Slide plates Type 70

Application and field of use

The pipe systems resting on pipe bearings are subject to displacement as a result of thermal expansion. This displacement must be permitted to prevent unacceptable stresses that could damage the piping system. Furthermore, the slight friction caused by these movements is reduced by inserting slide plates between the clamp base and supporting framework.

During the planning phase the reduction of friction forces is extremely important. Since friction forces can represent considerable additional forces to the operational loads, they are usually distributed into the supporting framework (building structure or secondary steelwork) by the use of low friction materials/surfaces.

By lowering friction forces the dimensioning of building structures and secondary steelwork can be, under the aspect of cost saving, reduced. Also the reaction forces in the pipe statics.

Slide plates are commonly used in all pipe systems in industrial processes / chemical plants, in the power station field, in liquefied gas transport or in district heating pipe systems.

Through the use of slide plates friction forces can be reduced about 60%. Instead of steel / steel sliding contact with a friction coefficient of $\mu \approx 0.3$, through the use of slide plates and a stainless steel plate as a counterface on the clamp base side the friction coefficient can be reduced to as little as $\mu \approx 0.1$ (dry).

LISEGA slide plates consist of different low-friction materials for different temperature ranges. For use at a constant temperature up to 180°C (at the bottom of the clamp base) the standard PTFE slide plate is recommended. For temperatures above 180°C to a maximum of 350°C a special high-temperature material is used.

Advantages of the low-friction materials

- **high mechanical wear resistance**
- **temperature resistance up to 350°C**
- **suitable for use in aggressive environmental conditions due to their high chemical resistance**
- **self-lubricating**
- **permanent freedom from maintenance**
- **long lifespan**
- **excellent load-bearing capacity**

Clamp bases are seated on slide plates allowing movement with reduced friction – this means the pipe systems can move without constraint during thermal expansion.

Weld-on slide plates

Type 28 with embedded slide plates

Type 29 with load plate and PTFE slide plates

Typical use of slide plates under clamp bases

Other fields of application for LISEGA slide plates are uses where heavy loads must be moved horizontally. By using slide plates the force required for movement can be reduced by as much as 60%. The use of slide plates has a favorable effect on the whole pipe system layout.

Build of the slide plates

LISEGA slide plates for the temperature range up to 180°C are made of the low-friction material PTFE. For temperatures from 180°C up to 350°C a special high-temperature material is used that not only increases heat resistance but also optimizes the mechanical properties.

The LISEGA slide plate consists basically of a supporting plate of carbon steel with a weldable primer coating in which the low-friction material is embedded.

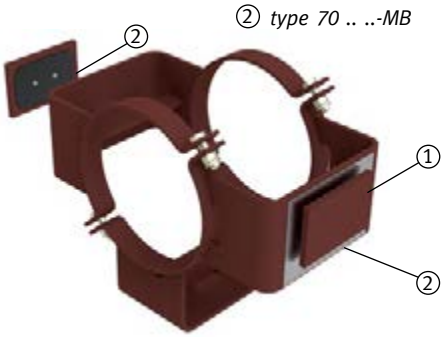
Optionally the supporting plate can be supplied hot dip galvanized.

The counterface is a stainless steel plate. Optionally **the stainless steel plate, that must be ordered separately,** can be welded to carbon steel support plate or it is attached to the bottom of the clamp base in the factory and can be used immediatly.

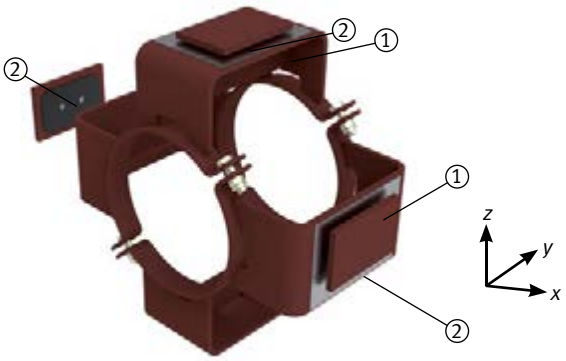
Use of slide plates for pipe guides type 49 .. .. -G..

