	-	-		272,0
RSZZS009			C											-	-	-	-	50	160		277,0
RSZZS010	7,2÷14,2		A	603	403	1666	1696	562	418	400	300	934	100	110	28	21	24	-	-	M16	190,0
RSZZS011			B											-	-	-	-	-	-		190,0
RSZZS012			C											-	-	-	-	42	130		192,0
RSZZS013	5,3÷7,8		A	598	398	1665	1675	550	401	350	260	933	80	138	25	17	20	-	-	M12	137,0
RSZZS014			B											-	-	-	-	-	-		136,0
RSZZS015			C											-	-	-	-	38	100		138,0

[1] Dimension before deflexion
[2] In column „a" was putted dimension of unit before deflexion ($\Delta_m = 0$), in column „b" after deflexion ($\Delta_m = 200$ mm)
[3] Maximum range of strength.

ATTENTION:
Contant unit ZST – 83 is calibrated and atested in CHEMAR Rurociągi Sp. z o.o.. for aerodynamic lift and deflexion during erection (Δ_m) Blocking with nut N_1 i N_2 transportation. Before starting up nut should be undo at the end of thread self –alignig bolts to possibility of working unit in a range of heat displacement of pipelines. In case of limitation moving pipelines down (ORd) nuts N_1 and N_2 should be calibrated acc. detail „c". The reserve of working deflection and Δ_m do not have to be decomposed evenly as in example above. The value should be precised by designer or client. The method of calibration of force and exploitation conditions in instruction 207.207 enclosed to item.

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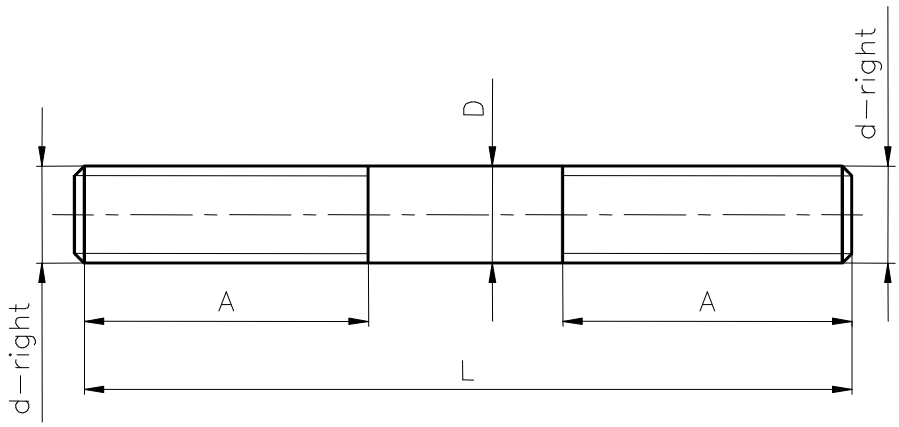

Technical Data:
Load range: 6 ÷ 100 kN

Application:
For piping supports as tie.

Marking example: Tie rod (right-right) M12 and L = 1000 mm:

Tie rod (right-right) P-P M12x1000 RSZGG075-D01

Drawing No.	d	F	D	A	L		Weight
					min.	max.	
	mm	kN	mm				kg
RSZGG075	M12	6	12	120	260	4000	0,000888xL
RSZGG076	M16	12	16				0,00158xL
RSZGG077	M20	20	20				0,00247xL
RSZGG078	M24	30	24	140	310		0,00355xL
RSZGG079	M30	50	30				0,00555xL
RSZGG080	M36	70	38	160	350		2,21+0,0089x(L-320)
RSZGG081	M42	100	45				3,0+0,0125x(L-320)

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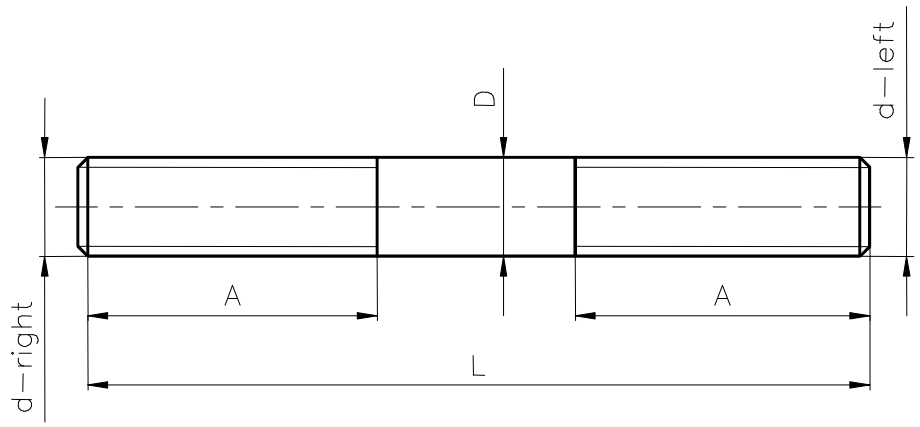

Technical Data:
Load range: 6 ÷ 100 kN

Application:
For piping supports as tie.

Marking example: Tie rod (right-left) M12 and L = 1000 mm:

Tie rod (right-right) P-L M12x1000 RSZGG057-D02

Drawing No.	d	F	D	A	L		Weight
					min.	max.	
	mm	kN	mm				kg
RSZGG057	M12	6	12	120	260	4000	0,000888xL
RSZGG058	M16	12	16				0,00158xL
RSZGG059	M20	20	20				0,00247xL
RSZGG060	M24	30	24	140	310		0,00355xL
RSZGG061	M30	50	30				0,00555xL
RSZGG062	M36	70	38	160	350		2,21+0,0089x(L-320)
RSZGG063	M42	100	45				3,0+0,0125x(L-320)

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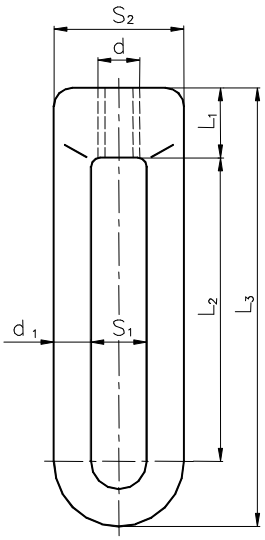

Technical Data:
Load range: 6 ÷ 100 kN

Application:
For piping supports.

Marking example: Eye nut M12:

Eye nut M12 TU150201-D03

Drawing No.	d	F	L_1	L_2	L_3	S_1	S_2	d_1	Weight
	mm	kN	mm						kg
TU150201	M12	6	25	70	122	24	54	15	0,52
TU150202	M16	12							0,5
TU150203	M20	20							0,48
TU150204	M24	30	35	80	152	34	74	20	1,18
TU150205	M30	50							1,13
TU150206	M36	70	45	90	187	46	107	30	3,12
TU150207	M42	100							3,0

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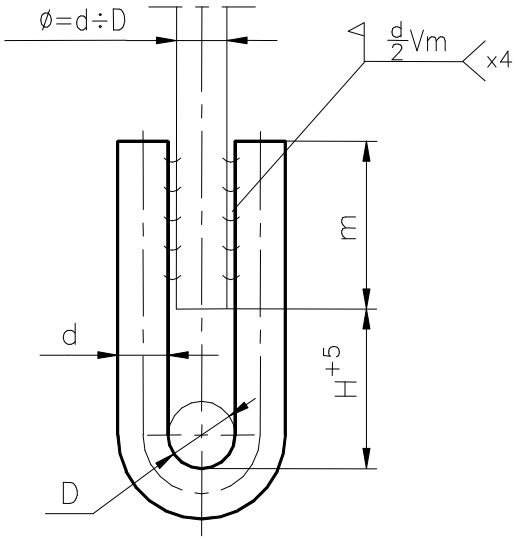

Technical Data:
Load range: 3,6 ÷ 100 kN

Application:
For piping supports

Marking example: Fastener with rod diameter d = 8 mm:

Fastener U-8 RSZXX194-D04

Drawing No.	F	d	H	m	D	Weight
	kN	mm				kg
RSZXX194	3,6	8	15	15	12	0,03
RSZXX195	5,55	10		20	14	0,06
RSZXX196	8,15	12	20	25	16	0,1
RSZXX197	15,5	16	30	30	20	0,25
RSZXX198	20,5	20		40	25	0,46
RSZXX199	35	24	40	50	30	0,83
RSZXX200	70	30		70	38	1,6
RSZXX201	100	38	50	80	45	3,1

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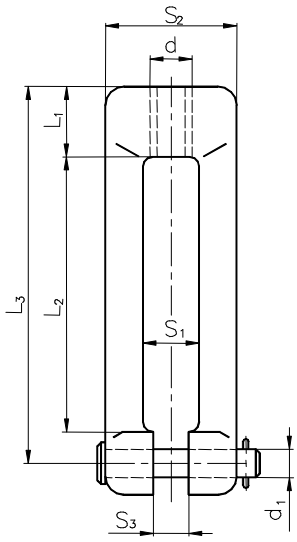

Technical Data:
Load range: 6 ÷ 100 kN

Application:
For piping supports

Marking example: Clevis M12:

Clevis M12 TU150301-D05

Drawing No.	d	F	L_1	L_2	L_3	S_1	S_2	S_3	d_1	Weight
	mm	kN	mm							kg
TU150301	M12	6	25	80	125	24	54	22	22,5	0,88
TU150302	M16	12								0,86
TU150303	M20	20								0,84
TU150304	M24	30	35	85	150	34	74	32	32,5	2,21
TU150305	M30	50								2,15
TU150306	M36	70	45	95	180	47	107	45	45,5	5,64
TU150307	M42	100								5,51

