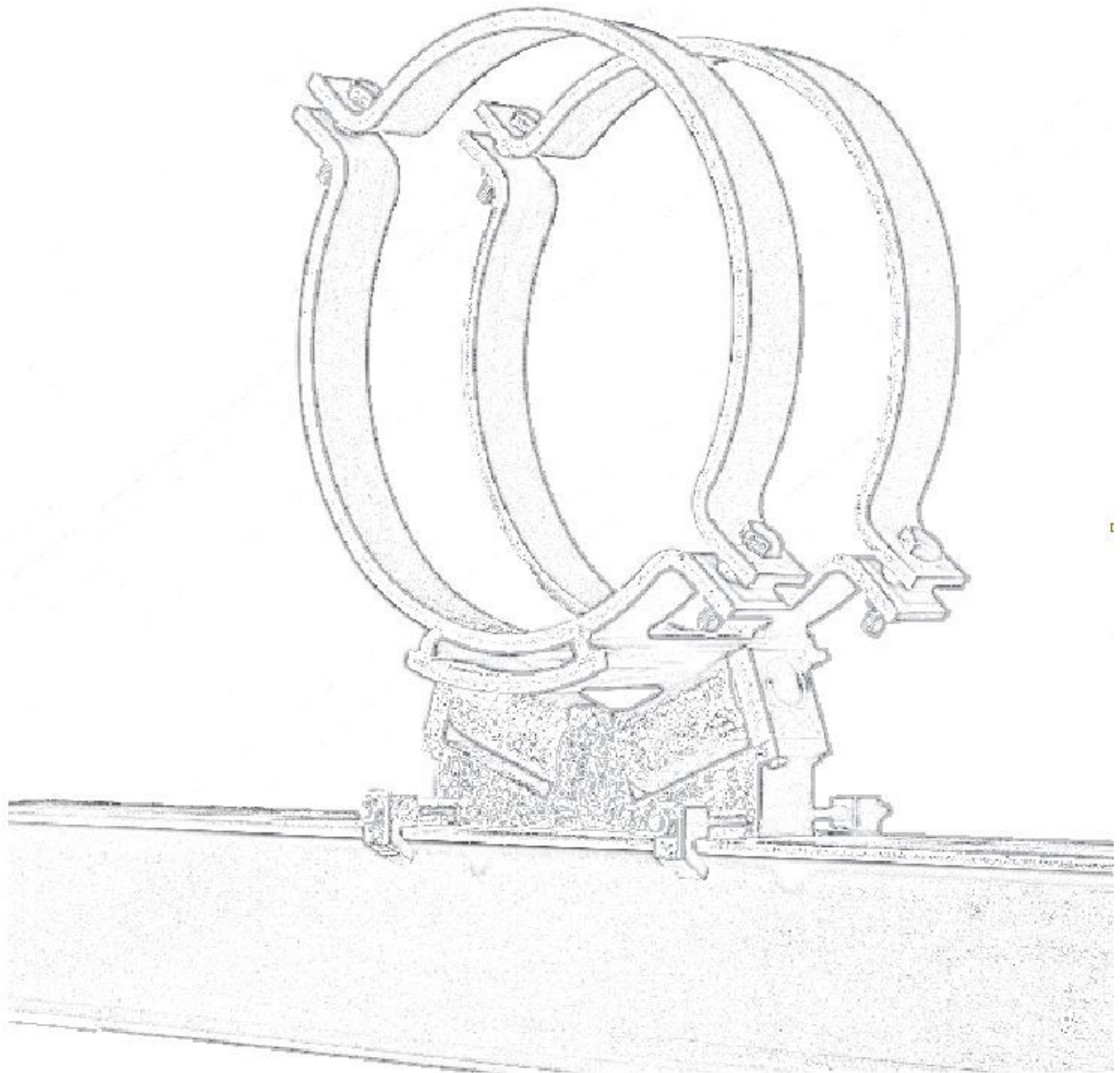


ROLLER SUPPORT



Information about the Roller Support

1. Definitions

The **running resistance** of a roller support is made up to the following components:

Elastic rolling friction (roll resistance)

This friction is caused by the elastic deformation of the roller and the sliding bearing on it. The constant f is the lever arm of the rolling friction and can be taken from the standard tables.

Sliding friction (sliding resistance)

This friction is a function of the load (F) and the friction factor (μ respectively μ_0).

The **co-efficient** of friction (μ_{ges} or K) is calculated from the **rolling friction** and the **sliding friction** and allowing for the transmission ratio ('stepping up or stepping down').

$$\mu_{ges} = 2 * f / d_{rolle} + \mu * d_{achse} / d_{rolle}$$

The **running resistance** (F_w) of a roller support can be calculated with "Coulomb's Law of Friction" as a function of the **bearing force** (F_A) and the co-efficient of friction.

$$F_w = F_A * \mu_{ges}$$

2. Technical data

Material:

Roller:	S235JR/S355JO (hot-dip galvanised)
Body:	S235JR (hot-dip galvanised)
Pin:	1.4571 polished
Bearing bushes:	composite bearing made of bronze/PTFE

We use sliding bushes which are high strength and have excellent emergency running characteristics as well as a favorable co-efficient of friction. (μ respectively μ_0).

3. Characteristics values of the roller support

Co-efficient of friction	$\mu_{ges} = 0,025 - 0,04$
Support loads	8 - 200 kN
Support diameter	DN 200 - DN 1200

4. References

Our wealth of experience and know-how makes us a competent partner for all your projects.