Specially developed for vertical installation, such as for example for type 49 .. .. -G.. pipe guides, the slide plate is bolted to the support plate.

① *stainless steel plate*
② *type 70 .. ..-MB*

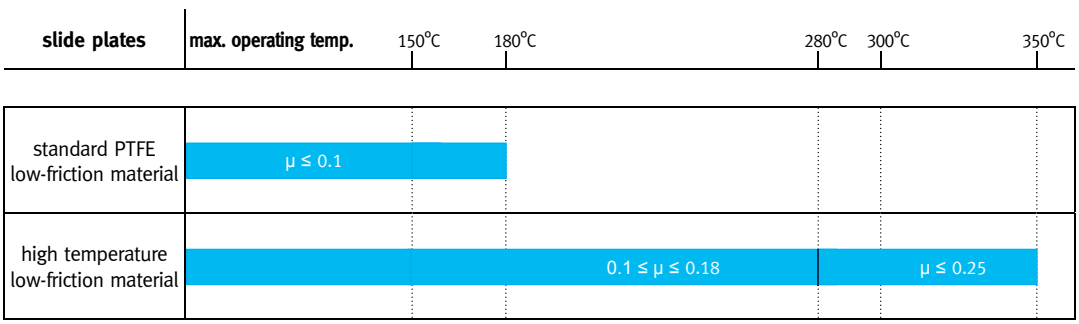


slide bearing / guide through clamp base type 49 .. .. G3-SP with slide plates



X-Z-stop with guide in Y direction through clamp base Type 49 .. .. G4-SP with slide plates

Friction values μ in dependence on operating temperature

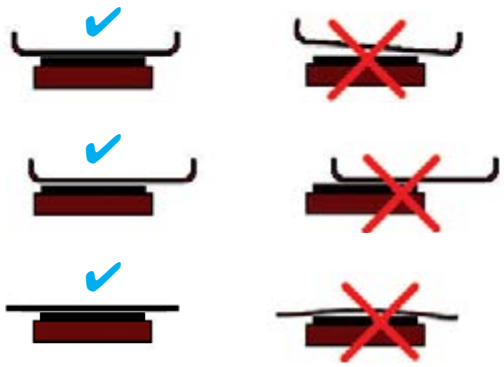


Information on construction and assembly of slide plates

- **Parallel installation of the slide plates and counterfaces is required.**
- **In every possible bearing position the slide plates must be fully covered by the counterfaces.**
- **The components are to be fitted so that any bending of the slide plates or counterfaces is prevented.**

Clamp base type 49 on slide plate with clamp connection to steelwork

Clamp base type 49 and spring support type 28 with slide plates



Installation of slide plates

- **Type 70 .. 1. Is tack-welded with single datum points. If all-round welding is required, the temperature of the PTFE material must not hereby exceed 260°C. When welding, the PTFE material or the restraining surfaces of the support plate must be protected from dirt.**
- **It is recommended to install the slide plates only horizontally. For vertical installation type 70 .. ..-MB is to be used. When it has been ensured that the counterface is always in contact with the PTFE, the standard component shape 70 .. .. can also be used.**
- **Type 70 .. 2. And type 70 .. 3. Are bolted to the steelwork with M10 or M12 cylinder bolts. These bolts do not form part of the scope of supply. Special sizes can be supplied on request.**

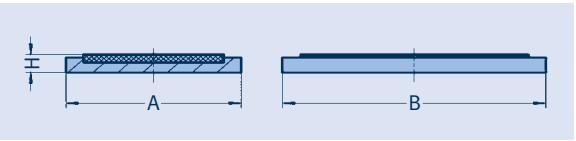
Special sizes can be supplied on request.