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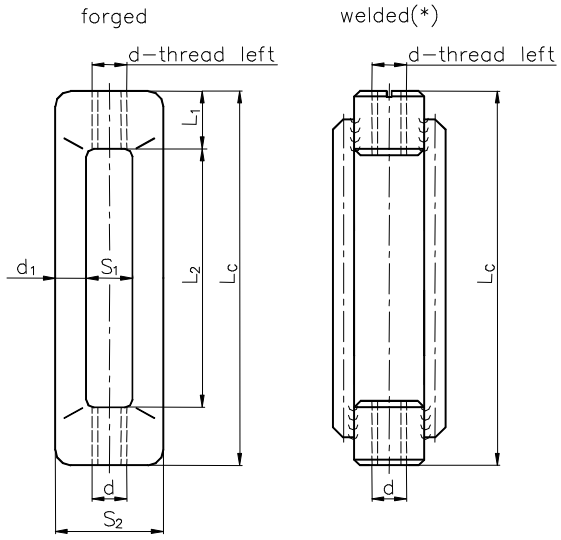

Technical Data:
Load range: 6 ÷ 100 kN

Application:
For piping supports

Marking example: Turnbuckle M12:

Turnbuckle M12 TU150101-D06

Drawing No.	d	F	L_1	L_2	L_c	S_1	S_2	d_1	Weight	Spawane (*) Numer rysunku wyrobu
	mm	kN	mm						kg	
TU150101	M12	6	25	130	180	24	60	18	1,06	RSZGG342
TU150102	M16	12							1,03	RSZGG343
TU150103	M20	20							0,99	RSZGG344
TU150104	M24	30	37,5		205	34	82	24	2,33	RSZGG345
TU150105	M30	50							2,22	RSZGG346
TU150106	M36	70	45		220	46	110	32	4,76	RSZGG347
TU150107	M42	100							4,51	RSZGG348

ATTENTION:
(*) There is possible to using alternative welded nuts.

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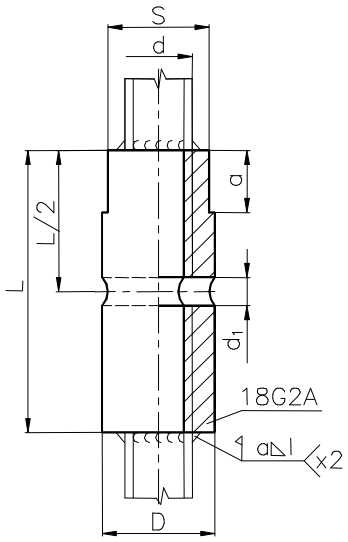
Rod couplings



Technical Data:
Load range: 6 ÷ 100 kN

Application:
For stark connections of strands in piping supports

Marking example: Rod coupling M12:

Rod coupling M12 RSZGG022-D07

Drawing No.	d	F	D	L	S	a	d_1	Weight	Field Wells	
									A	l
	mm	kN	mm					kg	mm	
RSZGG022	M12	6	20	50	18	11	5,5	0,08	2	44
RSZGG023	M16	12	24	55	21	13		0,11		57
RSZGG024	M20	20	30	68	27	17	6,5	0,21		69
RSZGG025	M24	30	35	80	32	18		0,32		82
RSZGG026	M30	50	45	98	41	24		0,68	3	104
RSZGG027	M36	70	50	116	46	26		0,86	4	126
RSZGG028	M42	100	60	135	55	31		1,52	5	148

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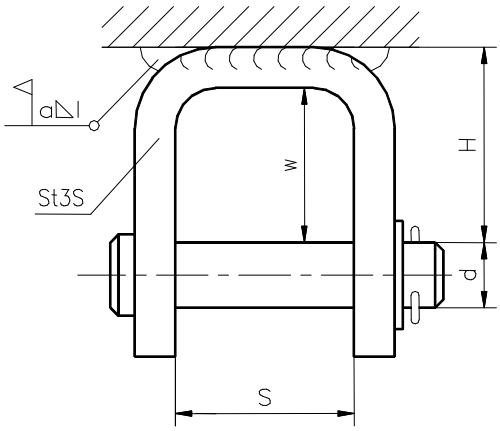

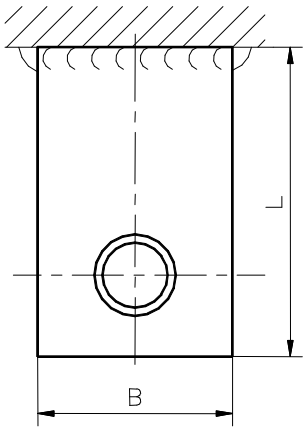

Technical Data:
Load range: 6 ÷ 100 kN

Application:
For piping supports for elements perfomed on figures B01 ÷ B04, D03, D04, D10, D11, D14 ÷ D17

Marking example: Fastening with width S = 25 mm and d = 17 mm:

Fastening 25/17 RSZGG030-D08

Drawing No.	F	S	d	L	H	B	w	Weight	Field weld	
									a	L
	kN	mm						kg	Mm	
RSZGG029	6	22	13	46	26,5	30	20,5	0,21	3	90
RSZGG030	12	25	17	54	28,5	35		0,37	4	110
RSZGG031	20	28	21	66	34,5	40	24,5	0,64	5	120
RSZGG032	30	35	26	81	44	50	28	1,39	8	140
RSZGG033	50	40	32	95	48	60	32	1,96		160
RSZGG034	70	50	38	116	60	70	40	3,61	10	200
RSZGG035	100	56	42	127	62	80	42	4,9		230

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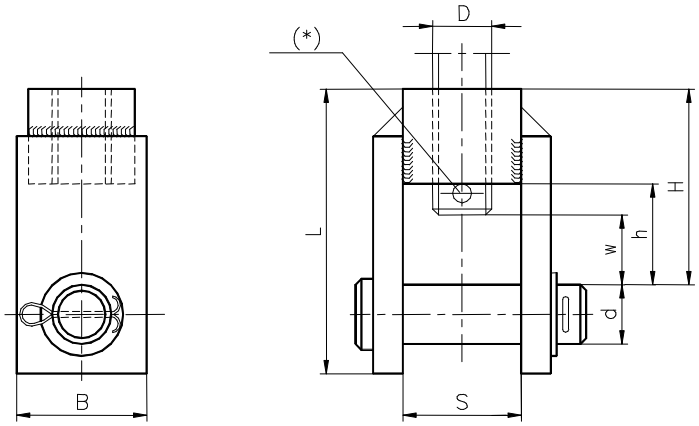

Technical Data:
Load range: 6 ÷ 100 kN

Application:
For piping hangers acc. figure B01 ÷ B04, D03, D04, D10, D11, D14 ÷ D17

(*) drill bolt

Marking example: Ceiling holder for F = 6 kN and thread M12:

Ceiling holder 6/M12 RSZGG036-D09

Drawing No.	F	D	d	S	H	h	B	W	L	Weight
	kN	Mm								kg
RSZGG036	6	M12	13	22	48	28	30	21	67	0,31
RSZGG037	12	M16	17	25	50	30	35	20	75	0,48
RSZGG038	20	M20	21	28	64	34	40	24	94	0,84
RSZGG039	30	M24	26	35	71	41	50	28	108	1,75
RSZGG040	50	M30	32	40	77	42	60		123	2,44
RSZGG041	70	M36	38	50	89	49	70	35	145	4,42
RSZGG042	100	M42	42	56	101	61	80	44	166	5,87

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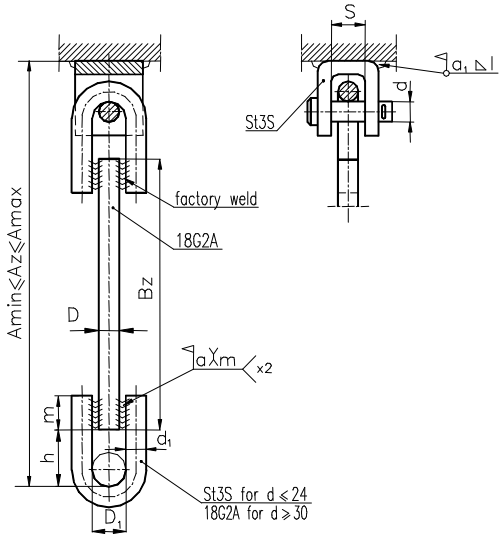

Technical Data:
Load range: 6 ÷ 100 kN

Application:
For piping supports

Marking example: **Tie rod unit I** with rod diameter D = 12 mm and length A_z = 1000 mm:

Tie rod unit I-12/1000 RSZZC001-D10

Drawing No.	F	A_{min} / A_{max}	D	D_1	d_1	d	S	h	B_z	Weight	Field welds a	Field welds m	Field welds $a_1$xl
	kN	mm								kg	mm		
RSZZC001	6	140 / 4570	12	16	12	13	22	20	A_z-67	0,44+0,000888xB_z	12	25	3x90
RSZZC002	12	170 / 4590	16	20	16	17	25	30	A_z-89	0,932+0,00158xB_z	16	30	4x110
RSZZC003	20	200 / 4595	20	25	20	21	28		A_z-95	1,658+0,00247xB_z	20	40	5x120
RSZZC004	30	250 / 4625	24	30	24	26	35	40	A_z-124	3,22+0,00355xB_z	24	50	8x140
RSZZC005	50	290 / 4625	30	38	30	32	40			5,53+0,00555xB_z	30	70	8x160
RSZZC006	70	345 / 4655	38	45	38	38	50	50	A_z-155	10,44+0,0089xB_z	38	80	10x200
RSZZC007	100	350 / 4660	40			42	56		A_z-162	11,8+0,00987xB_z	40		10x230

ATTENTION:
Length A_z include montage reserves , if it is need. Total weight of unit do not include weight of field welds.

