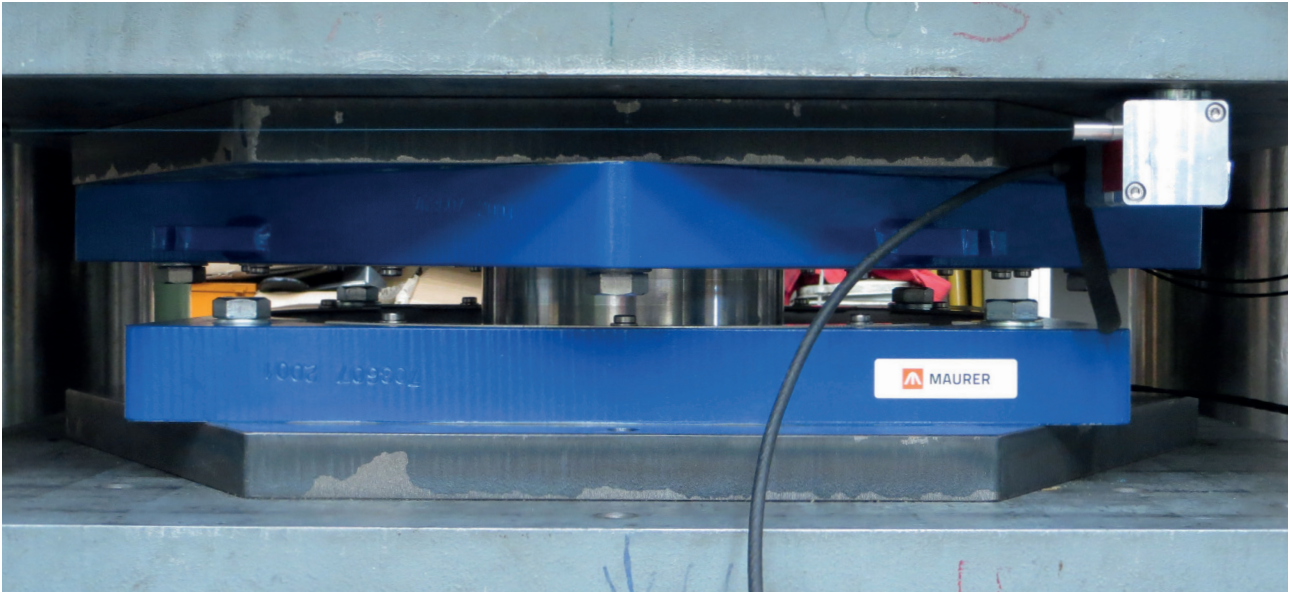


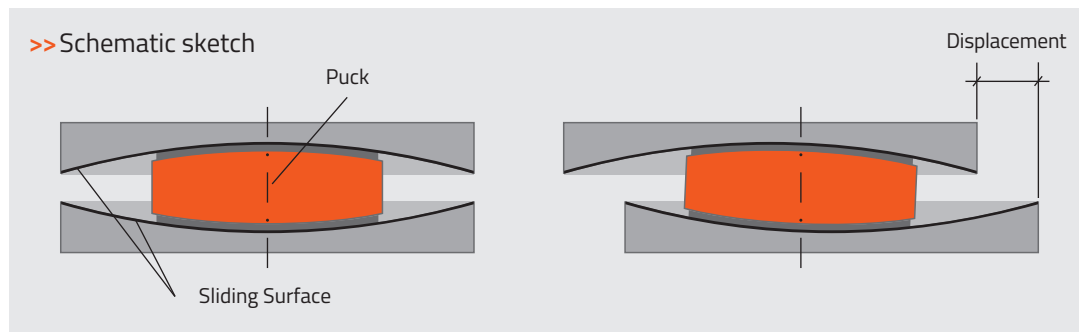
## MAURER Curved Surface Slider SIP®-D



**MAURER** Curved Surface Slider SIP®-D

## MAURER Curved Surface Slider SIP®-D ▲

The MAURER curved surface slider SIP®-D includes two primary sliding surfaces and a puck in between. The radii and the friction of the two curved sliding surfaces determine the decoupling and damping of the structure. The seismic isolator SIP®-D supports the weight of the superstructure and recentres the building according to the pendulum principle.



The design of the curved surface slider SIP®-D is based on the standards EN 1337-7 („Spherical and cylindrical PTFE bearings“) and EN 15129 („Anti-seismic devices“); if required, the proof calculations can be performed according to AASHTO and other standards as well. The sliding material MSM® and the sliding alloy MSA® are approved by ETA-06/0131.