Installations where our roller supports have been installed include:

- Power plants
- Chemical plants
- District heating
- Tunnel construction
- Waste incineration

Information

Our extensive range of roller pipe supports has been further developed, expanded and updated. The main features of the current products can be summarised as follows:

The components are standardised and simplified and are therefore economical to produce.

The roller and pipe supports in our MODULAR SYSTEM are designed to complement one another perfectly.

Our roller supports can now be attached to beams with our beam clamp system - no drilling or welding is necessary.

Taper roller supports and roller supports with lateral movement can also be fitted safely with our clamp systems.

We have calculated the loads and verified them in tests

The use of stainless steel roller pins and maintenance-free bushes guarantees low roll resistance.

The robust design provides safe working loads of up to 200 kN.

Dual cylinder roller supports can take lateral forces of up to **35%** of the support load.

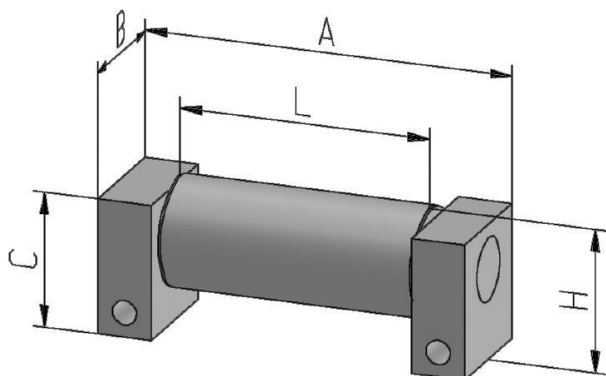
Our roller supports are hot-dip galvanized to provide optimal protection against corrosion.

We have been supplying pipe fixings to all sectors of industry for over 30 years.

Sophisticated production techniques, a modern fleet of machinery, a highly skilled workforce and a well-established quality management system have all contributed to achieving our high current levels of quality.

- Our MODULAR SYSTEM offers users of pipe fixings a range of substantial benefits of both a technical and commercial nature.
- We can also supply special pipe support equipment for applications requiring special solutions, either as modifications to existing products by using different materials, as non-standard sizes or as custom fabrications.
- Our user-friendly product literature provides easy reference tables that give all the details needed about loads, weights and dimensions.
- Our comprehensive stocks of components and finished parts enable us to maintain high levels of service and supply.

**Roller support
Type REU
without guide**



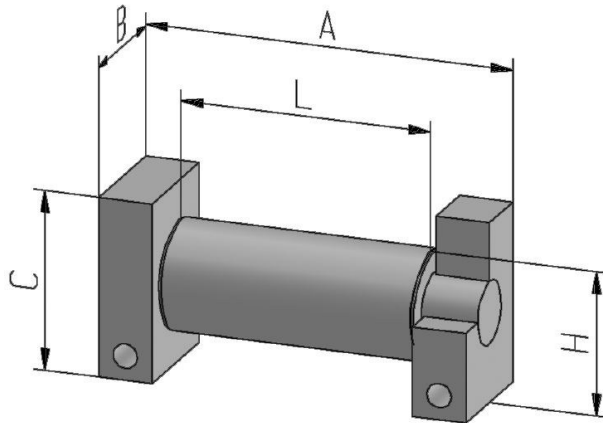
Roller support - type REU without guide

Material:	Roller: S235 , pin: 1.4571 , frame: S235JR , Bearing bush: composite bearing made of bronze /PTFE for dry running in difficult conditions
Surface:	Steel parts hot-dip galvanized

Type	Supportload F_z kN	L mm	A mm	H mm	B mm	C mm	Beam clamps	Weight kg
REU-080/15-F	15	80	146	65	60	60	M12	3,0
REU-100/15-F	15	100	166	65	60	60	M12	3,2
REU-120/15-F	15	120	186	65	60	60	M12	3,5
REU-140/15-F	15	140	206	65	60	60	M12	3,7
REU-080/25-F	25	80	146	80	70	75	M12	5,0
REU-100/25-F	25	100	166	80	70	75	M12	5,4
REU-120/25-F	25	120	186	80	70	75	M12	5,8
REU-140/25-F	25	140	206	80	70	75	M12	6,3
REU-080/50-F	50	80	146	100	100	95	M16	9,2
REU-100/50-F	50	100	166	100	100	95	M16	10,3
REU-120/50-F	50	120	186	100	100	95	M16	11,1
REU-140/50-F	50	140	206	100	100	95	M16	11,9
REU-200/100-F	100	200	266	125	130	110	M20	23,8

Notes: Mounting of the roller bearings on steel constructions with profile clamps type PKR

**Roller support
Type REF
with guide**



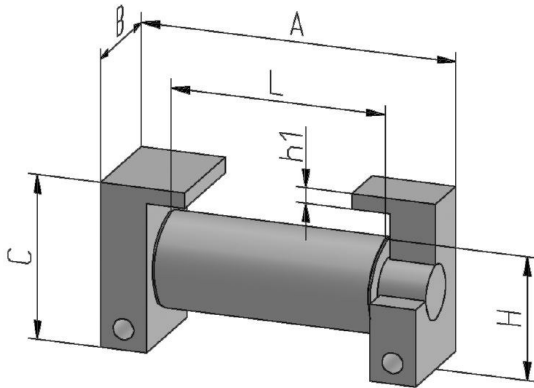
Roller support - type REF with guide

Material:	Roller: S235 , pin: 1.4571 , frame: S235JR , Bearing bush: composite bearing made of bronze /PTFE for dry running in difficult conditions
Surface:	Steel parts hot-dip galvanized