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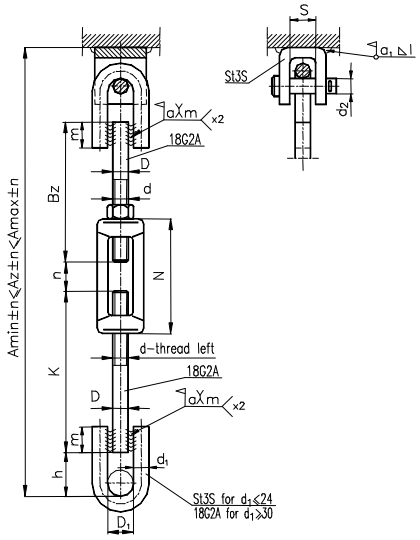

Technical Data:
Load range: 6 ÷ 100 kN

Application:
For piping supports

Marking example: **Tie rod units II** with length A_z = 1000 mm and thread M12:

Tie rod units II -M12/1000 RSZZC008-D11

Drawing No.	F	d	A_{min} / A_{max}	n	D	D_1	d_1	h	d_2	S	K	N	B_z	Weight	Field welds a	Field welds m	Field welds $a_1$xl
	kN	mm	mm											kg	mm		
RSZZC008	6	M12	401 / 4761	65	12	16	12	20	13	22	130	180	A_z-261	1,59+0,000888xB_z	12	25	3x90
RSZZC009			581 / 4881	125							190	290	A_z-381	0,95+0,000888xB_z			
RSZZC010	12	M16	438 / 4788	65	16	20	16	30	17	25	135	180	A_z-288	2,13+0,00158xB_z	16	30	4x110
RSZZC011			638 / 4918	125							205	310	A_z-418	2,06+0,00158xB_z			
RSZZC012	20	M20	469 / 4804	65	20	25	20		21	28	145	180	A_z-304	2,93+0,00247xB_z	20	40	5x120
RSZZC013			754 / 4989	150							245	380	A_z-489	4,03+0,00247xB_z			
RSZZC014	30	M24	554 / 4859	65	24	30	24	40	26	35	170	205	A_z-359	6,02+0,00355xB_z	24	50	8x140
RSZZC015			849 / 5049	150							275	410	A_z-549	7,31+0,00355xB_z			
RSZZC016	50	M30	594 / 4879	65	30	38	30		32	40	190	205	A_z-379	8,53+0,00555xB_z	30	70	8x160
RSZZC017			1039 / 5169	200							345	510	A_z-669	11,78+0,00555xB_z			
RSZZC018	70	M36	670 / 4930	65	38	45	38	50	38	50	210	220	A_z-430	16,61+0,0089xB_z	38	80	10x200
RSZZC019			1105 / 5215	200							360	520	A_z-715	20,64+0,0089xB_z			
RSZZC020	100	M42	682 / 4937	65	45				42	56	210	220	A_z-437	18,78+0,0125xB_z			10x230
RSZZC021			1137 / 5232	200							370	540	A_z-732	24,43+0,0125xB_z			

ATTENTION:
Length A_z include montage reserves , if it is need. Total weight of unit do not include weight of field welds.
Length A_z can be calibrate in order to ± n.

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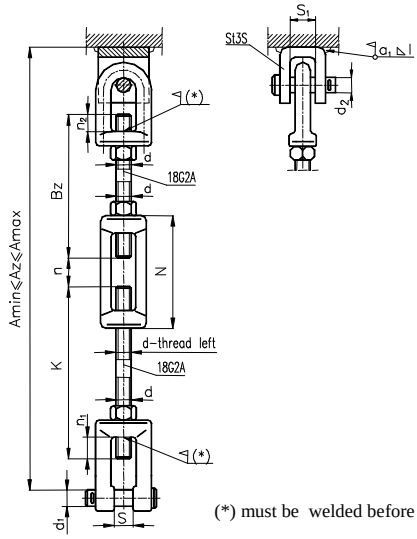


(*) must be welded before starting

Technical Data:
Load range: 6 ÷ 100 kN

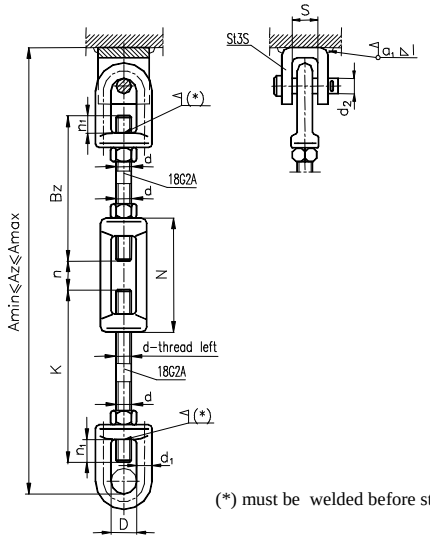
Application:
For piping supports

Marking example: **Tie rod units III** with length A_z = 1000 mm and thread M12:

Tie rod units III -M12/1000 RSZZC022-D12

Drawing No.	F	d	A_{min} / A_{max}	n	n_1	n_2	S	d_1	S_1	d_2	K	N	B_z	Weight	Field welds $a_1$xl
	kN	mm	Mm											kg	mm
RSZZC022	6	M12	650 / 4925	65	30	27	22	22	22	13	220	180	A_z-425	2,9+0,000888xB_z	3x90
RSZZC023			830 / 5045	125							280	290	A_z-545	2,2+0,000888xB_z	
RSZZC024	12	M16	667 / 4932	65					25	17	225	180	A_z-432	3,2+0,00158xB_z	4x110
RSZZC025			867 / 5062	125							295	310	A_z-562	3,14+0,00158xB_z	
RSZZC026	20	M20	688 / 4043	65					28	21	230	180	A_z-443	3,7+0,00247xB_z	5x120
RSZZC027			973 / 5128	150							330	380	A_z-628	4,8+0,00247xB_z	
RSZZC028	30	M24	810 / 5015	65	35	30	32	32	35	26	275	205	A_z-515	8,4+0,00355xB_z	8x140
RSZZC029			1105 / 5205	150							380	410	A_z-705	9,7+0,00355xB_z	
RSZZC030	50	M30	820 / 5020	65					40	32	280	205	A_z-520	9,6+0,00555xB_z	8x160
RSZZC031			1265 / 5310	200							435	510	A_z-810	12,9+0,00555xB_z	
RSZZC032	70	M36	919 / 5084	65	38	32	45	45	50	38	310	220	A_z-584	20,9+0,0089xB_z	10x200
RSZZC033			1354 / 5369	200							460	520	A_z-869	25,0+0,0089xB_z	
RSZZC034	100	M42	941 / 5096	65					56	42	315	220	A_z-596	23,7+0,0125xB_z	10x230
RSZZC035			1396 / 5391	200							475	540	A_z-891	29,3+0,0125xB_z	

ATTENTION:
Length A_z can be calibrate in order to ± (n + n_1 + n_2) Threaded parts of rod „n_1”, „n_2” are using for calibration during montage, and part „ n” is need for performing montage and spring tensions. Weight of units do not include field welds.



(*) must be welded before starting

Technical Data:
Load range: 6 ÷ 100 kN

Application:
For piping supports

Marking example : Tie rod unit IV with length A_z = 1000 mm and thread M12 :

Tie rod unit IV-M12/1000 RSZZC071-D13

Drawing No.	F	d	A_{min} / A_{max}	n	n_1	D	d_1	S	d_2	K	N	B_z	Weight	Field welds $a_1$xl
	kN	mm	mm										kg	mm
RSZZC071	6	M12	646 / 4921	65	27	24	15	22	13	220	180	A_z-421	2,54+0,000888xB_z	3x90
RSZZC072			826 / 5041	125						280	290	A_z-541	1,9+0,000888xB_z	
RSZZC073	12	M16	663 / 4928	65				25	17	225	180	A_z-428	2,85+0,00158xB_z	4x110
RSZZC074			863 / 5058	125						295	310	A_z-558	2,78+0,00158xB_z	
RSZZC075	20	M20	684 / 4939	65				28	21	230	180	A_z-439	3,34+0,00247xB_z	5x120
RSZZC076			969 / 5124	150						330	380	A_z-624	4,43+0,00247xB_z	
RSZZC077	30	M24	813 / 5018	65	30	34	20	35	26	275	205	A_z-518	7,36+0,00355xB_z	8x140
RSZZC078			1108 / 5208	150						380	410	A_z-708	8,65+0,00355xB_z	
RSZZC079	50	M30	823 / 5023	65				40	32	280	205	A_z-523	8,61+0,00555xB_z	8x160
RSZZC080			1268 / 5313	200						435	510	A_z-813	11,86+0,00555xB_z	
RSZZC081	70	M36	925 / 5090	65	32	46	30	50	38	310	220	A_z-590	18,44+0,0089xB_z	10x200
RSZZC082			1360 / 5375	200						460	520	A_z-875	22,47+0,0089xB_z	
RSZZC083	100	M42	947 / 5102	65				56	42	315	220	A_z-602	21,15+0,0125xB_z	10x230
RSZZC084			1402 / 5397	200						475	540	A_z-897	26,8+0,0125xB_z	

ATTENTION:
Length A_z can be calibrate in order to ± (n + 2n_1).Threaded Part of rod „n_1”, is using for calibration during montage, and part „ n” is need for performing montage and spring tensions. Weight of units do not include field welds.

