Rubber Design

vibration and noise control

Steel Spring Isolators





Rubber Design
vibration and noise control

DOCUMENTATION SHEET

Steel Spring Isolator

STEEL SPRING ISOLATOR

General

Standard isolators - Circular spring isolators type CR, CS, CM, CT and CX are available for a load range up to 12.45 kN at 25 mm deflection and up to 10.25 kN at 50 mm deflection. The helical spring isolators are enclosed in aluminum castings, the top interlocking with the base. A built-in leveling device is adjustable by the supplied top fixing screw. A molded neoprene O-ring prevents metal to metal contact of the casting and forms a seal against the weather and contaminants. For offshore applications we recommend the use of Admirality Gun Metal castings, which are available for different types of isolators

Medium and heavy duty spring isolators - Isolators types MDL, HDL, HDT and HD (V) are available for a load range up to 404.5 kN and static deflections up to 76 mm. This enables the efficient support of very large machinery and/or a very high degree of isolation. The spring isolators are designed in top grade wire to low stress levels and produced by the hot deformation and annealing method.The finish is by means of protective coatings compatible with the working environment, ensuring a trouble-free service life. The housings formed by channels allow for pre-loading of the isolators up to the working load and are available in a tall (T) and low (L) version. The HD (V) isolators support an integrated damper unit for reduction of amplitudes in transient conditions. The other types of isolators can be equipped with separate viscous damper unit type DV 1, 2 and 3 to match the damping requirements. Our specialists will be happy to supply you with the selection.

Applications (standard isolators)

- Generator sets
- Emergency power supplies
- DC-AC converters
- Industrial fans
- Air-handling units
- Pumps
- Air-conditioning machines
- Compressor packages
- Electrical equipment
- Refrigerators
- Cooler units

Applications (medium and heavy duty isolators)

- Generator sets
- Heavy industrial machinery
- Large generator sets
- Roller mills and mixers
- Complete power plants
- Boilers

Isolator selection

The described isolator selection is based on the vertical load of the isolators, if required seismic and 6 DOF calculations can be performed by our specialists.

1. Determine the total weight of the machine to be isolated, including work load
2. Determine the position of the combined centre of gravity in horizontal and vertical planes
3. Decide the number of isolators and the positions where the isolators are to be placed relative to the combined centre of gravity
4. Calculate the load per isolator
5. Select with the help of the preferential load in the table the suitable type of mounting

We recommend selection of the isolators be made with the load per isolator within + or - 10% of the preferential load. The static deflection of the isolator is calculated by dividing the load per isolator by the stiffness Cz given in the table for the selected isolator.

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STEEL SPRING ISOLATOR

Types

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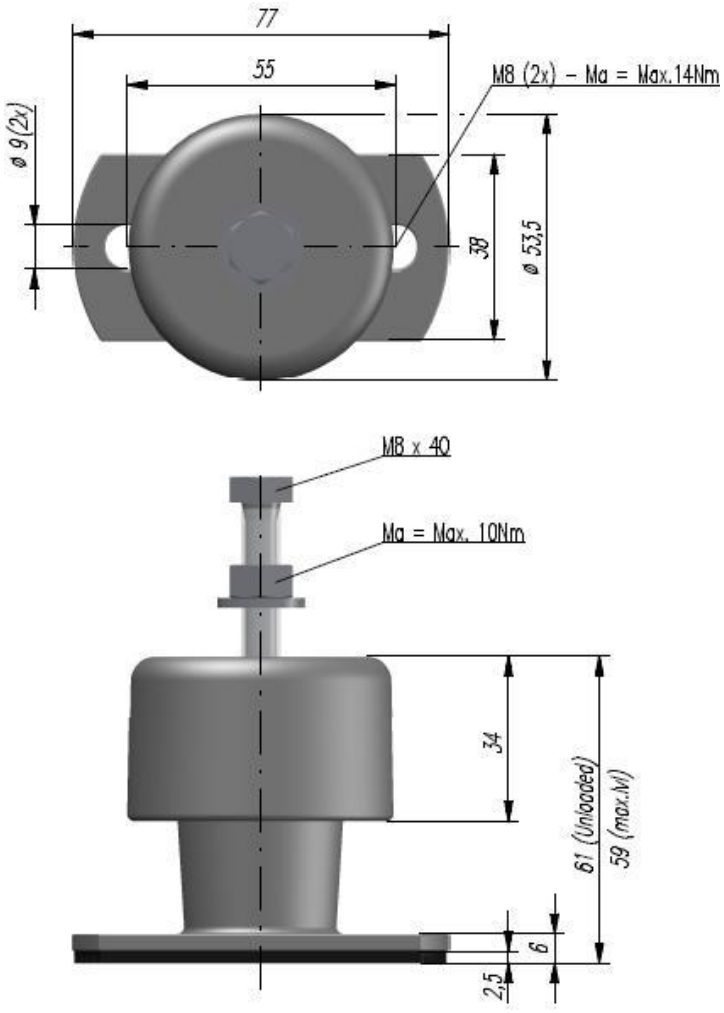
Steel Spring Isolator
Type CR