Type	Support load F_z kN	L mm	A mm	H mm	B mm	C mm	Beam clamps	Weight kg
REF-080/15-F	15	80	146	65	60	85	M12	3,8
REF-100/15-F	15	100	166	65	60	85	M12	4,0
REF-120/15-F	15	120	186	65	60	85	M12	4,3
REF-140/15-F	15	140	206	65	60	85	M12	4,5
REF-080/25-F	25	80	146	80	70	100	M12	6,0
REF-100/25-F	25	100	166	80	70	100	M12	6,3
REF-120/25-F	25	120	186	80	70	100	M12	6,7
REF-140/25-F	25	140	206	80	70	100	M12	7,1
REF-080/50-F	50	80	146	100	100	125	M16	10,6
REF-100/50-F	50	100	166	100	100	125	M16	11,7
REF-120/50-F	50	120	186	100	100	125	M16	12,5
REF-140/50-F	50	140	206	100	100	125	M16	13,4
REF-200/100-F	100	200	266	125	130	160	M20	27,0

Notes: Mounting of the roller bearings on steel constructions with profile clamps type PKR

**Roller support
Type REA
with lift-off prevention**



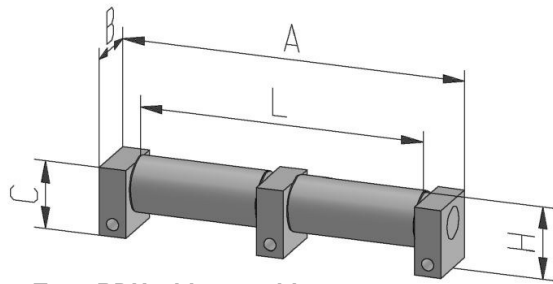
Roller support - type REA with lift-off prevention

Restraint against lift-off = 20% of F_z

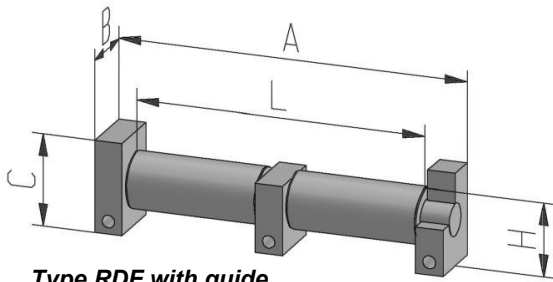
Material:	Roller: S235 , pin: 1.4571 , frame: S235JR , Bearing bush: composite bearing made of bronze /PTFE for dry running in difficult conditions
Surface:	Steel parts hot dip galvanized

Type	Support load F_z kN	L mm	A mm	H mm	h1 mm	B mm	C mm	Beam clamps	Weight kg
REA-080/15-F	15	80	146	65	17	60	92	M12	4,1
REA-100/15-F	15	100	166	65	17	60	92	M12	4,6
REA-120/15-F	15	120	186	65	17	60	92	M12	4,6
REA-140/15-F	15	140	206	65	17	60	92	M12	4,8
REA-080/25-F	25	80	146	80	17	70	107	M12	6,3
REA-100/25-F	25	100	166	80	17	70	107	M12	6,6
REA-120/25-F	25	120	186	80	17	70	107	M12	7,0
REA-140/25-F	25	140	206	80	17	70	107	M12	7,4
REA-080/50-F	50	80	146	100	17	100	132	M16	11,0
REA-100/50-F	50	100	166	100	17	100	132	M16	12,1
REA-120/50-F	50	120	186	100	17	100	132	M16	12,9
REA-140/50-F	50	140	206	100	17	100	132	M16	13,8
REA-200/100-F	100	200	266	125	27	130	167	M20	27,6

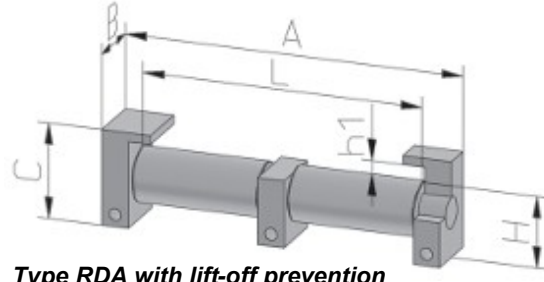
Notes: Mounting of the roller bearings on steel constructions with profile clamps type PKR



Type RDU without guide



Type RDF with guide



Type RDA with lift-off prevention

Roller support
Type RDU without guide
Type RDF with guide
Type RDA with lift-off prevention

Roller support

Material	Roller: S235 , pin: 1.4571 , frame: S235JR , Bearing bush: composite bearing made of bronze /PTFE for dry running in difficult conditions
Surface	Steel parts hot dip galvanized

Type RDU without guide

Type	Support load F_z kN	L mm	A mm	H mm	B mm	C mm	Beam clamps	Weight kg
RDU-240/25-F	25	240	305	80	70	75	M12	8,4
RDU-320/25-F	25	320	385	80	70	75	M12	10,0
RDU-240/50-F	50	240	305	100	100	95	M16	16,7
RDU-320/50-F	50	320	385	100	100	95	M16	20,0