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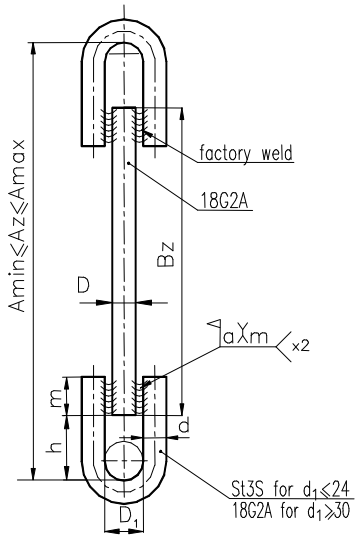

Technical Data:
Load range: 6 ÷ 100 kN

Application:
For piping supports

Marking example: Tie rod unit V with rod diameter D = 12 mm and length A_z = 1000 mm:

Tie rod unit V -12/1000 RSZZC036-D14

Drawing No.	F	A_{min} / A_{max}	D	D_1	d	h	B_z	Weight	Field welds a	Field welds m
	kN	mm						kg	mm	
RSZZC036	6	110 / 4540	12	16	12	20	A_z-40	0,24+0,000888xB_z	12	25
RSZZC037	12	140 / 4560	16	20	16	30	A_z-60	0,572+0,00158xB_z	16	30
RSZZC038	20	165 / 4560	20	25	20			1,048+0,00247xB_z	20	40
RSZZC039	30	205 / 4580	24	30	24	40	A_z-80	1,88+0,00355xB_z	24	50
RSZZC040	50	245 / 4580	30	38	30			3,65+0,00555xB_z	30	70
RSZZC041	70	290 / 4600	38	45	38	50	A_z-100	6,97+0,0089xB_z	38	80
RSZZC042	100	290 / 4600	40					6,97+0,00987xB_z	40	

ATTENTION:
Length A_z include montage reserves , if it is need. Total weight of unit do not include weight of field welds.

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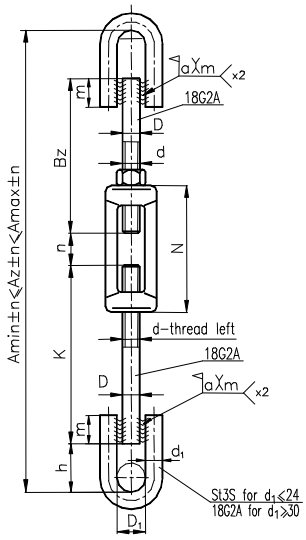

Technical Data:
Load range: 6 ÷ 100 kN

Application:
For piping supports

Marking example: Tie rod units VI for length A_z = 1000 mm and thread M12:

Tie rod units VI -M12/1000 RSZZC043-D15

Drawing No.	F	d	A_{min} / A_{max}	n	D	D_1	d_1	h	K	N	B_z	Weight	Field welds a	Field welds m
	kN	mm	mm									kg	mm	
RSZZC043	6	M12	375 / 4735	65	12	16	12	20	130	180	A_z-235	1,39+0,000888xB_z	12	25
RSZZC044			555 / 4855	125					190	290	A_z-355	0,75+0,000888xB_z		
RSZZC045	12	M16	410 / 4760	65	16	20	16	30	135	180	A_z-260	1,77+0,00158xB_z	16	30
RSZZC046			610 / 4890	125					205	310	A_z-390	1,7+0,00158xB_z		
RSZZC047	20	M20	435 / 4770	65	20	25	20		145	180	A_z-270	2,32+0,00247xB_z	20	40
RSZZC048			720 / 4955	150					245	380	A_z-455	3,42+0,00247xB_z		
RSZZC049	30	M24	510 / 4815	65	24	30	24	40	170	205	A_z-315	4,68+0,00355xB_z	24	50
RSZZC050			805 / 5005	150					275	410	A_z-505	5,97+0,00355xB_z		
RSZZC051	50	M30	550 / 4835	65	30	38	30		190	205	A_z-335	6,65+0,00555xB_z	30	70
RSZZC052			995 / 5125	200					345	510	A_z-625	9,9+0,00555xB_z		
RSZZC053	70	M36	615 / 4875	65	38	45	38	50	210	220	A_z-375	13,14+0,0089xB_z	38	80
RSZZC054			1050 / 5160	200					360	520	A_z-660	17,17+0,0089xB_z		
RSZZC055	100	M42	620 / 4875	65	45				210	220	A_z-375	13,95+0,0125xB_z		
RSZZC056			1075 / 5170	200					370	540	A_z-670	19,6+0,0125xB_z		

ATTENTION:
Length A_z include montage reserves , if it is need. Total weight of unit do not include weight of field welds.
Length A_z can be calibrate in order to ± n.

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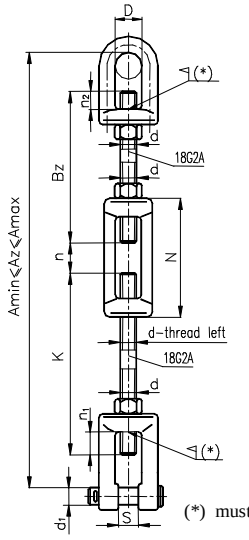

(*) must be welded before starting

Technical Data:
Load range: 6 ÷ 100 kN

Application:
For piping supports

Marking example: Tie rod units VII with length A_z = 1000 mm and thread M12:

Tie rod units VII -M12/1000 RSZZC057-D16

Drawing No.	F	d	A_{min} / A_{max}	n	n_1	n_2	D	S	d_1	K	N	B_z	Weight
	kN	mm	mm										kg
RSZZC057	6	M12	624 / 4899	65	30	27	24	22	22	220	180	A_z-399	2,7+0,000888xB_z
RSZZC058			804 / 5019	125						280	290	A_z-519	2,06+0,000888xB_z
RSZZC059	12	M16	639 / 4904	65						225	180	A_z-404	2,85+0,00158xB_z
RSZZC060			839 / 5034	125						295	310	A_z-534	2,78+0,00158xB_z
RSZZC061	20	M20	654 / 4909	65						230	180	A_z-409	3,09+0,00247xB_z
RSZZC062			939 / 5094	150						330	380	A_z-594	4,18+0,00247xB_z
RSZZC063	30	M24	766 / 4971	65	35	30	34	32	32	275	205	A_z-471	7,05+0,00355xB_z
RSZZC064			1061 / 5161	150						380	410	A_z-661	8,34+0,00355xB_z
RSZZC065	50	M30	776 / 4976	65						280	205	A_z-476	7,75+0,00555xB_z
RSZZC066			1221 / 5266	200						435	510	A_z-766	11,0+0,00555xB_z
RSZZC067	70	M36	864 / 5029	65	38	32	46	45	45	310	220	A_z-529	17,49+0,0089xB_z
RSZZC068			1299 / 5314	200						460	520	A_z-814	21,53+0,0089xB_z
RSZZC069	100	M42	879 / 5034	65						315	220	A_z-534	18,83+0,0125xB_z
RSZZC070			1334 / 5329	200						475	540	A_z-829	24,48+0,0125xB_z

ATTENTION:
Length A_z can be calibrate in order to ± (n + n_1 + n_2).Threaded Part of rod „n_1”, „n_2” is using during montage, and part „n” is need for performing montage and spring tensions.

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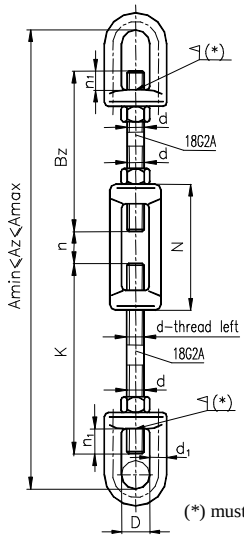

(*) must be welded before starting.

Technical Data:
Load range: 6 ÷ 100 kN

Application:
For piping supports

Marking example: **Tie rod units VIII** with length A_z = 1000 mm and thread M12:

Tie rod units VIII-M12/1000 RSZZC085-D17

Drawing No.	F	d	A_{min} / A_{max}	n	n_1	D	d_1	K	N	B_z	Weight
	kN	mm	mm								kg
RSZZC085	6	M12	620 / 4895	65	27	24	15	220	180	A_z-395	2,34+0,000888xB_z
RSZZC086			800 / 5015	125				280	290	A_z-515	1,7+0,000888xB_z
RSZZC087	12	M16	635 / 4900	65				225	180	A_z-400	2,49+0,00158xB_z
RSZZC088			835 / 5030	125				295	310	A_z-530	2,42+0,00158xB_z
RSZZC089	20	M20	650 / 4905	65				230	180	A_z-405	2,73+0,00247xB_z
RSZZC090			935 / 5090	150				330	380	A_z-590	3,82+0,00247xB_z
RSZZC091	30	M24	769 / 4974	65	30	34	20	275	205	A_z-474	6,02+0,00355xB_z
RSZZC092			1064 / 5164	150				380	410	A_z-664	7,31+0,00355xB_z
RSZZC093	50	M30	779 / 4979	65				280	205	A_z-479	6,73+0,00555xB_z
RSZZC094			1224 / 5269	200				435	510	A_z-769	9,98+0,00555xB_z
RSZZC095	70	M36	870 / 5035	65	32	46	30	310	220	A_z-535	14,97+0,0089xB_z
RSZZC096			1305 / 5320	200				460	520	A_z-820	19,0+0,0089xB_z
RSZZC097	100	M42	885 / 5040	65				315	220	A_z-540	16,32+0,0125xB_z
RSZZC098			1340 / 5335	200				475	540	A_z-835	21,97+0,0125xB_z

ATTENTION:
Length A_z can be calibrate in order to ± $(n + 2n_1)$. Threaded Part of rod „ n_1" is using for calibartion during montage, and part „ n" is need for performing montage and spring tensions.