CR

Type	Cz [N/mm]	Cx, y [N/mm] at preferential load	Fz max [N]	Fz preferential [N]
CR11	1,75	0,7	44	39
CR20	3,50	1,0	89	77
CR30	5,10	2,1	130	113
CR40	7,00	2,6	178	155
CR50	9,00	3,2	227	197
CR60	11,60	4,7	294	255
CR75	13,50	4,2	343	297

CHARACTERISTICS



DIMENSIONS

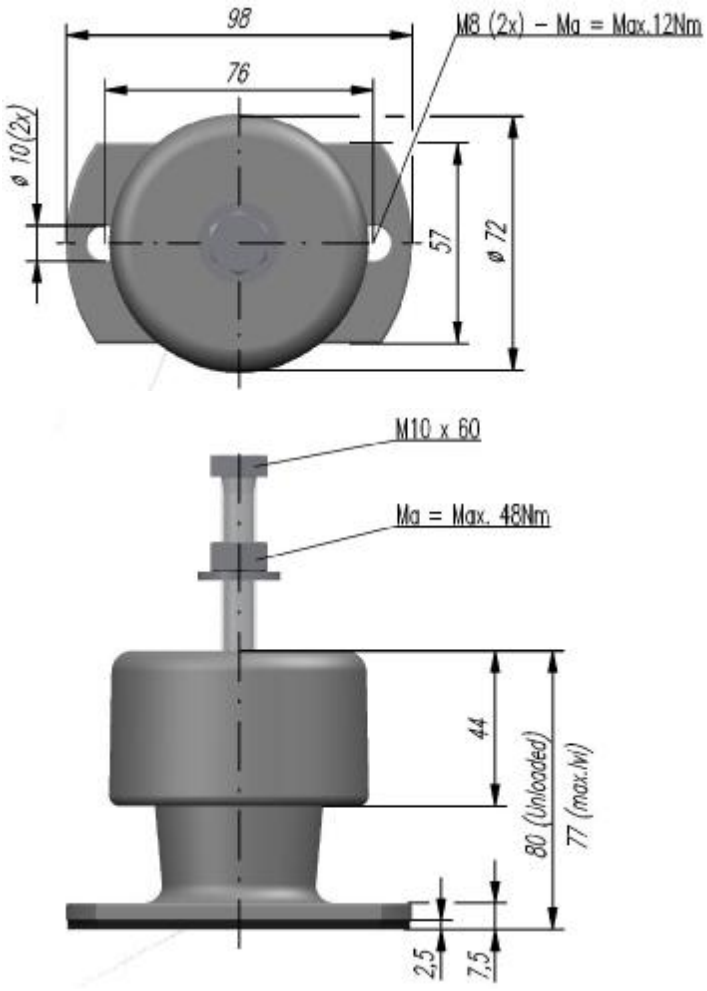
DOCUMENTATION SHEET

Steel Spring Isolator
Type CS

CS

Type	Cz [N/mm]	Cx, y [N/mm] at preferential load	Fz max [N]	Fz preferential [N]
CS35	6,1	2,4	156	136
CS60	10,8	4,2	274	238
CS100	18,3	6,8	464	402
CS150	26,0	9,3	658	570
CS200	35,0	12,1	889	770
CS250	43,8	14,5	1112	963
CS300	52,5	16,4	1333	1156
CS365	63,8	18,3	1620	1404