The seismic isolators are designed based on the parameters resulting from the seismic analysis, i.e. the vertical load in the non-seismic design situation  $N_{sd}$ , the maximum vertical load in the seismic design situation  $N_{Ed,max}$ , dynamic coefficient of friction  $\mu$ , effective radius  $R_{eff}$  and design displacement  $d_{bd}$  resulting from the Design Basis Earthquake (DBE); according to EN 1998-2, the displacement capacity due to the Maximum Considered Earthquake (MCE) is  $\gamma_x \cdot d_{bd}$  with  $\gamma_x = 1.5$  for bridges and  $\gamma_x = 1.2$  for all other structures. Please note that these displacements do not account for temperature effects on the structure, shrinkage and creep of concrete. Furthermore, the isolator is designed to withstand the vertical overload of  $1.3 N_{sd,ULS}$  (EN 15129:2018).

The resulting maximum horizontal force  $F_h$  (base shear), effective period  $T_{eff}$ , effective stiffness  $k_{eff}$  and effective damping ratio  $\xi_{eff}$  are given in the subsequent tables for the regular range of the friction coefficient (3% and 5.5%) and effective radius for the DBE. The geometrical dimensions result from the displacement capacity of the isolator due to the MCE. The table data should be used for preliminary design purposes only.

The load transfer to the components (concrete) must be checked project-related.

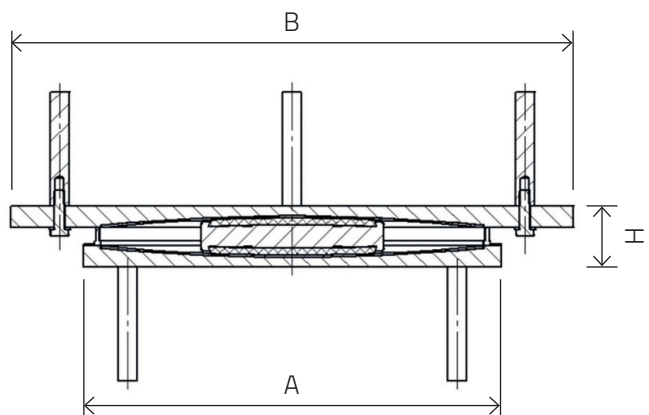
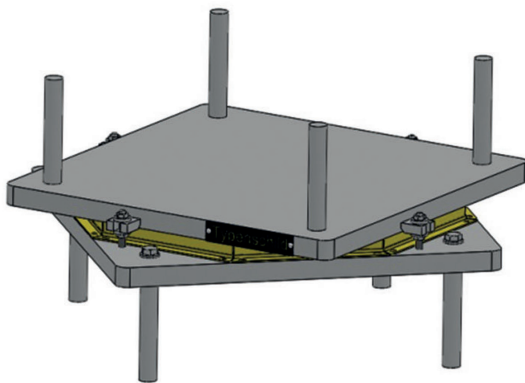
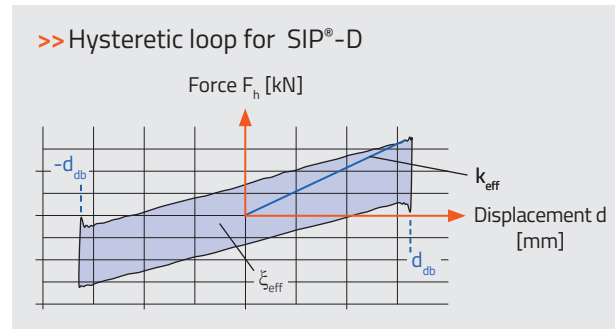
On request, MAURER will perform seismic analysis to optimize the isolation system. This is done by either the linear modal analysis or the non-linear time history analysis. For these computations, the following data are required:

- response spectra of the DBE and MCE
- locking wind load
- max. tolerated isolator shear force
- max. tolerated absolute structural acceleration, max. tolerated inter-story drift
- vertical loads on all isolators:  $N_{sd}$  and  $N_{Ed,max}$
- max. tolerated spatial dimensions of isolators

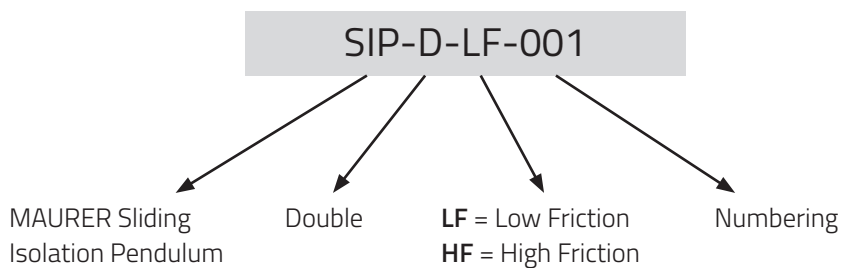
>> **LEGEND:** ▲ Building constructions  SIP®-D