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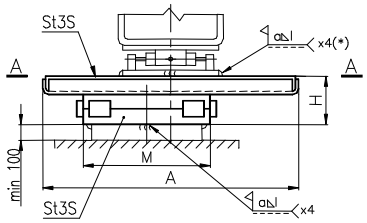

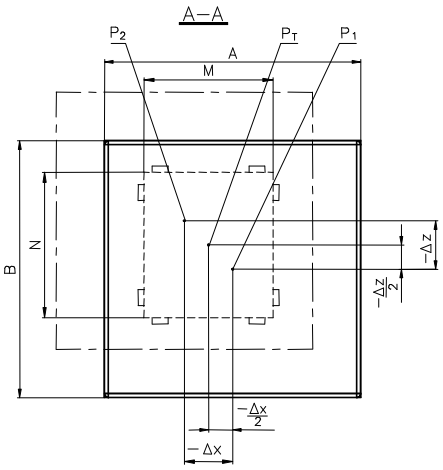

Technical Data:
Load range: 15 ÷ 50 kN
Range of displacement according table.

Application:
For piping supports vertical and horizontal pipelines.

(*) because of deformity welds should be use according table.

P_1 – center of upper sliding plate after preliminary tension (before starting)
P_2 – center of upper sliding plate during working
P_T – center of lower sliding plate before and during working (with tarflen) Δx, Δz – displacement (relativity values with mark).

Marking example: Sliding base for load F = 15 kN and displacement Δx = 50 mm, Δz =100 mm:

Sliding base 15-50/100 RSZPT002-E01

Drawing No.	F	Δx	Δz	A	B	M	N	H	Weight	Fiel weld (*)	
	kN	Mm		mm					kg	A	l
RSZPT001	15	50	50	192	192	100	100	27	4,1	3	10
RSZPT002			100		342		200		7,6		
RSZPT003			150		492		300		11,0		
RSZPT004		100	100	342	342	200	200		13,8		
RSZPT005			150		492		300		20,1		
RSZPT006		150	150	492		300			29,2		
RSZPT007	30	50	50	232	232	140	140	31	7,7	4	
RSZPT008			100	192	342	100	200		9,0		
RSZPT009			150		492		300		12,9		
RSZPT010		100	100	342	342	200	200		16,3		
RSZPT011			150		492		300		23,7		
RSZPT012		150	150	492		300			34,4		
RSZPT013	50	50	50	272	272	180	180	39	14,4	5	
RSZPT014			100	252	352	160	210		16,6		
RSZPT015			150	202	492	110	300		17,9		
RSZPT016		100	100	342	342	200	200		21,3		
RSZPT017			150		492		300		30,9		
RSZPT018		150	150	492		300			44,8		

ATTENTION:
There is no recommended to use sliding bases directly to ceiling. Lower tarflen plates should be put on bases at height min. 100 mm, to protect from contamination . The whole tarflen surface must be covered by upper plate. Maximum working temperature for tarflen plate 200°C.

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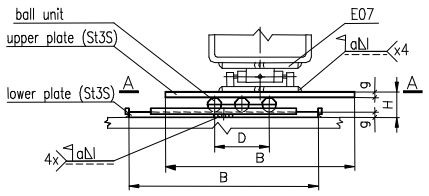

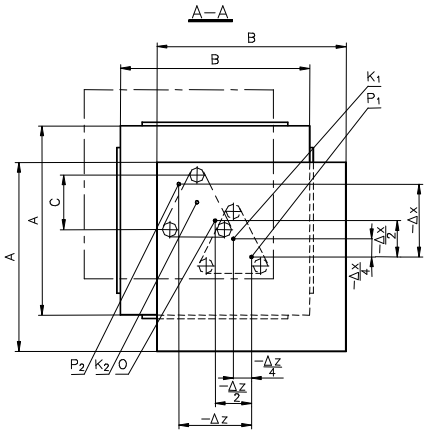

Technical Data:
Load range: 15 ÷ 50 kN
Range of displacement: acc. table

Application:
For piping supports vertical and horizontal pipelines.

P_1 – center of upper sliding plate after preliminary tension (before starting)
P_2 – center of upper sliding plate during working
O – center of lower sliding plate before and during working.
K_1 – center of ball unit before starting
K_2 – center of ball unit during working
Δx, Δz – displacement (relativity values – with mark) mounting point in horizontal area.

Mar**king example:** Ball bases with load F = 15 kN ,displacement Δx = 200 mm, Δz = 300 mm and dimensions g = 12 mm, A = 480 mm, B = 580 mm, C = 240 mm, D = 290 mm. All elements should be order separately :

Lower plate 12x480x580 RSZPK003-E02
Upper plate 12x480x580 RSZPK024-E02
Ball unit 240x290 RSZPK045-E02

Lower plate	Upper plate	Ball unit	F	Δx	Δz	H	A	B	g	C	D	Weight			Field weld	
Drawing No.	Drawing No.	Drawing No.										Lower plate	Upper plate	Ball units	a	L
			kN	mm		mm						kg			Mm	
RSZPK001	RSZPK022	RSZPK043	15	150	150	75	430	430	12	215	215	18,7	17,4	3,64	3	10
RSZPK002	RSZPK023	RSZPK044		200	200		480	480		240	240	23,3	21,7	3,82		
RSZPK003	RSZPK024	RSZPK045			300			580			290	28,0	26,2	4,22		
RSZPK004	RSZPK025	RSZPK046			400			680			340	32,7	30,7	4,42		
RSZPK005	RSZPK026	RSZPK047		300	300		580	580		290	290	33,7	31,7	4,42		
RSZPK006	RSZPK027	RSZPK048			400			680			340	39,3	37,1	4,82		
RSZPK007	RSZPK028	RSZPK049		400			680			340		46,0	43,6	5,22		
RSZPK008	RSZPK029	RSZPK043	30	150	150	83	430	430	16	215	215	25,0	23,3	3,64	4	
RSZPK009	RSZPK030	RSZPK044		200	200		480	480		240	240	31,0	29,0	3,82		
RSZPK010	RSZPK031	RSZPK045			300			580			290	37,3	35,1	4,22		
RSZPK011	RSZPK032	RSZPK046			400			680			340	43,6	41,1	4,42		
RSZPK012	RSZPK033	RSZPK047		300	300		580	580		290	290	44,9	42,4	4,42		
RSZPK013	RSZPK034	RSZPK048			400			680			340	52,4	49,7	4,82		
RSZPK014	RSZPK035	RSZPK049		400			680			340		61,3	58,3	5,22		
RSZPK015	RSZPK036	RSZPK043	50	150	150	91	430	430	20	215	215	31,0	29,0	3,64	5	
RSZPK016	RSZPK037	RSZPK044		200	200		480	480		240	240	38,5	36,2	3,82		
RSZPK017	RSZPK038	RSZPK045			300			580			290	46,3	43,7	4,22		
RSZPK018	RSZPK039	RSZPK046			400			680			340	54,1	51,2	4,42		
RSZPK019	RSZPK040	RSZPK047		300	300		580	580		290	290	55,7	52,8	4,42		
RSZPK020	RSZPK041	RSZPK048			400			680			340	65,1	61,9	4,82		
RSZPK021	RSZPK042	RSZPK049		400			680			340		76,1	72,6	5,22		

ATTENTION : In order to needs, all parts can be order separately.

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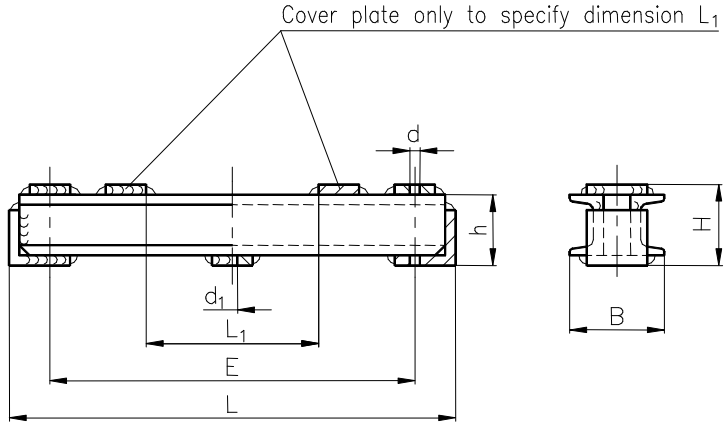

Technical Data:
Load range: 6 ÷ 85 kN

Application:
For piping supports.