CHARACTERISTICS



DIMENSIONS

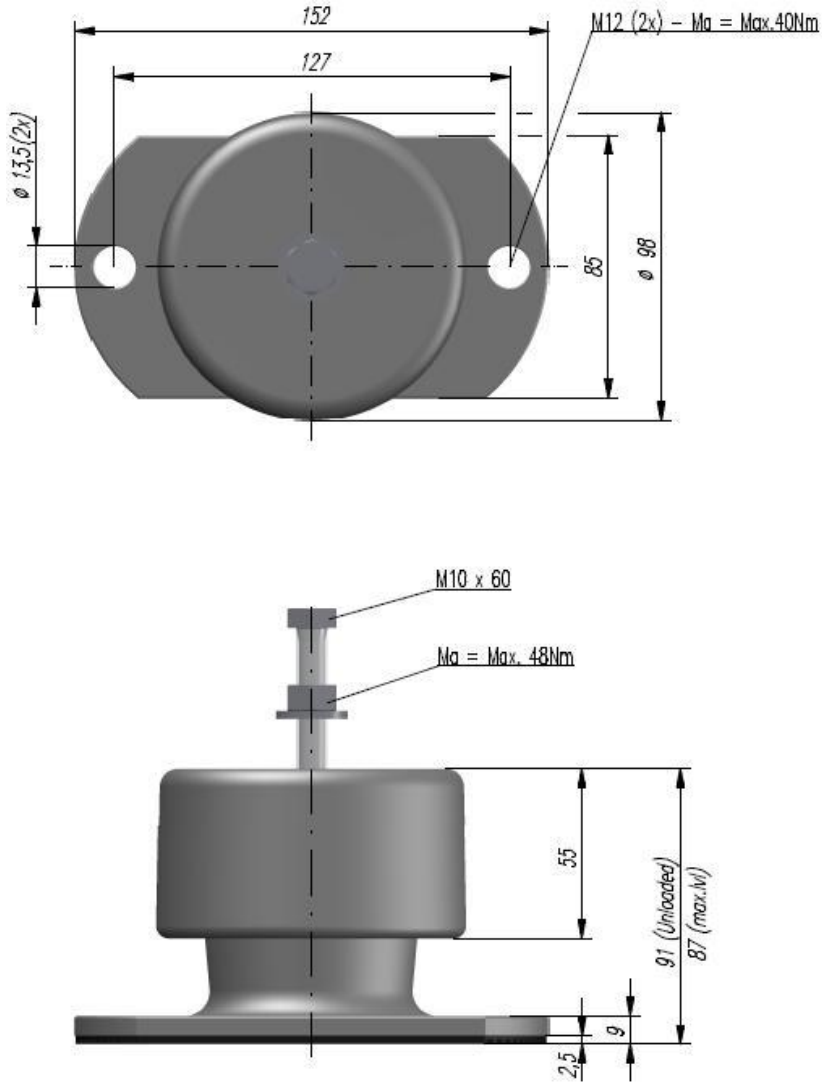
DOCUMENTATION SHEET

Steel Spring Isolator
Type CM

CM

Type	Cz [N/mm]	Cx, y [N/mm] at preferential load	Fz max [N]	Fz preferential [N]
CM250	43,8	37,4	1112	963
CM300	52,6	44,4	1334	1155
CM350	61,3	58,3	1557	1348
CM400	70,1	61,7	1780	1541
CM450	79,6	65,1	2021	1750
CM550	96,3	79,2	2447	2119
CM650	114,6	103,1	2911	2521
CM750	131,4	118,9	3336	2890
CM900	157,4	128,2	3994	3460