## Nomenclature:

- $N_{sd}$  = maximum vertical load in non-seismic design situation
- $N_{Ed,max}$  = maximum vertical load in seismic design situation
- $d_{bd}$  = displacement capacity for earthquake
- $\mu$  = dynamic coefficient of friction
- $R_{eff}$  = effective radius
- $T_{eff}$  = effective period at  $d_{bd}$
- $F_h$  = horizontal force
- $k_{eff}$  = effective stiffness at  $d_{bd}$
- $\xi_{eff}$  = effective damping ratio at  $d_{bd}$
- $A$  = width of square bottom / top bearing plate
- $B$  = width across corner of square bottom / top bearing plate
- $H$  = minimum isolator height (puck in center position)



## Labelling:



## Relevant characteristics and dimensions of MAURER Curved Surface Sliders SIP®-D

>> Horizontal displacement  $d_{bd} = 150 \text{ mm}$

Dynamic coefficient of friction  $\mu$ : 3.0%, effective radius  $R_{eff}$ : 1.5 m

$N_{Sd}$	$N_{Ed, max}$	$T_{eff}$	$F_h$	$k_{eff}$	$\xi_{eff}$	A	B	H	Low Friction (LF)	Designation
[MN]	[MN]	[sec]	[kN]	[kN/m]	[%]	[mm]	[mm]	[mm]		
1.00	1.70	2.15	131	867	14.69	380	540	150		SIP-D-LF-001
2.50	4.75	2.15	327	2167	14.69	470	670	180		SIP-D-LF-002
4.00	7.80	2.15	523	3467	14.69	530	750	210		SIP-D-LF-003
6.25	12.20	2.15	818	5417	14.69	600	850	240		SIP-D-LF-004
8.50	17.00	2.15	1112	7367	14.69	670	950	270		SIP-D-LF-005
10.50	20.50	2.15	1373	9100	14.69	710	1010	300		SIP-D-LF-006

>> Horizontal displacement  $d_{bd} = 150 \text{ mm}$

Dynamic coefficient of friction  $\mu$ : 5.5%, effective radius  $R_{eff}$ : 1.5 m

$N_{Sd}$	$N_{Ed, max}$	$T_{eff}$	$F_h$	$k_{eff}$	$\xi_{eff}$	A	B	H	High Friction (HF)	Designation
[MN]	[MN]	[sec]	[kN]	[kN/m]	[%]	[mm]	[mm]	[mm]		
1.00	3.20	1.97	156	1033	22.59	430	610	160		SIP-D-HF-007
2.50	8.75	1.97	390	2583	22.59	550	780	210		SIP-D-HF-008
4.00	14.40	1.97	624	4133	22.59	630	900	250		SIP-D-HF-009
6.25	22.50	1.97	975	6458	22.59	730	1040	300		SIP-D-HF-010
8.50	29.30	1.97	1326	8783	22.59	810	1150	340		SIP-D-HF-011
10.50	36.20	1.97	1639	10850	22.59	870	1240	380		SIP-D-HF-012

>> Horizontal displacement  $d_{bd} = 150 \text{ mm}$

Dynamic coefficient of friction  $\mu$ : 3.0%, effective radius  $R_{eff}$ : 2.0 m

$N_{Sd}$	$N_{Ed, max}$	$T_{eff}$	$F_h$	$k_{eff}$	$\xi_{eff}$	A	B	H	Low Friction (LF)	Designation
[MN]	[MN]	[sec]	[kN]	[kN/m]	[%]	[mm]	[mm]	[mm]		
1.00	2.00	2.40	105	700	18.19	380	540	140		SIP-D-HF-013
2.50	5.50	2.40	263	1750	18.19	470	670	170		SIP-D-HF-014
4.00	9.40	2.40	422	2800	18.19	530	750	190		SIP-D-HF-015
6.25	14.40	2.40	659	4375	18.19	600	850	220		SIP-D-HF-016
8.50	20.00	2.40	896	5950	18.19	670	950	250		SIP-D-HF-017
10.50	24.15	2.40	1107	7350	18.19	710	1010	260		SIP-D-HF-018

>> Horizontal displacement  $d_{bd} = 150 \text{ mm}$

Dynamic coefficient of friction  $\mu$ : 5.5%, effective radius  $R_{eff}$ : 2.0 m