Marking example: Beam type A with F = 6 kN and E = 650 mm:

Beam type A 6/650 RSZXX006-E03

Drawing No.	F	E	L	B	H	h	d	d_1	L_1	Weight
	kN	Mm								kg
RSZXX001	6	400	487	94	62	56	14	14	-	6,3
RSZXX002		450	537							6,7
RSZXX003		500	587							7,3
RSZXX004		550	637							7,9
RSZXX005		600	687							8,5
RSZXX006		650	737							9,1
RSZXX007		700	787							9,5
RSZXX008	12	500	587	98	62	56		18		7,5
RSZXX009		550	637							8,1
RSZXX010		600	687	106	77	71				10,7
RSZXX011		650	737							11,3
RSZXX012		700	787							12,1
RSZXX013		750	837							12,9
RSZXX014		780	867							13,3
RSZXX015	20	600	716	116	96	88	18	22		14,5
RSZXX016		650	766							15,4
RSZXX017		700	816							16,2
RSZXX018		750	866							17,1
RSZXX019		800	916							17,9
RSZXX020		820	936							18,3
RSZXX021		860	976	127	116	108				22,7
RSZXX022	30	600	716	131			22	26		17,9
RSZXX023		700	816							20,1
RSZXX024		800	916							22,1
RSZXX025		900	1016	141	136	128				29,9
RSZXX026		1000	1116							32,6
RSZXX027		1100	1216							35,1
RSZXX028		1150	1266							36,6

Drawing No.	F	E	L	B	H	h	d	d_1	L_1	Weight
	kN	mm								Kg
RSZXX029	45	700	816	148	136	128	26	33	-	24,5
RSZXX030		800	916							27,2
RSZXX031		900	1016	158	156	148				35,1
RSZXX032		1000	1116							38,3
RSZXX033		1100	1216							44,5
RSZXX034		1250	1366	169	176	168				53,9
RSZXX035		1320	1436						635	57,4
RSZXX036	65	1000	1170	175	180	170	33	39	-	50,1
RSZXX037		1100	1270							53,9
RSZXX038		1200	1370	185	200	190				66,3
RSZXX039		1300	1470						570	73,0
RSZXX040		1420	1590						640	78,2
RSZXX041		1480	1650	195	220	210			670	91,7
RSZXX042		1580	1750						720	96,7
RSZXX043	85	1100	1270	191	200	190		45	-	63,5
RSZXX044		1200	1370	202	220	210				76,8
RSZXX045		1300	1470						590	84,5
RSZXX046		1400	1570						630	89,5
RSZXX047		1500	1670	212	240	230			680	108,1
RSZXX048		1660	1830						760	117,5
RSZXX049		1870	2040	222	260	250			870	145,2

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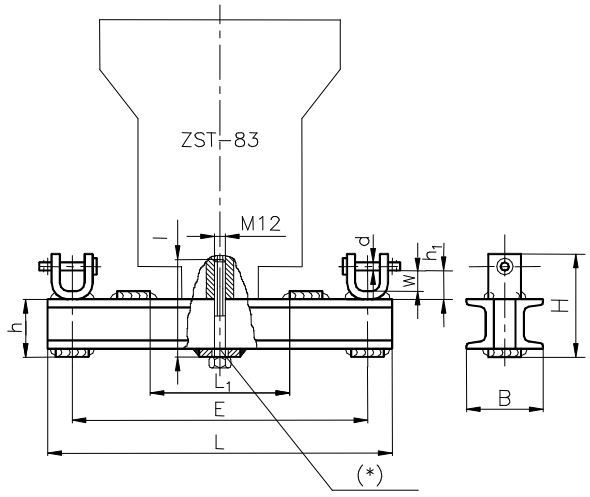


Technical Data:
Load range: 6 ÷ 65 kN

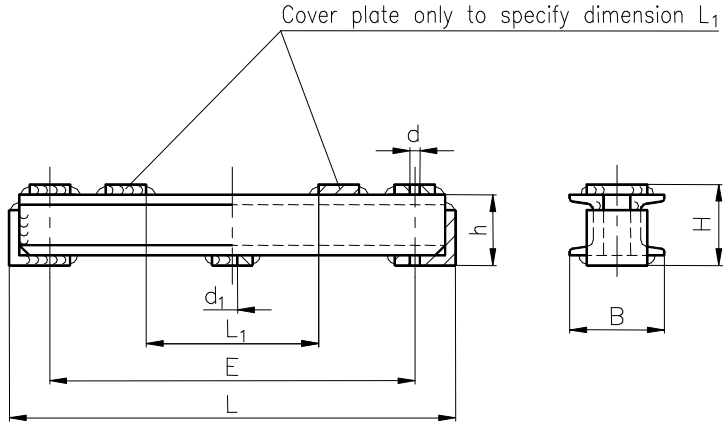
Application:
For constant load units ZST – 83 type B, see figure C01.

(*) Bolt M12 is not a part of beam, should be order individual.

Marking example: Beam type B with F = 6 kN and E = 650 mm:

Beam B 6/650 RSZXX050-E04

Drawing No.	F	E	L	B	H	h	h_1	d	w	L_1	Weight	Bolt M12xl(*)		
												l	wg	masa
	kN	mm									kg	mm		kg
RSZXX050	6	650	700	94	102	56	26,5	13	20,5	260	8,7	80	PN-M-82101	0,08
RSZXX051		700	750								9,3			
RSZXX052	12	650	700	102	117	71					10,9	90		0,09
RSZXX053		700	750								11,5			
RSZXX054		750	800								12,3			
RSZXX055		780	830								12,7			
RSZXX056	20	650	710	108	140	86	28,5	17		300	13,6	110		0,11
RSZXX057		700	760								14,4			
RSZXX058		750	810								15,3			
RSZXX059		800	860								16,2			
RSZXX060		820	880								16,5			
RSZXX061		860	920	119	160	106					20,8	130		0,13
RSZXX062	30	700	780		174	108	34,5	21	24,5		18,9			
RSZXX063		800	880								21,0			
RSZXX064		900	980	129	194	128					28,7	150		0,14
RSZXX065		1000	1080								31,4			
RSZXX066		1100	1180								34,0			
RSZXX067		1150	1230								35,4			
RSZXX068	45	800	890		209		44	26	28		28,2	170		0,16
RSZXX069		900	990	139	229	148					36,1			
RSZXX070		1000	1090								39,3			
RSZXX071		1100	1190								42,4			
RSZXX072		1250	1340	150	249	168					54,8	190	RSZGG066	0,18
RSZXX073		1320	1410								57,4			
RSZXX074	65	1000	1100		265	170	48	32	32		48,4			
RSZXX075		1100	1200								52,1			
RSZXX076		1200	1300	160	285	210					64,2	210	RSZGG065	0,2
RSZXX077		1300	1400								68,6			
RSZXX078		1420	1520								73,9			
RSZXX079		1480	1580	171	305	210					87,0	230	RSZGG064	0,22
RSZXX080		1580	1680								92,0			



Technical Data:
Load range: 6 ÷ 85 kN

Application:
For piping supports

Marking example: Beam type C with F = 6 kN and E = 650 mm:

Beam type C 6/650 RSZXX086-E05

Drawing No.	F	E	L	B	H	h	h_1	d	w	L_1	Weight
	kN	mm									Kg
RSZXX081	6	400	450	91	102	56	26,5	13	20,5	-	5,7
RSZXX082		450	500								6,3
RSZXX083		500	550								6,9
RSZXX084		550	600								7,5
RSZXX085		600	650								7,9
RSZXX086		650	700								8,5
RSZXX087		700	750								9,1
RSZXX088	12	500	550								6,9
RSZXX089		550	600								7,5
RSZXX090		600	650	99	117	71					9,9
RSZXX091		650	700								10,7
RSZXX092		700	750								11,3
RSZXX093		750	800								12,1
RSZXX094		780	830								12,5
RSZXX095	20	600	660	105	140	86	28,5	17			12,5
RSZXX096		650	710								13,3
RSZXX097		700	760								14,3
RSZXX098		750	810								15,1
RSZXX099		800	860								16,0
RSZXX100		820	880								16,3
RSZXX101		860	920	115	160	106					20,6
RSZXX102	30	600	680		174	108	34,5	21	24,5		16,4
RSZXX103		700	780								18,5
RSZXX104		800	880								20,6
RSZXX105		900	980	125	194	128					28,3
RSZXX106		1000	1080								30,9
RSZXX107		1100	1180								33,6
RSZXX108		1150	1230								35,0

Drawing No.	F	E	L	B	H	h	h_1	d	w	L_1	Weight
	kN	mm									kg
RSZXX109	45	700	790	125	209	128	44	26	28	-	25,0
RSZXX110		800	890								27,6
RSZXX111		900	990	135	229	148					35,5
RSZXX112		1000	1090								38,7
RSZXX113		1100	1190								41,9
RSZXX114		1250	1340	145	249	168					54,2
RSZXX115		1320	1410							650	57,4
RSZXX116	65	1000	1100		265	170	48	32	32	-	47,2
RSZXX117		1100	1200								50,9
RSZXX118		1200	1300	155	285	190					63,0
RSZXX119		1300	1400							620	68,6
RSZXX120		1420	1520							690	73,9
RSZXX121		1480	1580	165	305	210				720	87,0
RSZXX122		1580	1680							770	92,0
RSZXX123	85	1100	1200	155	285	190				-	58,6
RSZXX124		1200	1300	165	305	210					71,6
RSZXX125		1300	1400							640	77,8
RSZXX126		1400	1500							680	83,0
RSZXX127		1500	1600	175	325	230				730	101,0
RSZXX128		1660	1760							810	110,5
RSZXX129		1870	1970	185	345	250				920	137,8

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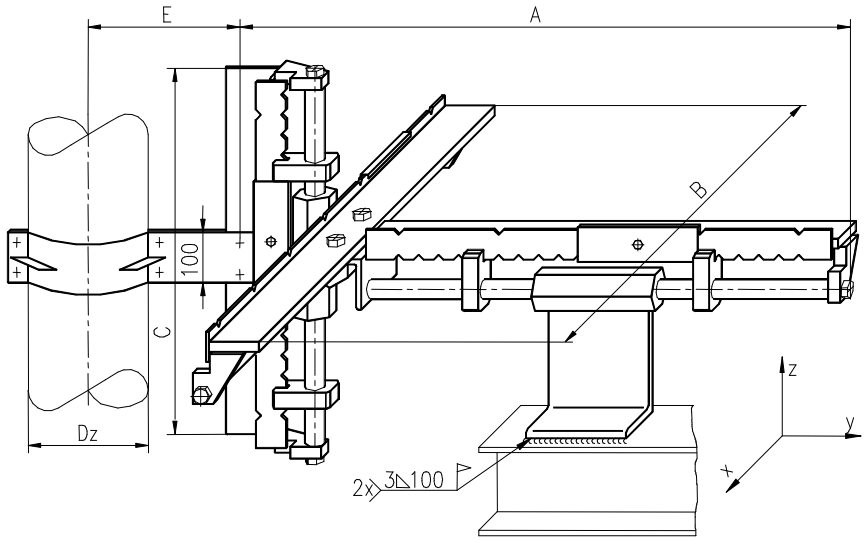


Technical Data:
Manufacturing in 3 types of displacement:3 x 300 mm; 3 x 200 mm; 3 x 100 mm see table 1.