CHARACTERISTICS



DIMENSIONS

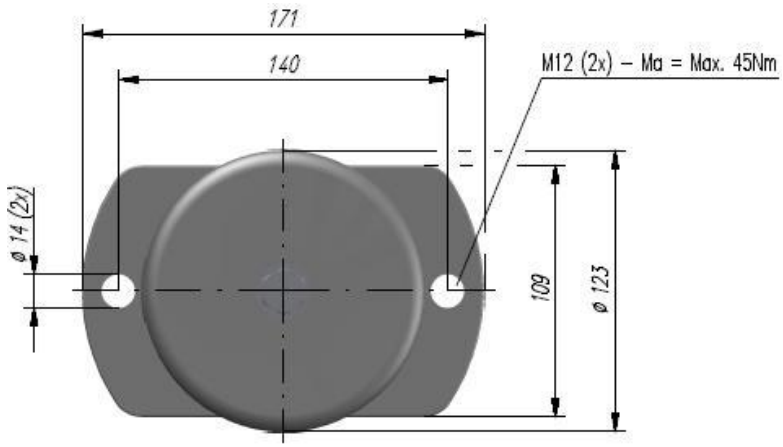
DOCUMENTATION SHEET

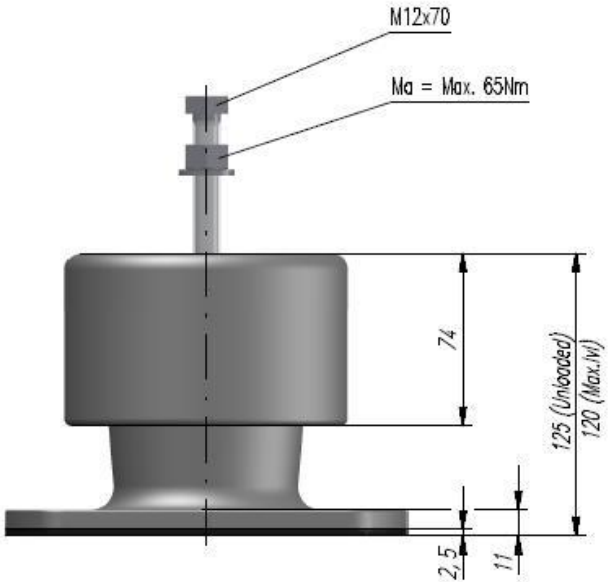
Steel Spring Isolator
Type CT

CT

Type	Cz [N/mm]	Cx, y [N/mm] at preferential load	Fz max [N]	Fz preferential [N]
CT300	52,5	40,5	1334	1156
CT400	70,1	53,6	1779	1541
CT500	87,6	65,5	2224	1926
CT650	113,8	62,4	2891	2504
CT750	131,4	92,0	3336	2890
CT900	157,6	108,8	4003	3467
CT1000	175,6	119,4	4453	3857
CT1150	201,4	137,2	5116	4431
CT1250	219,2	139,0	5567	4822
CT1320	231,2	141,1	5872	5086
CT1400	252,2	145,7	6406	5548
CT1500	271,4	147,3	6895	5972