Type RDF with guide

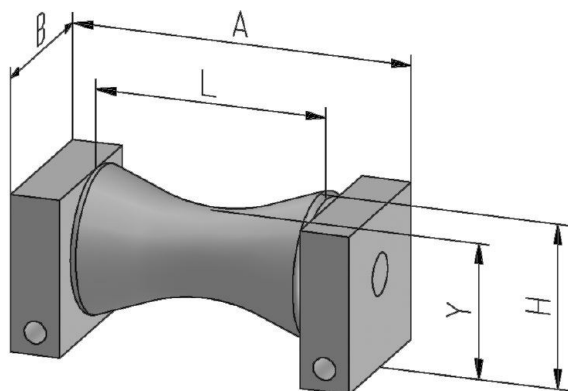
RDF-240/25-F	25	240	305	80	70	100	M12	9,2
RDF-320/25-F	25	320	385	80	70	100	M12	10,8
RDF-240/50-F	50	240	305	100	100	125	M16	17,2
RDF-320/50-F	50	320	385	100	100	125	M16	21,4

Type RDA with lift-off prevention

Restraint against lift-off = 20% of F_z

Type	Support load F_z kN	L mm	A mm	H mm	h1 mm	B mm	C mm	Beam clamps	Weight kg
RDA-240/25-F	25	240	305	80	17	70	107	M12	9,5
RDA-320/25-F	25	320	385	80	17	70	107	M12	11,1
RDA-240/50-F	50	240	305	100	17	100	132	M16	17,6
RDA-320/50-F	50	320	385	100	17	100	132	M16	21,8

Roller support
Type RKP with polyamide taper roll
Type RKS with steel taper roll



Roller Support - type RKP with polyamide taper roll

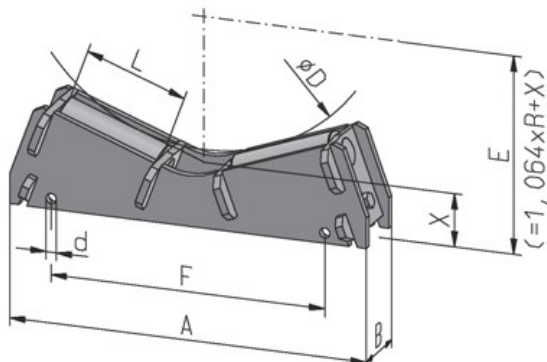
Material:		Roller: polyamide , pin: 1.4571 , frame: S235JR Bearing bush: composite bearing made of bronze /PTFE for dry running in difficult conditions						
Surface:		Steel parts hot dip galvanized						
Type	Support load kN	Suitable for OD	L mm	A mm	H mm	Y mm	Beam clamps	Weight kg
RKP-004-F	4,0	115-273	120	186	90	70	M12	3,0
RKP-008-F	8,0	220-324	140	206	100	75	M12	5,0
RKP-015-F	15,0	273-458	200	266	135	100	M12	8,0

Roller supoort - type RKS with steel taper roll

Material:		Roller: S235 , pin: 1.4571 , sheeks: S235JR Bearing bush: composite bearing made of bronze /PTFE for dry running in difficult conditions						
Surface:		Steel parts hot dip galvanized						
Type	Support load kN	Suitable for OD	L mm	A mm	H mm	Y mm	Beam clamps	Weight kg
RKS-004-F	8,0	115-273	120	186	90	70	M12	6,2
RKS-008-F	16,0	220-324	140	206	100	75	M12	8,0
RKS-015-F	50,0	273-458	200	266	135	100	M16	15,0

Notes: Mounting of the roller bearings on steel constructions with profile clamps type PKR

Dual cylinder roller support Type RSU



Dual cylinder roller support - type RSU

Material:	Roller: S235 , pin: 1.4301 , frame: S235JR Bearing bush: composite bearing made of bronze /PTFE for dry running in difficult conditions
Surface:	Steel parts hot-dip galvanized

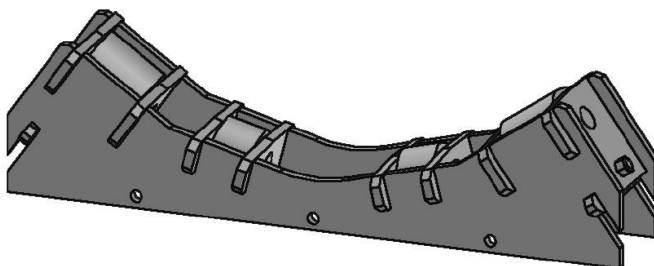
Type	Support load F_z kN	Suitable OD	A mm	B mm	L mm	X mm	F mm	d mm	Weight kg
RSU-008-F	8	114-273	180	62	50	42	100	13,5	2,4
RSU-015-F	15	220-420	250	72	60	46	170	13,5	3,9
RSU-025-1-F	25	140-508	300	80	80	53	160	13,5	8,8
RSU-025-2-F	25	508-835	435	80	80	68	290	13,5	12,4
RSU-050-1-F	50	324-760	400	90	100	53	265	18,0	11,9
RSU-050-2-F	50	508-965	470	90	100	68	360	18,0	14,9
RSU-050-3-F	50	910-1350	640	90	100	82	500	18,0	20,5
RSU-100-1-F	100	508-1050	525	120	120	68	370	22,0	25,8
RSU-100-2-F	100	813-1350	640	120	120	82	450	22,0	31,3

Support loads are for average diameters and evenly distributed loads.

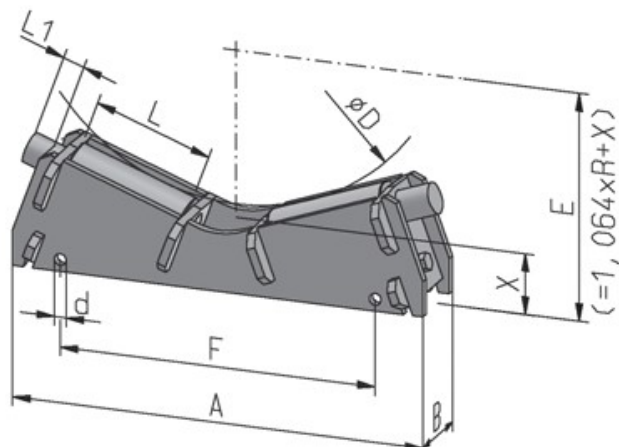
Can take lateral forces up to 35% of support loads.