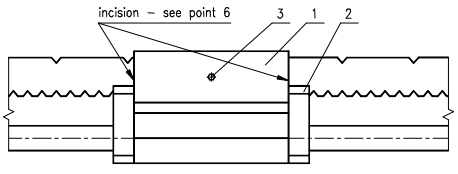
Application:
In connection with clamps for diameters Dz 159 ÷ 813 mm and temperatures 300°C or 550°C – acc. table 2

Marking example: Movement indicator for heat displacement 3 x 200 mm and clamp for pipe Dz = 508 mm .
Maximum working temperature 550°C. Elements should be specify individual.

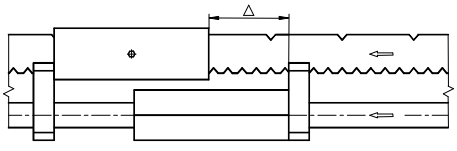
Three-dimensional movement indicators 3x200 RSZXX150-E06
Clamp 508/550 RSZ0P096-E06

Instruction of calibration and reading of displacement

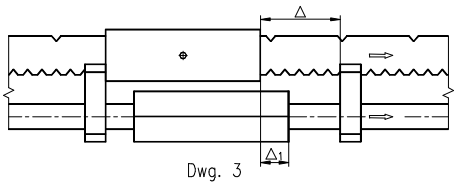
1. Drawing. No.1 shows situation before starting up of pipelines. All sliding blocks (position 1) and movement indicators (position 2) are in zero position with posibility of moving frames with rollers in direction of displacement of pipelines. In this position sliding blocks should by blocked by nuts from position 3..
2. Drawing. No.2 shows situation after transition of pipelines from cold to hot condition with displacement Δ.
3. Drawing. No.3 shows transition of pipelines from hot to cold condition with displacement value lower than Δ_1 from primary displacement Δ.
4. Drawing. No.4 shows transition of pipelines from cold to hot condition with displacement value higher than Δ_2 from primary displacement Δ.
5. ← direction of displacement of pipelines.
6. To register the „primary displacement of pipeline" it is recommended after several experimental startings marking postions on both sides of slide block – see dwg. 1.
7. After starting-up an stop the pipelines values Δ, Δ_1,Δ_2 should be registered (if it is need).



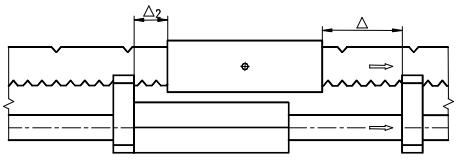
Dwg. 1



Dwg. 2



Dwg. 3



Dwg. 4

Table 1

Drawing No.	Range of displacement	A	B	C	Weight
	Mm	mm			Kg
RSZXX149	3x300	672	509	509	15,8
RSZXX150	3x200	572	409	409	13,5
RSZXX151	3x100	575	309	309	11,6

Table 2

Max temperature 550°C				Max temperature 300°C			
Clamp Drawing No.	Dz	E	Weight	Clamp Drawing No.	Dz	E	Weight
	kN	mm	kg		kN	mm	kg
RSZ0P105	159	315	7,8	RSZ0P120	159	245	7,0
RSZ0P104	193,7	345	8,8	RSZ0P119	193,7	275	8,0
RSZ0P103	219,1	360	9,45	RSZ0P118	219,1	290	8,7
RSZ0P102	244,5	380	10,14	RSZ0P117	244,5	310	9,3
RSZ0P101	273	395	11,15	RSZ0P116	273	315	10,2
RSZ0P100	323,9	430	12,4	RSZ0P115	323,9	350	11,5
RSZ0P099	355,6	450	13,04	RSZ0P114	355,6	370	12,15
RSZ0P098	406,4	480	14,86	RSZ0P113	406,4	390	13,9
RSZ0P097	457	505	16,2	RSZ0P112	457	415	15,1
RSZ0P096	508	535	17,5	RSZ0P111	508	445	16,3
RSZ0P095	558,5	570	18,96	RSZ0P110	558,5	480	17,9
RSZ0P094	610	595	20,0	RSZ0P109	610	505	19,0
RSZ0P093	660	620	21,24	RSZ0P108	660	530	20,24
RSZ0P092	711	645	22,61	RSZ0P107	711	555	21,5
RSZ0P091	813	705	25,2	RSZ0P106	813	615	24,1

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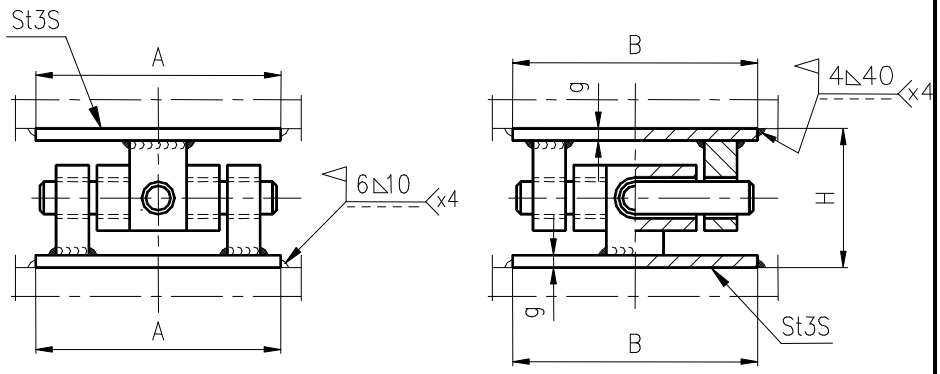

Technical Data:
Absolute deviation self-alignig plate~ 3°

Application:
For self-alignig connection piping clamps with bases figure E01 or E02.

Marking example: Universal joint for F = 27 kN:

Universal joint 27 RSZXX301-E07

Drawing No.	F	A	B	H	g	Weight
	kN	mm				kg
RSZXX300	15,5	130	120	50	8	3,3
RSZXX301	27	160	160	60	10	6,6
RSZXX302	51	170	170	72		8,2

ATTENTION:
In order to safety joint should be blocked during montage.

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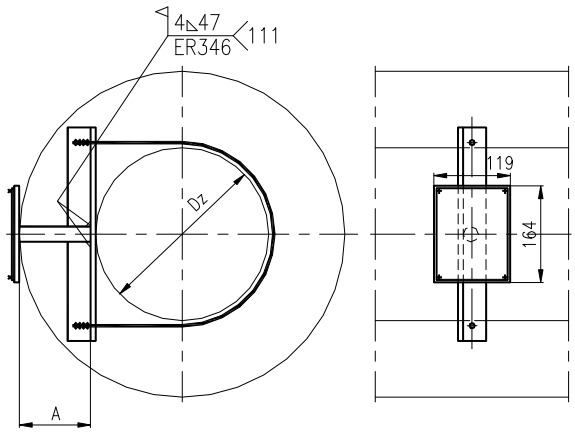

Technical Data:
According to table.

Application:
For marking pipelines according to UDT or PED 97/23/WE directive

.

Marking example: For Piping Nameplate with Dz = 273 mm and temperature 550°C:

Nameplate 273/550 RSZXX161-E08

Example

Nameplates CE are only used for pipelines which should be marking by CE.

Drawing No.	Dz	Max. temp.	A	Weight
	mm	°C	mm	kg
RSZXX152	159	300	130	2,13
RSZXX153		550	190	2,24
RSZXX154	193,7	300	140	2,3
RSZXX155		550	200	2,35
RSZXX156	219,1	300	140	2,42
RSZXX157		550	200	2,47
RSZXX158	244,5	300	140	2,56
RSZXX159		550	210	2,62
RSZXX160	273	300	140	2,68
RSZXX161		550	210	2,74
RSZXX162	323,9	300	140	2,92
RSZXX163		550	220	2,99
RSZXX164	355,6	300	140	3,07
RSZXX165		550	220	3,14
RSZXX166	406,4	300	150	3,31
RSZXX167		550	230	3,32
RSZXX168	457	300	150	3,56
RSZXX169		550	230	3,62
RSZXX170	508	300	160	3,83
RSZXX171		550	230	3,89
RSZXX172	558,8	300	170	4,07
RSZXX173		550	240	4,12
RSZXX174	610	300	170	4,32
RSZXX175		550	240	4,37
RSZXX176	660	300	180	4,56
RSZXX177		550	240	4,61
RSZXX178	711	300	180	4,82
RSZXX179		550	240	4,87
RSZXX180	813	300	190	5,31
RSZXX181		550	260	5,38

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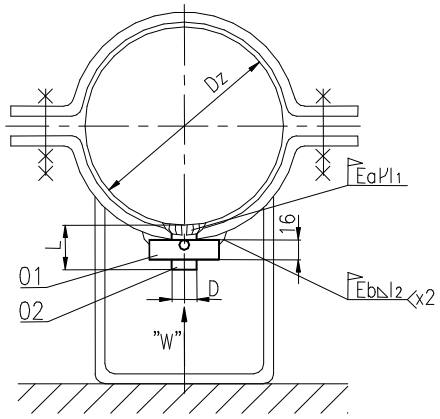

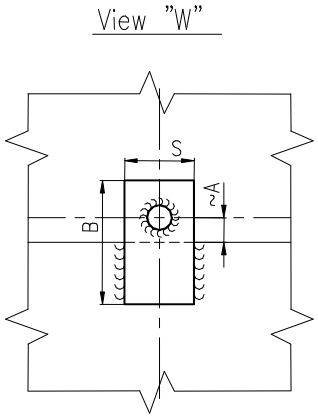

Technical Data:
The range of temperature and diameter Dz of piping according table.