CHARACTERISTICS





DIMENSIONS

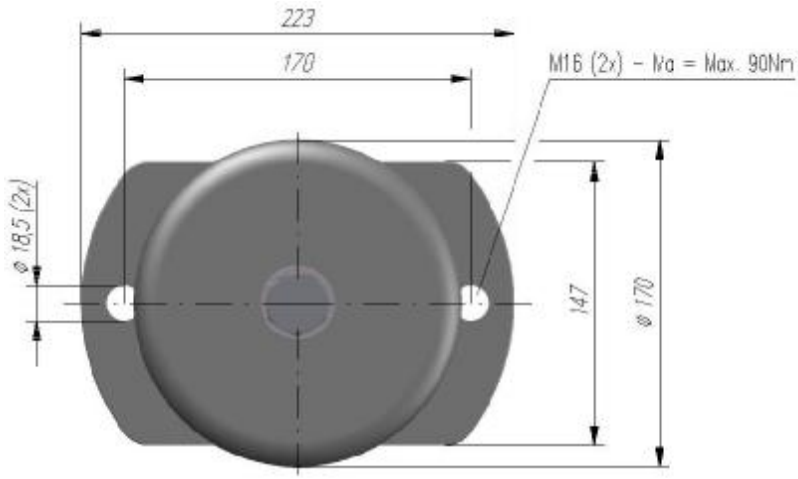
DOCUMENTATION SHEET

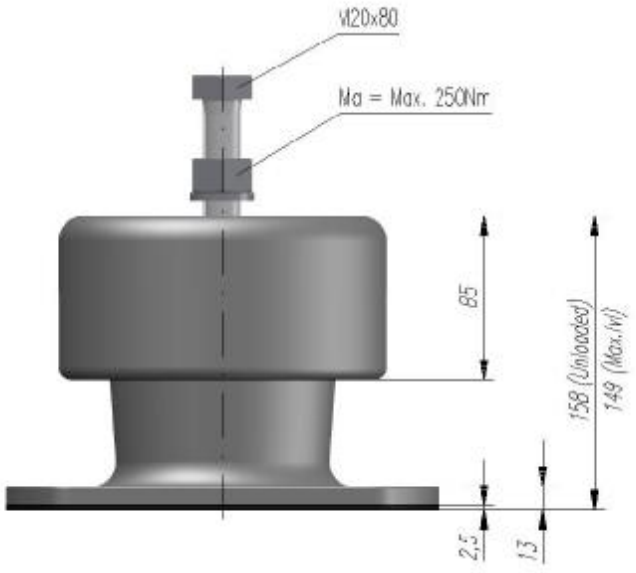
Steel Spring Isolator
Type CX

CX

Type	Cz [N/mm]	Cx, y [N/mm] at preferential load	Fz max [N]	Fz preferential [N]
CX800	140,1	90,5	3559	3082
CX1000	175,1	101,8	4449	3853
CX1200	210,1	106,9	5339	4623
CX1400	245,1	118,2	6229	5394
CX1600	280,2	190,7	7117	6164
CX1800	315,2	195,0	8007	6935
CX2000	350,2	205,3	8696	7705
CX2200	385,2	209,6	9786	8476
CX2400	420,2	211,3	10676	9247
CX2600	455,3	326,6	11565	10017
CX2800	490,0	328,3	12454	10788