$N_{Sd}$	$N_{Ed, max}$	$T_{eff}$	$F_h$	$k_{eff}$	$\xi_{eff}$	A	B	H	High Friction (HF)	Designation
[MN]	[MN]	[sec]	[kN]	[kN/m]	[%]	[mm]	[mm]	[mm]		
1.00	3.95	2.15	131	867	26.93	430	610	160		SIP-D-HF-019
2.50	10.00	2.15	326	2167	26.93	540	770	200		SIP-D-HF-020
4.00	16.80	2.15	522	3467	26.93	630	900	220		SIP-D-HF-021
6.25	26.60	2.15	816	5417	26.93	730	1040	270		SIP-D-HF-022
8.50	35.30	2.15	1109	7367	26.93	810	1150	310		SIP-D-HF-023
10.50	42.00	2.15	1370	9100	26.93	870	1240	350		SIP-D-HF-024

## Relevant characteristics and dimensions of MAURER Curved Surface Sliders SIP®-D

>> Horizontal displacement  $d_{bd} = 150 \text{ mm}$

Dynamic coefficient of friction  $\mu$ : 3.0%, effective radius  $R_{eff}$ : 3.0 m

$N_{Sd}$	$N_{Ed, max}$	$T_{eff}$	$F_h$	$k_{eff}$	$\xi_{eff}$	A	B	H	Low Friction (LF)	Designation
[MN]	[MN]	[sec]	[kN]	[kN/m]	[%]	[mm]	[mm]	[mm]		
1.00	2.40	2.75	80	533	23.87	380	540	120	Low Friction (LF)	SIP-D-LF-025
2.50	6.50	2.75	200	1333	23.87	470	670	150		SIP-D-LF-026
4.00	10.80	2.75	321	2133	23.87	530	750	180		SIP-D-LF-027
6.25	16.90	2.75	501	3333	23.87	600	850	200		SIP-D-LF-028
8.50	23.80	2.75	681	4533	23.87	670	950	220		SIP-D-LF-029
10.50	28.35	2.75	841	5600	23.87	710	1010	240		SIP-D-LF-030

>> Horizontal displacement  $d_{bd} = 150 \text{ mm}$

Dynamic coefficient of friction  $\mu$ : 3.0%, effective radius  $R_{eff}$ : 4.0 m

$N_{Sd}$	$N_{Ed, max}$	$T_{eff}$	$F_h$	$k_{eff}$	$\xi_{eff}$	A	B	H	Low Friction (LF)	Designation
[MN]	[MN]	[sec]	[kN]	[kN/m]	[%]	[mm]	[mm]	[mm]		
1.00	2.60	2.99	68	450	28.29	380	540	130	Low Friction (LF)	SIP-D-LF-031
2.50	6.90	2.99	169	1125	28.29	470	670	150		SIP-D-LF-032
4.00	11.60	2.99	270	1800	28.29	530	750	170		SIP-D-LF-033
6.25	18.10	2.99	422	2813	28.29	600	850	190		SIP-D-LF-034
8.50	25.10	2.99	574	3825	28.29	670	950	210		SIP-D-LF-035
10.50	31.00	2.99	709	4725	28.29	710	1010	230		SIP-D-LF-036

## Relevant characteristics and dimensions of MAURER Curved Surface Sliders SIP®-D

>> Horizontal displacement  $d_{bd} = 300 \text{ mm}$

Dynamic coefficient of friction  $\mu$ : 5.5%, effective radius  $R_{eff}$ : 2.0 m

$N_{Sd}$	$N_{Ed, max}$	$T_{eff}$	$F_h$	$k_{eff}$	$\xi_{eff}$	A	B	H	High Friction (HF)	Designation
[MN]	[MN]	[sec]	[kN]	[kN/m]	[%]	[mm]	[mm]	[mm]		
1.00	2.15	2,43	208	683	17.08	610	870	200		SIP-D-HF-101
2.50	6.40	2,43	520	1708	17.08	720	1020	230		SIP-D-HF-102
4.00	10.60	2,43	832	2733	17.08	810	1150	270		SIP-D-HF-103
6.25	17.50	2,43	1300	4271	17.08	910	1290	320		SIP-D-HF-104
8.50	22.50	2,43	1768	5808	17.08	990	1410	370		SIP-D-HF-105
10.50	27.80	2,43	2184	7175	17.08	1050	1490	400		SIP-D-HF-106

>> Horizontal displacement  $d_{bd} = 300 \text{ mm}$

Dynamic coefficient of friction  $\mu$ : 3.0%, effective radius  $R_{eff}$ : 3.0 m