Mounting of the roller bearings on steel constructions with profile clamps type PKR

Special cylinder roller support for high support loads (Example)



Dual cylinder roller support Type RSA for lift-off prevention



Dual cylinder roller support - type RSA for lift-off prevention

Material:	Roller: S235 , pin: 1.4301 , frame: S235JR Bearing bush: composite bearing made of bronze /PTFE for dry running in difficult conditions
Surface:	Steel parts hot dip galvanized

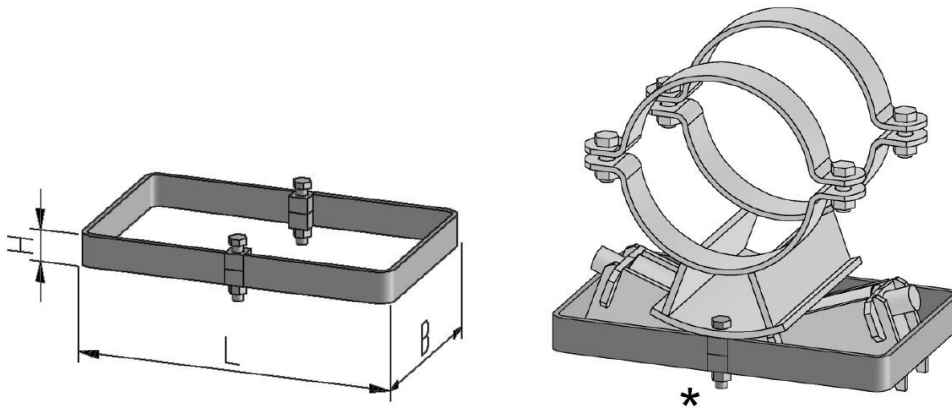
Type	Support load F_z kN	Suitable for OD	A mm	B mm	L mm	L1 mm	X mm	F mm	d mm	Weight kg
RSA-008-F	8	114-273	180	62	50	40	42	100	13,5	2,5
RSA-015-F	15	220-420	250	72	60	45	46	170	13,5	4,0
RSA-025-1-F	25	140-508	300	80	80	55	53	160	13,5	9,4
RSA-025-2-F	25	508-835	435	80	80	55	68	290	13,5	13,0
RSA-050-1-F	50	324-760	400	90	100	60	53	265	18,0	12,5
RSA-050-2-F	50	508-965	470	90	100	60	68	360	18,0	15,5
RSA-050-3-F	50	910-1350	640	90	100	75	82	500	18,0	21,2
RSA-100-1-F	100	508-1050	525	120	120	70	68	370	22,0	27,2
RSA-100-2-F	100	813-1350	640	120	120	70	82	450	22,0	32,7

Support loads are for average diameters and evenly distributed loads.

Can take lateral forces up to 35% of support loads.

Mounting of the roller bearings on steel constructions with profile clamps type PKR.

**Lift-off prevention
type AH**

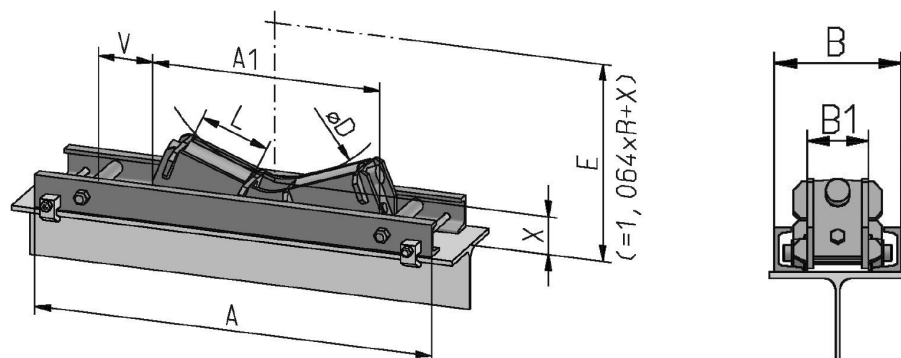


Lift-off prevention - type AH for dual cylinder roller support Type RSA

Material	S235JR					
Surface	Steel parts hot-dip galvanized, complete with bolts and nuts					
Type	For roller support type	Bolt size insulating saddle	L mm	B mm	H mm	Weight kg
AH-RSA-008-F	RSA-008-F	M8	198	300	15	0,9
AH-RSA-015-F	RSA-015-F	M10	266	300	20	1,3
AH-RSA-025-1-F	RSA-025-1-F	M12	322	300	30	2,8
AH-RSA-025-2-F	RSA-025-2-F	M12	438	300	30	3,2
AH-RSA-050-1-F	RSA-050-1-F	M12	420	300	50	5,2
AH-RSA-050-2-F	RSA-050-2-F	M12	490	300	50	5,6
AH-RSA-050-3-F	RSA-050-3-F	M12	640	300	50	6,6
AH-RSA-100-1-F	RSA-100-1-F	M30	550	300	70	15,0
AH-RSA-100-2-F	RSA-100-2-F	M30	666	300	70	16,0

* Notes: The lift-off prevention need to be bolted to the roller bearings on site.