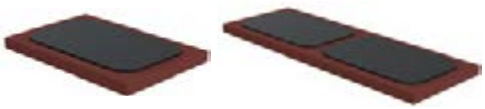
load% nom. load / type	travel range 1				travel range 2				travel range 3			
	40%	60%	80%	100%	40%	60%	80%	100%	40%	60%	80%	100%
29 C. 19												
29 D. 19												
29 1. 18								■		■	■	■
29 2. 18								■		■	■	■
29 3. 18				■			■	■	■	■	■	■
29 4. 18				■		■	■	■	■	■	■	■
29 5. 18				■		■	■	■	■	■	■	■
29 6. 18			■	■		■	■	■	■	■	■	■
29 7. 18		■	■	■	■	■	■	■	■	■	■	■
29 8. 18		■	■	■	■	■	■	■	■	■	■	■
29 9. 18	■	■	■	■	■	■	■	■	■	■	■	■

■ *Recommended use of PTFE slide plates for spring supports type 29 .. 1.*

Slide plates to weld-on Type 70

Slide plates to weld-on (rectangular shape) type 70 11 11 to 70 48 11





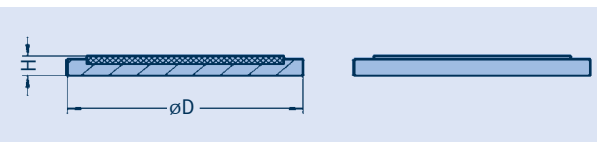
① The 6th place is to be filled out in dependence of the operating temperature.

② For friction values of slide plates: see table on p. 7.11.

type ①	max. load [kN] .. .. .1 150°C	180°C	.. .. .4 350°C ②	A	B	H	sliding surface	weight [kg]
70 11 1.	13	7	25	50	50	10	ø 40	0.2
70 12 1.	22	13	40	50	100	10	30 x 80	0.3
70 13 1.	37	22	70	50	150	10	30 x 130	0.4
70 14 1.	52	31	100	50	200	10	30 x 180	0.6
70 16 1.	82	49	160	50	300	10	30 x 280	0.8
70 17 1.	105	62	205	50	390	10	2 x 30 x 180	1.0
70 18 1.	135	80	265	50	490	10	2 x 30 x 230	1.3
70 22 1.	59	36	120	100	100	12	80 x 80	0.7
70 23 1.	98	60	200	100	150	12	80 x 130	1.0
70 24 1.	138	84	280	100	200	12	80 x 180	1.3
70 26 1.	219	132	440	100	300	12	80 x 280	1.9
70 27 1.	280	168	560	100	390	12	2 x 80 x 180	2.5
70 28 1.	360	216	720	100	490	12	2 x 80 x 230	3.1
70 33 1.	163	99	330	150	150	12	130 x 130	1.4
70 34 1.	228	138	460	150	200	12	130 x 180	1.9
70 36 1.	358	216	720	150	300	12	130 x 280	2.7
70 37 1.	465	276	920	150	390	12	2 x 130 x 180	3.6
70 38 1.	595	354	1180	150	490	12	2 x 130 x 230	4.4
70 44 1.	318	192	640	200	200	12	180 x 180	2.4
70 46 1.	498	300	1000	200	300	12	180 x 280	3.6
70 47 1.	645	384	1280	200	390	12	2 x 180 x 180	5.4
70 48 1.	825	492	1640	200	490	12	2 x 180 x 230	6.8

Order details:
slide plate to weld-on type 70 .. 1.

Slide plate to weld-on (round shape) type 70 05 1. to 70 20 1.



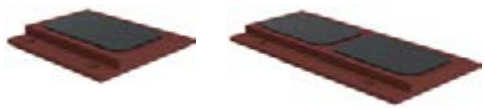
① The 6th place is to be filled out in dependence of the operating temperature.