$N_{Sd}$	$N_{Ed, max}$	$T_{eff}$	$F_h$	$k_{eff}$	$\xi_{eff}$	A	B	H	Low Friction (LF)	Designation
[MN]	[MN]	[sec]	[kN]	[kN/m]	[%]	[mm]	[mm]	[mm]		
1.00	1.60	3.05	131	433	14.69	560	800	160		SIP-D-LF-107
2.50	4.60	3.05	327	1083	14.69	650	920	180		SIP-D-LF-108
4.00	7.80	3.05	523	1733	14.69	710	1010	210		SIP-D-LF-109
6.25	12.50	3.05	818	2708	14.69	780	1110	230		SIP-D-LF-110
8.50	17.40	3.05	1112	3683	14.69	850	1210	250		SIP-D-LF-111
10.50	21.50	3.05	1373	4550	14.69	890	1260	270		SIP-D-LF-112

>> Horizontal displacement  $d_{bd} = 300 \text{ mm}$

Dynamic coefficient of friction  $\mu$ : 5.5%, effective radius  $R_{eff}$ : 3.0 m

$N_{Sd}$	$N_{Ed, max}$	$T_{eff}$	$F_h$	$k_{eff}$	$\xi_{eff}$	A	B	H	High Friction (HF)	Designation
[MN]	[MN]	[sec]	[kN]	[kN/m]	[%]	[mm]	[mm]	[mm]		
1.00	3.15	2.79	156	517	22.59	610	870	170		SIP-D-HF-113
2.50	9.00	2.79	390	1292	22.59	720	1020	210		SIP-D-HF-114
4.00	14.80	2.79	624	2067	22.59	810	1150	240		SIP-D-HF-115
6.25	23.75	2.79	975	3229	22.59	910	1290	270		SIP-D-HF-116
8.50	31.90	2.79	1326	4392	22.59	990	1410	310		SIP-D-HF-117
10.50	39.40	2.79	1639	5425	22.59	1050	1490	340		SIP-D-HF-118

>> Horizontal displacement  $d_{bd} = 300 \text{ mm}$

Dynamic coefficient of friction  $\mu$ : 3.0%, effective radius  $R_{eff}$ : 4.0 m

$N_{Sd}$	$N_{Ed, max}$	$T_{eff}$	$F_h$	$k_{eff}$	$\xi_{eff}$	A	B	H	Low Friction (LF)	Designation
[MN]	[MN]	[sec]	[kN]	[kN/m]	[%]	[mm]	[mm]	[mm]		
1.00	2.00	3.39	105	350	18.19	560	800	150		SIP-D-LF-119
2.50	5.50	3.39	263	875	18.19	650	920	170		SIP-D-LF-120
4.00	9.40	3.39	422	1400	18.19	710	1010	190		SIP-D-LF-121
6.25	14.70	3.39	659	2188	18.19	780	1110	210		SIP-D-LF-122
8.50	20.40	3.39	896	2975	18.19	850	1210	230		SIP-D-LF-123
10.50	25.20	3.39	1107	3675	18.19	890	1260	250		SIP-D-LF-124

## Relevant characteristics and dimensions of MAURER Curved Surface Sliders SIP®-D

>> Horizontal displacement  $d_{bd} = 300 \text{ mm}$

Dynamic coefficient of friction  $\mu$ : 5.5%, effective radius  $R_{eff}$ : 4.0 m

$N_{sd}$	$N_{Ed, max}$	$T_{eff}$	$F_h$	$k_{eff}$	$\xi_{eff}$	A	B	H	High Friction (HF)	Designation
[MN]	[MN]	[sec]	[kN]	[kN/m]	[%]	[mm]	[mm]	[mm]		
1.00	3.80	3.05	131	433	26.93	610	870	160	High Friction (HF)	SIP-D-HF-125
2.50	10.60	3.05	326	1083	26.93	720	1020	190		SIP-D-HF-126
4.00	17.40	3.05	522	1733	26.93	810	1150	220		SIP-D-HF-127
6.25	27.50	3.05	816	2708	26.93	910	1290	260		SIP-D-HF-128
8.50	37.40	3.05	1109	3683	26.93	990	1410	290		SIP-D-HF-129
10.50	46.20	3.05	1370	4550	26.93	1050	1490	320		SIP-D-HF-130

>> Horizontal displacement  $d_{bd} = 300 \text{ mm}$

Dynamic coefficient of friction  $\mu$ : 3.0%, effective radius  $R_{eff}$ : 5.0 m