CHARACTERISTICS





DIMENSIONS

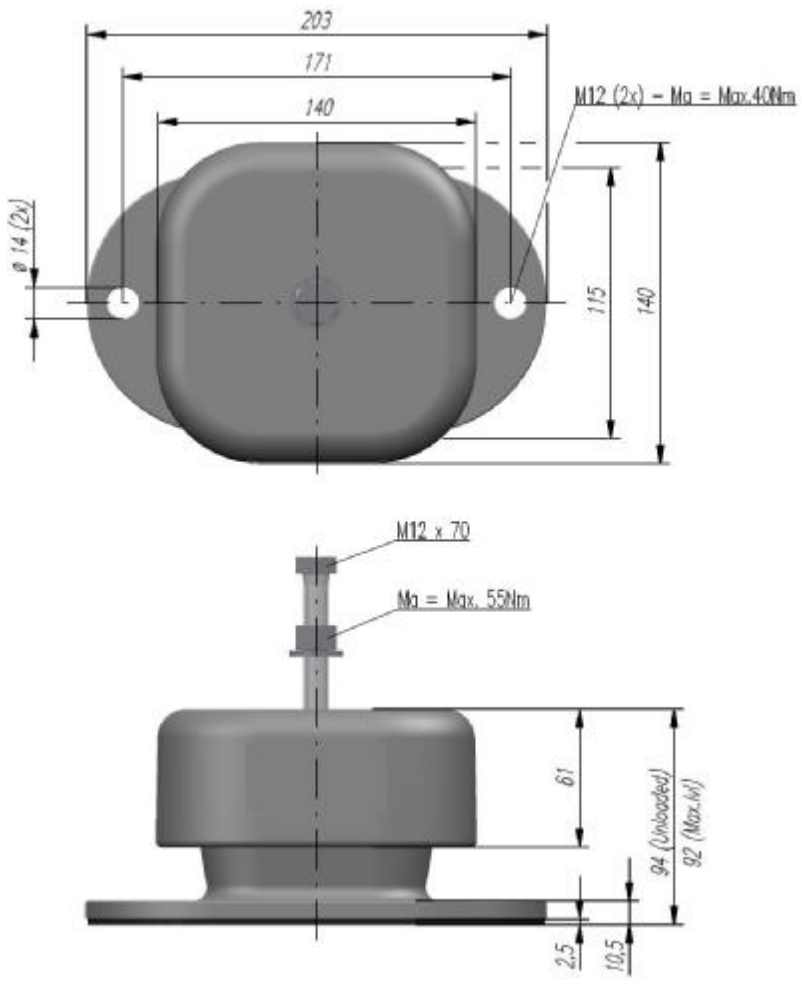
DOCUMENTATION SHEET

Steel Spring Isolator
Type MS

MS

Type	Cz [N/mm]	Cx, y [N/mm] at preferential load	Fz max [N]	Fz preferential [N]
MS500	91,5	34,0	2320	2010
MS600	115,6	41,9	2926	2535
MS750	130,0	46,5	3290	2850
MS860	151,6	53,1	3850	3335
MS1000	175,0	60,5	4445	3850
MS1250	219,0	72,5	5560	4815
MS1400	245,0	77,7	6221	5394
MS1500	262,5	82,0	6665	5780
MS1600	285,7	91,4	7253	6290
MS1750	308,9	100,8	7841	6800

CHARACTERISTICS



DIMENSIONS

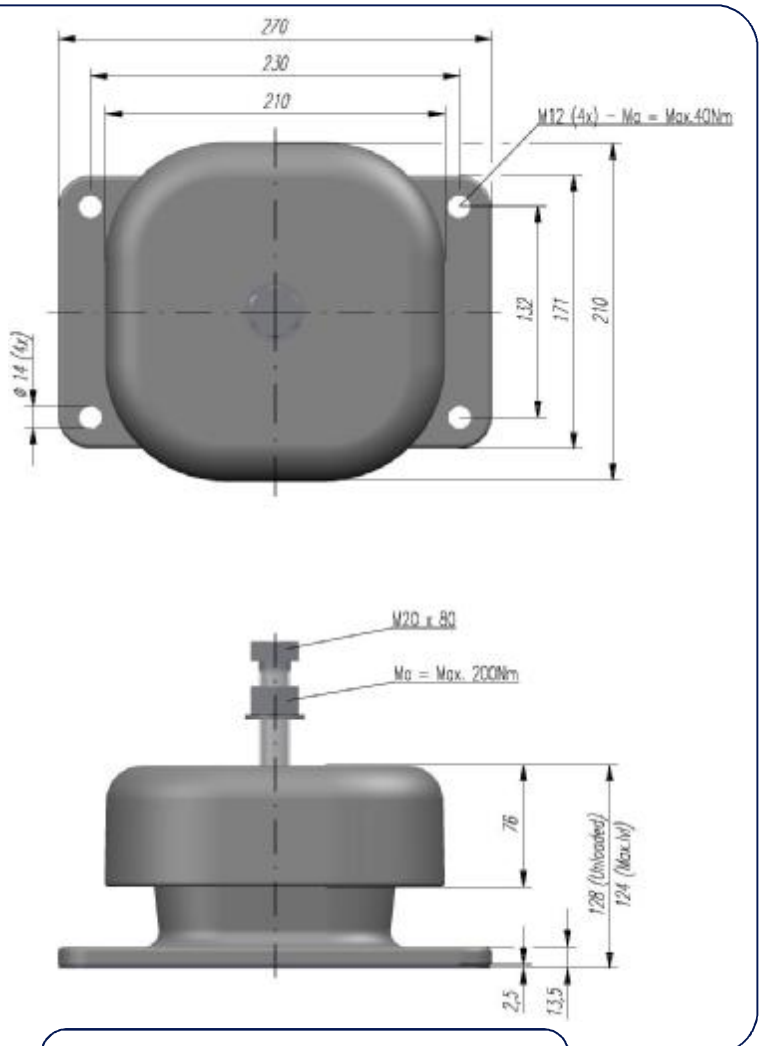
DOCUMENTATION SHEET

Steel Spring Isolator
Type LS

LS

Type	Cz [N/mm]	Cx, y [N/mm] at preferential load	Fz max [N]	Fz preferential [N]
LS1200	210,4	157,8	5345	4597
LS1400	245,3	177,4	6231	5381
LS1600	280,2	197,0	7117	6165
LS1800	315,2	230,5	8007	6935
LS2000	350,2	264,0	8896	7704
LS2200	402,8	300,4	10230	8861
LS2400	420,8	314,2	10689	9258
LS2600	455,3	336,8	11565	10017
LS2900	507,9	365,4	12890	11173
LS3200	560,4	394,0	14234	12329
LS4000	700,8	504,2	17800	15400
LS5200	1214,7	766,1	23140	19900
LS6300	2031,5	1157,8	28906	24860