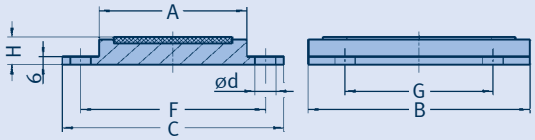
② For friction values of slide plates: see table on p. 7.11.

type ①	max. load [kN] .. .. .2 150°C	180°C	.. .. .5 350°C ②	øD	H	sliding surface	weight [kg]
70 05 1.	13	7	25	50	10	ø 40	0.1
70 08 1.	33	19	65	85	12	ø 65	0.4
70 10 1.	50	30	100	100	12	ø 80	0.5
70 13 1.	90	57	190	130	12	ø 110	0.9
70 17 1.	175	106	350	170	12	ø 150	1.4
70 20 1.	254	152	505	200	12	ø 180	1.9

Order details:
slide plate to weld-on type 70 .. 1.

Slide plates for bolting Type 70





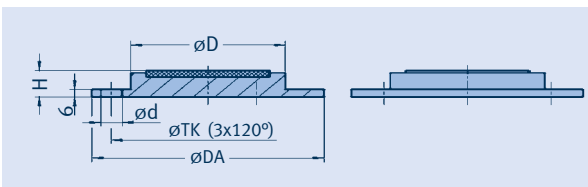
Slide plates for bolting (rectangular shape lengthwise) type 70 11 2. to 70 48 2.

type ①	max. load [kN] .. .. .1 150°C	180°C	.. .. .4 350°C ②	A	B	H	sliding surface	C	F	G	bore holes	ød	weight [kg]
70 11 2.	13	7	25	50	50	22	ø 40	100	75	0	2	12	0.5
70 12 2.	22	13	40	50	100	22	30 x 80	100	75	60	4	12	1.0
70 13 2.	37	22	70	50	150	22	30 x 130	100	75	100	4	12	1.5
70 14 2.	52	31	100	50	200	22	30 x 180	100	75	150	4	12	2.0
70 16 2.	82	49	160	50	300	22	30 x 280	100	75	250	4	12	2.9
70 17 2.	105	62	205	50	390	22	2 x 30 x 180	100	75	300	4	12	3.8
70 18 2.	135	80	265	50	490	22	2 x 30 x 230	100	75	350	4	12	4.7
70 22 2.	59	36	120	100	100	22	80 x 80	150	125	60	4	14	1.7
70 23 2.	98	60	200	100	150	22	80 x 130	150	125	100	4	14	2.5
70 24 2.	138	84	280	100	200	22	80 x 180	150	125	150	4	14	3.3
70 26 2.	219	132	440	100	300	22	80 x 280	150	125	250	4	14	5.0
70 27 2.	280	168	560	100	390	22	2 x 80 x 180	150	125	300	4	14	6.4
70 28 2.	360	216	720	100	490	22	2 x 80 x 230	150	125	350	4	14	8.1
70 33 2.	163	99	330	150	150	22	130 x 130	200	175	100	4	14	3.6
70 34 2.	228	138	460	150	200	22	130 x 180	200	175	150	4	14	4.7
70 36 2.	358	216	720	150	300	22	130 x 280	200	175	250	4	14	7.0
70 37 2.	465	276	920	150	390	22	2 x 130 x 180	200	175	300	4	14	9.1
70 38 2.	595	354	1180	150	490	22	2 x 130 x 230	200	175	350	4	14	11.4
70 44 2.	318	192	640	200	200	22	180 x 180	250	225	150	4	14	6.1
70 46 2.	498	300	1000	200	300	22	180 x 280	250	225	250	4	14	9.0
70 47 2.	645	384	1280	200	390	22	2 x 180 x 180	250	225	300	4	14	11.7
70 48 2.	825	492	1640	200	490	22	2 x 180 x 230	250	225	350	4	14	14.7

① The 6th place is to be filled out in dependence of the operating temperature.