Application:
For protecion of horizontal clamps before rotation.

Marking example: Anti-rotational wedge for horizontal clamp Dz = 273 mm and temperature 300°C:

Anti-rotational wedge 193,7÷355,6/300 RSZXX186-E09

Drawing No.	Temp. dop.	Stosować dla Dz	poz. 01				poz. 02			Weight	Field weld	
			S	B	A	Mat.	D	L	Mat.		axl_1	Bxl_2
	°C	mm	mm				mm			Kg	Mm	
RSZXX190	300	76,1÷159	40	70	20	St3SY	21,5	34	St3S	0,39	9x60	6x30
RSZXX191	450					St41K			20			
RSZXX192	550					15HM			15HM			
RSZXX193									13HMF			
RSZXX186	300	193,7÷355,6	50	90	25	St3SY	29,5	36	St3S	0,67	12x90	8x40
RSZXX187	450					St41K			20			
RSZXX188	550					15HM			15HM			
RSZXX189									13HMF			
RSZXX182	300	406,4÷813	60	110	30	St3SY	37,5	44	St3S	1,05	14x110	10x50
RSZXX183	450					St41K			20			
RSZXX184	550					15HM			15HM			
RSZXX185									13HMF			

ATTENTION:
Before using Anti-rotational wedge you should analyze welding parameters and methods for elements (bolt and piping).

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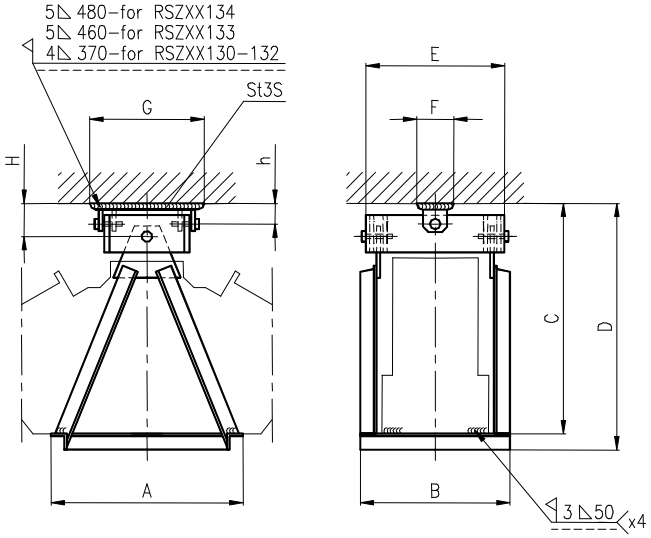

Technical Data:
Load range is the same as constant units which are used.

Application:
For constant units ZST -83 from figure C01

Marking example: Hanger for constant unit RSZZS013-C01:

Hanger RSZXX130-E10

Drawing No.	A	B	C	D	E	F	G	H	h	Weight	stosować do
	mm									kg	
RSZXX130	810	430	731	761	410	80	185	71	55	24,1	RSZZS013-C01
RSZXX131		480	745	775	460			85		27,9	RSZZS010-C01
RSZXX132	850	540	765	805	500		230	105		41,1	RSZZS007-C01
RSZXX133		590	780	830	530			120	60	55,3	RSZZS004-C01
RSZXX134		600			540		240			61,7	RSZZS001-C01

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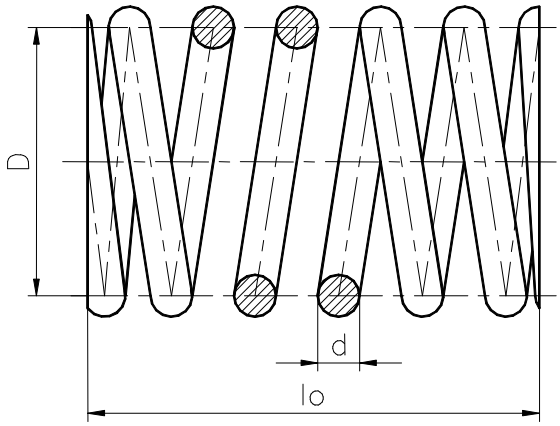

Technical Data according to enclosed table

Application:
For piping supports

Marking example: Cylindrical helical spring with Fn = 0,95 kN, and f_n = 70 mm:

Cylindrical helical spring TU150401-E11

Drawing No.	F_n	f_n	D	d	Z_c	Z	l_o	Weight
	kN	mm	mm		szt.		mm	kg
TU150401	0,95	70	73	7	4,5	6,5	122	0,41
TU150402		140			9	11	234	0,73
TU150403	1,4	70	72	8	5,5	7,5	136	0,62
TU150404		140			11	13	260	1,15
TU150405	2,04	70	95	10	4	6	138	1,0
TU150406		140			8	10	260	1,8
TU150407	3,6	70	93	12	5	7	158	1,78
TU150408		140			10	12	298	3,0
TU150409	5,55	70	106	14	4	6	157	2,2
TU150410		140			8	10	293	3,8
TU150411	8,15	70	104	16	5	7	186	3,35
TU150412		140			10	12	349	6,0
TU150413	11,5	70	102	18	6	8	217	4,8
TU150414		140			12	14	408	8,6
TU150415	15,5	70	138	22	4	6	203	7,1
TU150416		140			8	10	373	12,4
TU150417	20,5	70	136	24	4,5	6,5	230	9,1
TU150418		140			9	11	423	16,0
TU150419	25,4	70	148	27	4,5	6,5	250	12,5
TU150420		140			9	11	460	22,0
TU150421	35	70	145	30	5,5	7,5	300	17,7
TU150422		140			11	13	555	31,0
TU150423	50	70	180	36	4	6	290	24,5
TU150424		140			8	10	525	43,0
TU150425	70	70	205	42	3,5	5,5	300	27,4
TU150426		140			7	9	530	59,5
TU150427	100	70	202	45	3,5	5,5	315	39,7
TU150428		140			7	9	560	67,4

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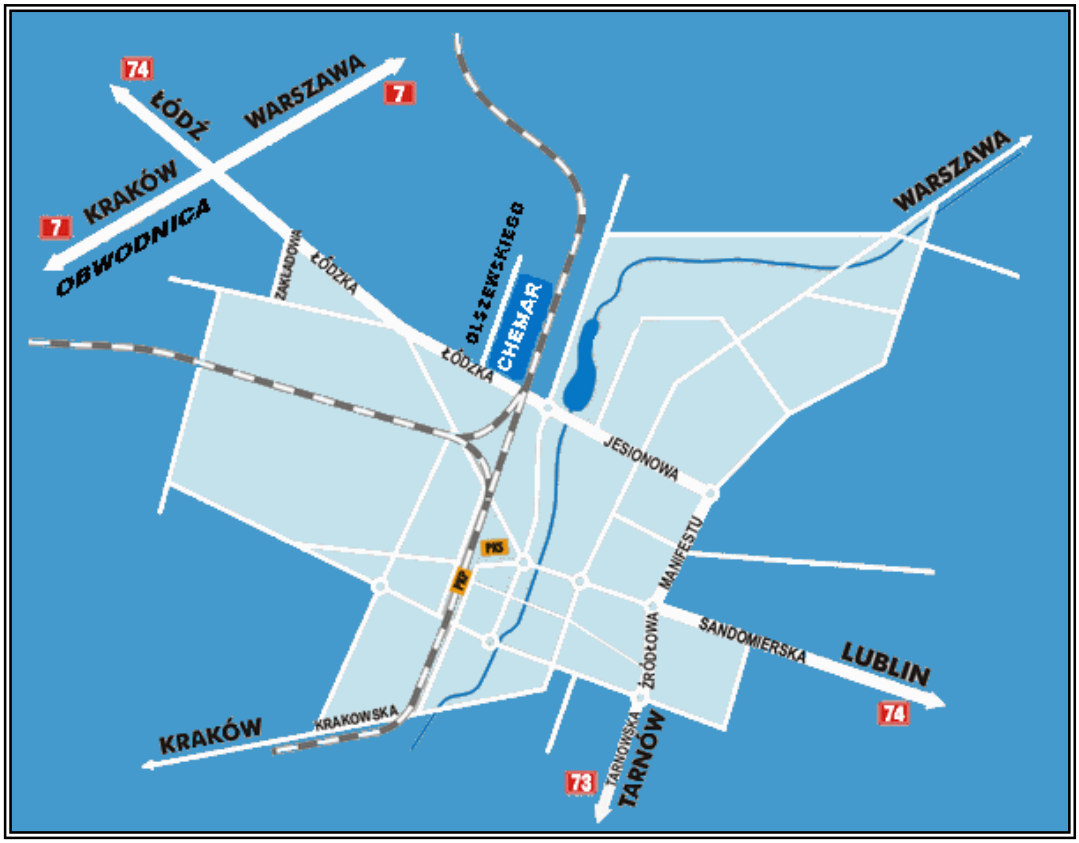

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