Dual cylinder roller support Type RSU/V with lateral movement



Dual cylinder roller support - type RSU/V with lateral movement

Material:	Roller: S235 , pin: 1.4301 , frame: S235JR Bearing bush: composite bearing made of bronze /PTFE for dry running in difficult conditions Frame and carriage: S235JR
Surface:	Steel parts hot dip galvanized

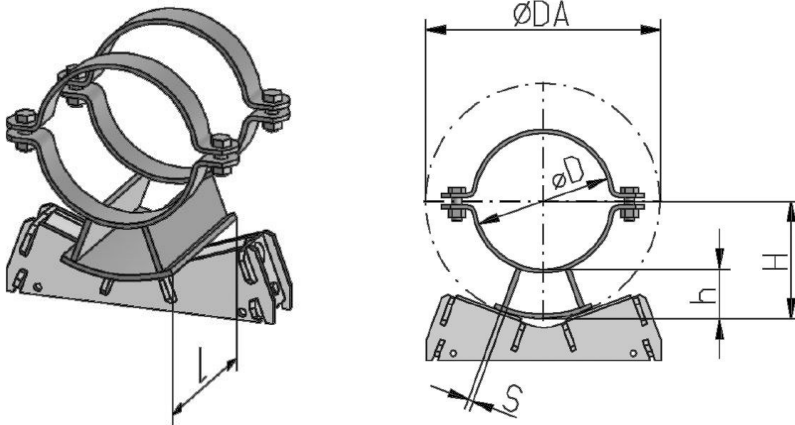
Type	Support load F_z kN	Support ØD mm	Lateral movement V	A mm	B mm	A1 mm	B1 mm	L mm	X mm	Beam clamps type	Weight kg
RSU-015/V100-F RSU-015/V200-F RSU-015/V300-F	15,0	220-420	100 200 300	628 728 828	172	250	72	60	46	M16	8,6 9,5 10,4
RSU-025-1/V100-F RSU-025-1/V200-F RSU-025-1/V300-F	25,0	140-508	100 200 300	678 778 878	180	300	80	80	53	M16	15,4 16,3 17,2
RSU-025-2/V100-F RSU-025-2/V200-F RSU-025-2/V300-F	25,0	508-835	100 200 300	813 913 1013	180	435	80	80	68	M16	20,4 21,3 22,2
RSU-050-1/V100-F RSU-050-1/V200-F RSU-050-1/V300-F	50,0	324-760	100 200 300	778 878 978	190	400	90	100	53	M20	21,7 22,6 23,5
RSU-050-2/V100-F RSU-050-2/V200-F RSU-050-2/V300-F	50,0	508-965	100 200 300	848 948 1048	190	470	90	100	68	M20	25,1 26,0 26,9
RSU-050-3/V100-F RSU-050-3/V200-F RSU-050-3/V300-F	50,0	910-1350	100 200 300	1018 1118 1218	190	640	90	100	82	M20	32,3 33,2 34,1
RSU-100-1/V100-F RSU-100-1/V200-F RSU-100-1/V300-F	100,0	805-1050	100 200 300	903 1003 1103	220	525	120	120	68	M20	37,0 37,8 38,6
RSU-100-2/V100-F RSU-100-2/V200-F RSU-100-2/V300-F	100,0	813-1350	100 200 300	1018 1118 1218	220	640	120	120	82	M20	43,4 44,2 45,0

Support loads are for average diameters and evenly distributed loads.

Can take lateral forces up to 35% of support loads.

Mounting of the roller bearings on steel constructions with profile clamps type PKR.

**Saddle with pipe clamp
Type ISRU
DN 50 - DN 200**



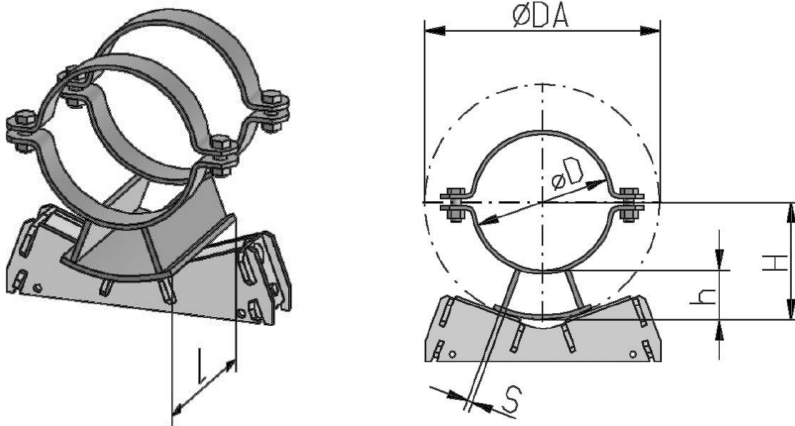
Saddle with pipe clamp - type ISRU

DN 50 - DN 200

Material:	S235JR
Surface:	Hot-dip galvanized Pipe clamps acc. to DIN 3567 form A Bolt and nuts acc. to DIN ISO 4017/4032 - 8.8/8 hot-dip galvanized (DIN EN ISO 898)