$N_{sd}$	$N_{Ed, max}$	$T_{eff}$	$F_h$	$k_{eff}$	$\xi_{eff}$	A	B	H	Low Friction (LF)	Designation
[MN]	[MN]	[sec]	[kN]	[kN/m]	[%]	[mm]	[mm]	[mm]		
1.00	2.20	3.66	90	300	21.22	560	800	140	Low Friction (LF)	SIP-D-LF-131
2.50	6.10	3.66	226	750	21.22	650	920	160		SIP-D-LF-132
4.00	10.40	3.66	361	1200	21.22	710	1010	180		SIP-D-LF-133
6.25	16.25	3.66	564	1875	21.22	780	1110	200		SIP-D-LF-134
8.50	22.50	3.66	767	2550	21.22	850	1210	220		SIP-D-LF-135
10.50	27.80	3.66	947	3150	21.22	890	1260	240		SIP-D-LF-136

>> Horizontal displacement  $d_{bd} = 300 \text{ mm}$

Dynamic coefficient of friction  $\mu$ : 5.5%, effective radius  $R_{eff}$ : 5.0 m

$N_{sd}$	$N_{Ed, max}$	$T_{eff}$	$F_h$	$k_{eff}$	$\xi_{eff}$	A	B	H	High Friction (HF)	Designation
[MN]	[MN]	[sec]	[kN]	[kN/m]	[%]	[mm]	[mm]	[mm]		
1.00	4.30	3.24	115	383	30.45	610	870	150	High Friction (HF)	SIP-D-HF-137
2.50	11.60	3.24	288	958	30.45	720	1020	190		SIP-D-HF-138
4.00	18.80	3.24	461	1533	30.45	810	1150	210		SIP-D-HF-139
6.25	30.00	3.24	721	2396	30.45	910	1290	250		SIP-D-HF-140
8.50	40.80	3.24	980	3258	30.45	990	1410	280		SIP-D-HF-141
10.50	50.40	3.24	1211	4025	30.45	1050	1490	310		SIP-D-HF-142

## Relevant characteristics and dimensions of MAURER Curved Surface Sliders SIP®-D

>> Horizontal displacement  $d_{bd} = 400 \text{ mm}$

Dynamic coefficient of friction  $\mu$ : 5.5%, effective radius  $R_{eff}$ : 2.0 m

$N_{Sd}$	$N_{Ed, max}$	$T_{eff}$	$F_h$	$k_{eff}$	$\xi_{eff}$	A	B	H	High Friction (HF)	Designation
[MN]	[MN]	[sec]	[kN]	[kN/m]	[%]	[mm]	[mm]	[mm]		
1.00	1.50	2.51	261	638	13.73	730	1040	210		SIP-D-HF-201
2.50	4.40	2.51	653	1594	13.73	840	1190	270		SIP-D-HF-202
4.00	7.60	2.51	1045	2550	13.73	930	1320	310		SIP-D-HF-203
6.25	12.20	2.51	1634	3984	13.73	1030	1460	360		SIP-D-HF-204
8.50	16.60	2.51	2222	5419	13.73	1110	1570	410		SIP-D-HF-205
10.50	21.00	2.51	2744	6694	13.73	1170	1660	450		SIP-D-HF-206

>> Horizontal displacement  $d_{bd} = 400 \text{ mm}$

Dynamic coefficient of friction  $\mu$ : 5.5%, effective radius  $R_{eff}$ : 3.0 m

$N_{Sd}$	$N_{Ed, max}$	$T_{eff}$	$F_h$	$k_{eff}$	$\xi_{eff}$	A	B	H	High Friction (HF)	Designation
[MN]	[MN]	[sec]	[kN]	[kN/m]	[%]	[mm]	[mm]	[mm]		
1.00	2.35	2.92	191	471	18.59	730	1040	190		SIP-D-HF-207
2.50	7.00	2.92	476	1177	18.59	840	1190	220		SIP-D-HF-208
4.00	11.80	2.92	762	1883	18.59	930	1320	260		SIP-D-HF-209
6.25	18.75	2.92	1191	2943	18.59	1030	1460	300		SIP-D-HF-210
8.50	25.50	2.92	1619	4002	18.59	1110	1570	340		SIP-D-HF-211
10.50	32.00	2.92	2000	4944	18.59	1170	1660	370		SIP-D-HF-212

>> Horizontal displacement  $d_{bd} = 400 \text{ mm}$

Dynamic coefficient of friction  $\mu$ : 3.0%, effective radius  $R_{eff}$ : 4.0 m

$N_{Sd}$	$N_{Ed, max}$	$T_{eff}$	$F_h$	$k_{eff}$	$\xi_{eff}$	A	B	H	Low Friction (LF)	Designation
[MN]	[MN]	[sec]	[kN]	[kN/m]	[%]	[mm]	[mm]	[mm]		
1.00	1.60	3.52	131	325	14.69	680	970	160		SIP-D-LF-213
2.50	4.50	3.52	327	813	14.69	770	1090	180		SIP-D-LF-214
4.00	7.80	3.52	523	1300	14.69	830	1180	200		SIP-D-LF-215
6.25	12.50	3.52	818	2031	14.69	900	1280	230		SIP-D-LF-216
8.50	17.40	3.52	1112	2763	14.69	970	1380	250		SIP-D-LF-217
10.50	21.50	3.52	1373	3413	14.69	1010	1430	270		SIP-D-LF-218