② For friction values of slide plates: see table on p. 7.11.

Order details:
slide plate for bolting type 70 .. 2.



Slide plates for bolting (round shape) type 70 05 2. to 70 20 2.

type ①	max. load [kN] .. .. .2 150°C	180°C	.. .. .5 350°C ②	øD	øDA	H	sliding surface	øTK	ød	weight [kg]
70 05 2.	13	7	25	50	90	22	ø 40	70	12	0.5
70 08 2.	33	19	65	85	125	22	ø 65	105	12	1.2
70 10 2.	50	30	100	100	150	22	ø 80	125	14	1.6
70 13 2.	90	57	190	130	180	22	ø 110	155	14	2.5
70 17 2.	175	106	350	170	220	22	ø 150	195	14	3.9
70 20 2.	254	152	505	200	260	22	ø 180	230	18	5.4

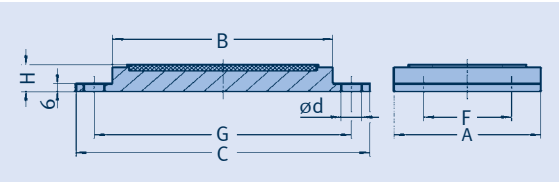
① The 6th place is to be filled out in dependence of the operating temperature.

② For friction values of slide plates: see table on p. 7.11.

Order details:
slide plate for bolting type 70 .. 2.

Slide plates for bolting Type 70

Slide plates for bolting (transverse rectangular shape)
type 70 12 3. to 70 48 3.



① The 6th place is to be filled out in dependence of the operating temperature.

② For friction values of slide plates: see table on p. 7.11.

type ①	max. load [kN] .. .. .1 150°C	180°C	.. .. .4 350°C ②	A	B	H	sliding surface	C	F	G	bore holes	ød	weight [kg]
70 12 3.	22	13	40	50	100	22	30 x 80	150	0	125	2	12	0.9
70 13 3.	37	22	70	50	150	22	30 x 130	200	0	175	2	12	1.3
70 14 3.	52	31	100	50	200	22	30 x 180	250	0	225	2	12	1.6
70 16 3.	82	49	160	50	300	22	30 x 280	350	0	325	2	12	2.3
70 17 3.	105	62	205	50	390	22	2 x 30 x 180	440	0	415	2	12	3.0
70 18 3.	135	80	265	50	490	22	2 x 30 x 230	540	0	515	2	12	3.7
70 23 3.	98	60	200	100	150	22	80 x 130	200	60	175	4	14	2.4
70 24 3.	138	84	280	100	200	22	80 x 180	250	60	225	4	14	3.1
70 26 3.	219	132	440	100	300	22	80 x 280	350	60	325	4	14	4.5
70 27 3.	280	168	560	100	390	22	2 x 80 x 180	440	60	415	4	14	5.8
70 28 3.	360	216	720	100	490	22	2 x 80 x 230	540	60	515	4	14	7.1
70 34 3.	228	138	460	150	200	22	130 x 180	250	100	225	4	14	4.6
70 36 3.	358	216	720	150	300	22	130 x 280	350	100	325	4	14	6.6
70 37 3.	465	276	920	150	390	22	2 x 130 x 180	440	100	415	4	14	8.5
70 38 3.	595	354	1180	150	490	22	2 x 130 x 230	540	100	515	4	14	10.6
70 46 3.	498	300	1000	200	300	22	180 x 280	350	150	325	4	14	8.8
70 47 3.	645	384	1280	200	390	22	2 x 180 x 180	440	150	415	4	14	11.3
70 48 3.	825	492	1640	200	490	22	2 x 180 x 230	540	150	515	4	14	14.0

Order details:
slide plate for bolting type 70 .. 3.

Slide plate type 70 .. ..-MB for vertical or overhead installation

Supplementary order details:
slide plate 70 .. ..-MB