Type	Support load F_z kN	Pipe $\varnothing D$ mm	h Insulation thickness mm	H Installation height mm	$\varnothing DA$ mm	L mm	S mm	Weight kg
ISRU-061/030-R-F	1,5	60,3	30	60	120	300	5	2,9
ISRU-061/050-R-F			50	80	160			3,4
ISRU-061/080-R-F			80	110	220			4,6
ISRU-061/100-R-F			100	130	260			5,2
ISRU-061/120-R-F			120	150	300			5,9
ISRU-077/030-R-F	1,5	76,1	30	68	140	300	5	3,2
ISRU-077/050-R-F			50	88	180			3,7
ISRU-077/080-R-F			80	118	240			4,9
ISRU-077/100-R-F			100	138	280			5,7
ISRU-077/120-R-F			120	158	320			6,4
ISRU-089/030-R-F	1,5	88,9	30	75	150	300	5	3,4
ISRU-089/050-R-F			50	95	190			4,0
ISRU-089/080-R-F			80	125	250			5,0
ISRU-089/100-R-F			100	145	290			5,8
ISRU-089/120-R-F			120	165	330			6,5
ISRU-115/030-R-F	2,0	114,3	30	88	175	300	5	5,5
ISRU-115/050-R-F			50	108	215			6,2
ISRU-115/080-R-F			80	138	275			7,3
ISRU-115/100-R-F			100	158	315			8,0
ISRU-115/120-R-F			120	178	355			8,6
ISRU-140/030-R-F	4,0	139,7	40	110	220	300	5	6,3
ISRU-140/050-R-F			50	120	240			6,7
ISRU-140/080-R-F			80	150	300			7,8
ISRU-140/100-R-F			100	170	340			8,4
ISRU-140/120-R-F			120	190	380			9,2
ISRU-169/030-R-F	4,0	168,3	40	125	250	300	5	7,0
ISRU-169/050-R-F			50	135	270			7,9
ISRU-169/080-R-F			80	165	330			9,3
ISRU-169/100-R-F			100	185	370			10,2
ISRU-169/120-R-F			120	205	410			11,2
ISRU-220/030-R-F	10,0	219,1	40	150	300	300	6	9,0
ISRU-220/050-R-F			50	160	320			9,3
ISRU-220/080-R-F			80	190	380			10,6
ISRU-220/100-R-F			100	210	420			11,5
ISRU-220/120-R-F			120	230	460			12,4

**Saddle with pipe clamp
Type ISRU
DN 250 - DN 500**



Saddle with pipe clamp - type ISRU

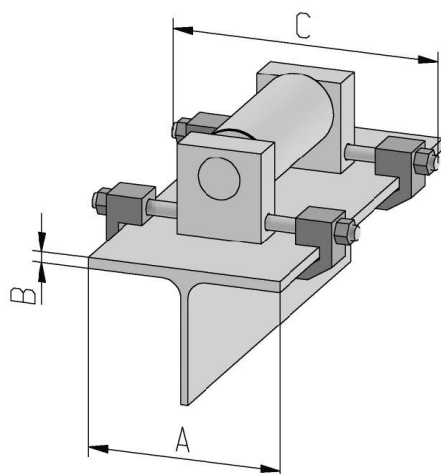
DN 250 - DN 500

Material:	S235JR
Surface:	Hot-dip galvanized Pipe clamps acc. to DIN 3567 form A Bolt and nuts acc. to DIN ISO 4017/4032 - 8.8/8 hot-dip galvanized (DIN EN ISO 898)

Type	Support load F_z kN	Pipe $\varnothing D$ mm	h Insulation thickness mm	H Installation height mm	$\varnothing DA$ mm	L mm	S mm	Weight kg
ISRU-273/050-R-F	10,0	273,0	50	187	375	300	10	15,0
ISRU-273/080-R-F			80	217	435			17,2
ISRU-273/100-R-F			100	237	475			18,6
ISRU-273/120-R-F			120	257	515			20,1
ISRU-273/150-R-F			150	287	575			22,3
ISRU-324/050-R-F	20,0	323,9	50	212	425	300	12	18,0
ISRU-324/080-R-F			80	242	485			20,7
ISRU-324/100-R-F			100	262	525			22,4
ISRU-324/120-R-F			120	282	565			24,2
ISRU-324/150-R-F			150	312	625			26,8
ISRU-356/050-R-F	20,0	355,6	50	228	455	300	12	19,6
ISRU-356/080-R-F			80	258	515			22,2
ISRU-356/100-R-F			100	278	555			24,0
ISRU-356/120-R-F			120	298	595			25,7
ISRU-356/150-R-F			150	328	655			28,4
ISRU-407/050-R-F	40,0	406,4	50	254	510	300	15	30,0
ISRU-407/080-R-F			80	284	570			33,3
ISRU-407/100-R-F			100	304	610			35,5
ISRU-407/120-R-F			120	324	650			37,7
ISRU-407/150-R-F			150	354	710			41,0
ISRU-457/050-R-F	40,0	457,0	50	278	560	300	15	32,2
ISRU-457/080-R-F			80	308	620			35,5
ISRU-457/100-R-F			100	328	660			37,7
ISRU-457/120-R-F			120	348	700			39,9
ISRU-457/150-R-F			150	378	760			43,3
ISRU-508/050-R-F	40,0	508,0	50	304	608	300	15	35,9
ISRU-508/080-R-F			80	334	668			39,1
ISRU-508/100-R-F			100	354	708			41,3
ISRU-508/120-R-F			120	374	748			43,4
ISRU-508/150-R-F			150	404	808			46,7

Notes: Other dimensions on request

**Beam clamp for roller support
Type PKR**



Beam clamp for roller support - type PKR - M12

Material:	S235, clamps GS 45, threaded parts 8.8/8 hot-dip galvanized					
Preload:	M12 - 30 Nm					
Surface:	Complete with nuts, hot-dip galvanized					
Type	Beam dimensions		Thread rod C mm		Insert for roller support F _z kN	Weight kg
	A mm	B mm				
PKR-120/12-F	100 - 120	8-19	180		4-25	1,0
PKR-160/12-F	130 - 160	8-19	220			1,2
PKR-200/12-F	170 - 200	8-19	260			1,4