>> Horizontal displacement  $d_{bd} = 400 \text{ mm}$

Dynamic coefficient of friction  $\mu$ : 5.5%, effective radius  $R_{eff}$ : 4.0 m

$N_{Sd}$	$N_{Ed, max}$	$T_{eff}$	$F_h$	$k_{eff}$	$\xi_{eff}$	A	B	H	High Friction (HF)	Designation
[MN]	[MN]	[sec]	[kN]	[kN/m]	[%]	[mm]	[mm]	[mm]		
1.00	3.00	3.22	156	388	22.59	730	1040	170		SIP-D-HF-219
2.50	8.75	3.22	390	969	22.59	840	1190	210		SIP-D-HF-220
4.00	14.80	3.22	624	1550	22.59	930	1320	240		SIP-D-HF-221
6.25	23.40	3.22	975	2422	22.59	1030	1460	280		SIP-D-HF-222
8.50	31.90	3.22	1326	3294	22.59	1110	1570	310		SIP-D-HF-223
10.50	39.90	3.22	1639	4069	22.59	1170	1660	330		SIP-D-HF-224



## Relevant characteristics and dimensions of MAURER Curved Surface Sliders SIP®-D

>> Horizontal displacement  $d_{bd} = 400 \text{ mm}$

Dynamic coefficient of friction  $\mu$ : 3.0%, effective radius  $R_{eff}$ : 5.0 m

$N_{Sd}$	$N_{Ed, max}$	$T_{eff}$	$F_h$	$k_{eff}$	$\xi_{eff}$	A	B	H	Low Friction (LF)	Designation
[MN]	[MN]	[sec]	[kN]	[kN/m]	[%]	[mm]	[mm]	[mm]		
1.00	1.80	3.83	110	275	17.36	680	970	150		SIP-D-LF-225
2.50	5.10	3.83	276	688	17.36	770	1090	180		SIP-D-LF-226
4.00	9.00	3.83	442	1100	17.36	830	1180	190		SIP-D-LF-227
6.25	14.10	3.83	690	1719	17.36	900	1280	210		SIP-D-LF-228
8.50	20.00	3.83	939	2338	17.36	970	1380	230		SIP-D-LF-229
10.50	24.70	3.83	1160	2888	17.36	1010	1430	260		SIP-D-LF-230

>> Horizontal displacement  $d_{bd} = 400 \text{ mm}$

Dynamic coefficient of friction  $\mu$ : 5.5%, effective radius  $R_{eff}$ : 5.0 m

$N_{Sd}$	$N_{Ed, max}$	$T_{eff}$	$F_h$	$k_{eff}$	$\xi_{eff}$	A	B	H	High Friction (HF)	Designation
[MN]	[MN]	[sec]	[kN]	[kN/m]	[%]	[mm]	[mm]	[mm]		
1.00	3.50	3.45	136	338	25.94	730	1040	160		SIP-D-HF-231
2.50	10.00	3.45	339	844	25.94	840	1190	190		SIP-D-HF-232
4.00	16.80	3.45	542	1350	25.94	930	1320	230		SIP-D-HF-233
6.25	26.60	3.45	848	2109	25.94	1030	1460	260		SIP-D-HF-234
8.50	36.55	3.45	1153	2869	25.94	1110	1570	290		SIP-D-HF-235
10.50	45.70	3.45	1424	3544	25.94	1170	1660	320		SIP-D-HF-236

## Relevant characteristics and dimensions of MAURER Curved Surface Sliders SIP®-D

>> Horizontal displacement  $d_{bd} = 500 \text{ mm}$

Dynamic coefficient of friction  $\mu$ : 5.5%, effective radius  $R_{eff}$ : 3.0 m

$N_{Sd}$	$N_{Ed, max}$	$T_{eff}$	$F_h$	$k_{eff}$	$\xi_{eff}$	A	B	H	High Friction (HF)	Designation
[MN]	[MN]	[sec]	[kN]	[kN/m]	[%]	[mm]	[mm]	[mm]		
1.00	1.75	3.01	226	443	15.80	850	1210	220		SIP-D-HF-301
2.50	5.40	3.01	562	1108	15.80	960	1360	260		SIP-D-HF-302
4.00	9.40	3.01	902	1773	15.80	1050	1490	290		SIP-D-HF-303
6.25	15.00	3.01	1410	2771	15.80	1150	1630	330		SIP-D-HF-304
8.50	20.40	3.01	1916	3768	15.80	1220	1730	370		SIP-D-HF-305
10.50	25.20	3.01	2369	4655	15.80	1290	1830	400		SIP-D-HF-306

>> Horizontal displacement  $d_{bd} = 500 \text{ mm}$

Dynamic coefficient of friction  $\mu$ : 3.0%, effective radius  $R_{eff}$ : 4.0 m

$N_{Sd}$	$N_{Ed, max}$	$T_{eff}$	$F_h$	$k_{eff}$	$\xi_{eff}$	A	B	H	Low Friction (LF)	Designation
[MN]	[MN]	[sec]	[kN]	[kN/m]	[%]	[mm]	[mm]	[mm]		
2.50	3.90	3.60	391	775	12.32	890	1260	200		SIP-D-LF-307
4.00	6.40	3.60	626	1240	12.32	950	1350	230		SIP-D-LF-308
6.25	10.30	3.60	978	1938	12.32	1020	1450	250		SIP-D-LF-309
8.50	14.45	3.60	1330	2635	12.32	1080	1530	270		SIP-D-LF-310
10.50	17.85	3.60	1643	3255	12.32	1130	1600	290		SIP-D-LF-311

>> Horizontal displacement  $d_{bd} = 500 \text{ mm}$

Dynamic coefficient of friction  $\mu$ : 5.5%, effective radius  $R_{eff}$ : 4.0 m

$N_{Sd}$	$N_{Ed, max}$	$T_{eff}$	$F_h$	$k_{eff}$	$\xi_{eff}$	A	B	H	High Friction (HF)	Designation
[MN]	[MN]	[sec]	[kN]	[kN/m]	[%]	[mm]	[mm]	[mm]		
1.00	2.40	3.34	182	360	19.45	850	1210	190		SIP-D-HF-312
2.50	7.00	3.34	455	900	19.45	960	1360	220		SIP-D-HF-313
4.00	12.40	3.34	728	1440	19.45	1050	1490	260		SIP-D-HF-314
6.25	19.40	3.34	1137	2250	19.45	1150	1630	290		SIP-D-HF-315
8.50	27.20	3.34	1546	3060	19.45	1230	1740	330		SIP-D-HF-316
10.50	33.60	3.34	1909	3780	19.45	1290	1830	360		SIP-D-HF-317

>> Horizontal displacement  $d_{bd} = 500 \text{ mm}$

Dynamic coefficient of friction  $\mu$ : 3.0%, effective radius  $R_{eff}$ : 5.0 m

$N_{Sd}$	$N_{Ed, max}$	$T_{eff}$	$F_h$	$k_{eff}$	$\xi_{eff}$	A	B	H	Low Friction (LF)	Designation
[MN]	[MN]	[sec]	[kN]	[kN/m]	[%]	[mm]	[mm]	[mm]		
1.00	1.45	3.93	131	260	14.69	800	1140	170		SIP-D-LF-318
2.50	4.25	3.93	327	650	14.69	890	1260	190		SIP-D-LF-319
4.00	7.60	3.93	526	1040	14.69	950	1350	210		SIP-D-LF-320
6.25	12.20	3.93	815	1625	14.69	1020	1450	240		SIP-D-LF-321
8.50	17.40	3.93	1112	2210	14.69	1090	1550	250		SIP-D-LF-322
10.50	21.50	3.93	1372	2730	14.69	1130	1600	270		SIP-D-LF-323

## Relevant characteristics and dimensions of MAURER Curved Surface Sliders SIP®-D

>> Horizontal displacement  $d_{bd} = 500 \text{ mm}$

Dynamic coefficient of friction  $\mu$ : 5.5%, effective radius  $R_{eff}$ : 5.0 m

$N_{Sd}$	$N_{Ed, max}$	$T_{eff}$	$F_h$	$k_{eff}$	$\xi_{eff}$	A	B	H	High Friction (HF)	Designation
[MN]	[MN]	[sec]	[kN]	[kN/m]	[%]	[mm]	[mm]	[mm]		
1.00	2.95	3.60	166	310	22.59	850	1210	180		
2.50	8.50	3.60	390	775	22.59	960	1360	210		
4.00	14.40	3.60	624	1240	22.59	1050	1490	240		
6.25	23.10	3.60	975	1938	22.59	1150	1630	280		
8.50	31.90	3.60	1326	2635	22.59	1230	1740	320		
10.50	39.90	3.60	1639	3255	22.59	1290	1830	340		