Beam clamp for roller support - type PKR - M16

Material:	S235, clamps GS 45, threaded parts 8.8/8 hot-dip galvanized					
Preload:	M16 - 60 Nm					
Surface:	Complete with nuts, hot-dip galvanized					
Type	Beam dimensions		Thread rod C mm		Insert for roller support F _z kN	Weight kg
	A mm	B mm				
PKR-160/16-F	130 - 160	8-19	260		50	2,1
PKR-200/16-F	170 - 200	8-19	300			2,1
PKR-240/16-F	210 - 240	8-19	340			4,4
PKR-300/16-F	260 - 300	8-19	400			4,6

Beam clamp for roller support - type PKR - M20

Material:	S235, clamps GS 45, threaded parts 8.8/8 hot-dip galvanized					
Preload:	M20 - 90 Nm					
Surface:	Complete with nuts, hot-dip galvanized					
Type	Beam dimensions		Thread rod C mm		Insert for roller support F _z kN	Weight kg
	A mm	B mm				
PKR-160/20-F	130 - 160	8-19	260		100	6,2
PKR-200/20-F	170 - 200	8-19	300			6,4
PKR-240/20-F	210 - 240	8-19	340			6,6
PKR-300/20-F	260 - 300	8-19	400			6,8

Technical information

Expert advice

With our many years of experience as suppliers to the pipeline and plant construction industries we are well placed to assist you with expert advice on the design and detail for projects including. We can provide tailor made solutions for specific problems and applications.

Loads

The calculation loads mentioned in this document were made with statically models under certain conditions and parameters.

All possible care is taken: compliance and applicable technical regulations and applicable standards, guarantees are given against the loads for the static cases shown in the catalog, these are approximate values. Liabilities for the particular application cannot be derived. Any unauthorized variations or changes would invalidate any warranty and guarantee on our part.

Materials

The materials and characteristics are in accordance to the corresponding standards and should be used as a minimum requirement. For the characteristics and quality, Bernecker will only accept warranty in combination with an inspection certificate 3.1

Special design

For your individual requirements we also offer special pipe supports. Either as a variant production through the use of other:

- materials (e.g. P265GH, P275NL1)
- coatings (e.g. Duplex)
- diameter (e.g. RA-102-R)
- lengths (e.g. GLY-200/324L500-RB3)
- heights (e.g. GLY-75/324-RB3)

or according to your specifications routines or static specification.

General tolerances

The general tolerances are for lengths, angles, shape and location in accordance with ISO 2768-cL and 13920-1-CG.

SI units (metric)

The physical quantities are stated in SI units as follows:

- Dimensions in **mm**
 - Loads in **kN**
 - Temperatures at **80°C**
 - Weights in **kg**
- in not stated otherwise.

Heat treatment

We can hot form and heat treat components to order, e.g. **stress-free annealing, normalizing or hardening** of high temperature materials. On request we supply a diagram of the heat treatment and temperature curve of the heat treated components supplied.

Corrosion protection and surface finishes

Components

- The corrosion protection of our components in accordance with DIN EN ISO 12944.
- Hot-dip galvanized components is standard to DIN EN ISO 1461 or ASTM 123.
- Prepare acc. To ISO 8501-3-P1 (edges broken and burr free)
- According to your needs and specifications we can also provide our component parts with the following surface treatment: Blasting (acc to 8501-1 SA2 1/2), pickling, oiling, basic coating, painting or galvanic surface treatment.

Complement

- Hot-dip galvanized screwing acc. To DIN EN ISO 10684 (tZn)
- Galvanized screwing acc. To ISO4042 (A2A or superior)
- The coatings tZn and A2A are chrome (IV)-free.

Prefabrication service supplied complete to site

As a specialist manufacturer in the field of pipe supports we can fabricate all supports and ancillaries for you ready to install, complete with labeling, to order. Pre-assembled components with hard stamped article-name can optimize the assembling process and allow time savings on site, however, it is an additional service.

Acceptance/Certificates

On request we can supply our pipe support products to **DIN EN 10204** with **acceptance test certificates 3.1** or **Certificate of compliance 2.2/2.1**

We can arrange for acceptance tests (NDT, etc.) to be carried out by the TÜV or other inspectorate on our premises if required. Inspections by our customers can be arranged at any time.

Our safety is your guarantee

We operate in a quality assurance system that is certified to DIN ISO 9001.

This is your guarantee that we will turn your specifications and requirements into a fully functional and reliable system that is right for the job.

Registrations (Status in 12/2017)

- **DIN ISO 9001:2008** (quality management)
- **AD 2000 W-0** (Certification according to pressure equipment directive)
- **DIN EN 1090-1** Requirements for conformity assessment of structural components)
- **DIN EN ISO 3834-2** (Comprehensive quality)

Legal notice

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Our general terms and conditions apply.

Regular screwing AD 2000 / VGB R 510 L		
Material	Strenght i.a.w. DIN 267-13	Temp.
	Bolt/nut	
S235JR	8.8 / 8	≤ 300°C
S355J2+N	8.8 / 8	≤ 300°C
P265GH	KG / KG	≤ 450°C
16Mo3	KG / KG	≤ 500°C
13CrMo4-5	GA / GA	≤ 530°C
10CrMo9-10	GA / GA	≤ 580°C
X6CrNi 18 10	A4 / A4	≤ 580°C
X6CrNiMoTi 17-12-2	A4 / A4	≤ 580°C