CHARACTERISTICS



DIMENSIONS

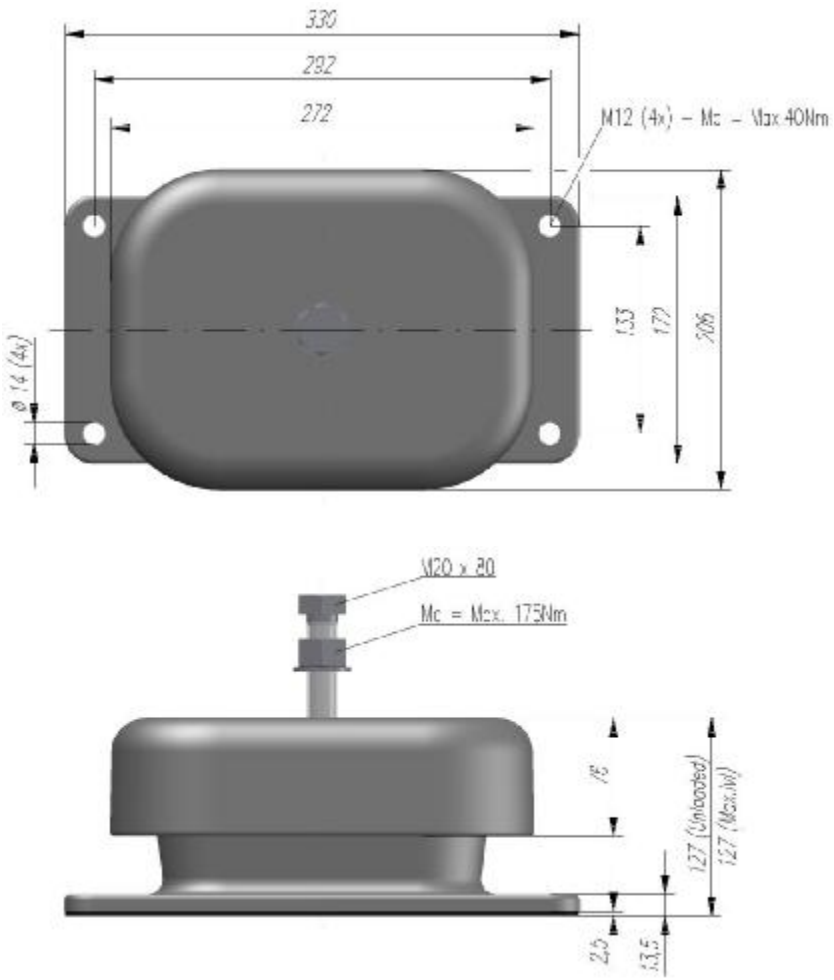
DOCUMENTATION SHEET

Steel Spring Isolator
Type LR

LR

Type	Cz [N/mm]	Cx, y [N/mm] at preferential load	Fz max [N]	Fz preferential [N]
LR2100	368,2	258,9	9353	8043
LR2400	420,3	295,5	10676	9248
LR2700	473,4	346,0	12010	10402
LR3000	525,3	396,0	13344	11556
LR3300	577,9	432,4	14679	12712
LR3600	630,4	168,8	16013	13869
LR3900	683,0	505,2	17348	15026
LR4200	735,5	534,0	18682	16182
LR4500	788,0	562,4	20017	17338
LR4800	840,6	591,0	21351	18494
LR5800	1360,0	815,0	25804	22279
LR6800	1594,0	956,0	30257	26065
LR7800	1828,0	1149,0	34710	29850

CHARACTERISTICS



DIMENSIONS

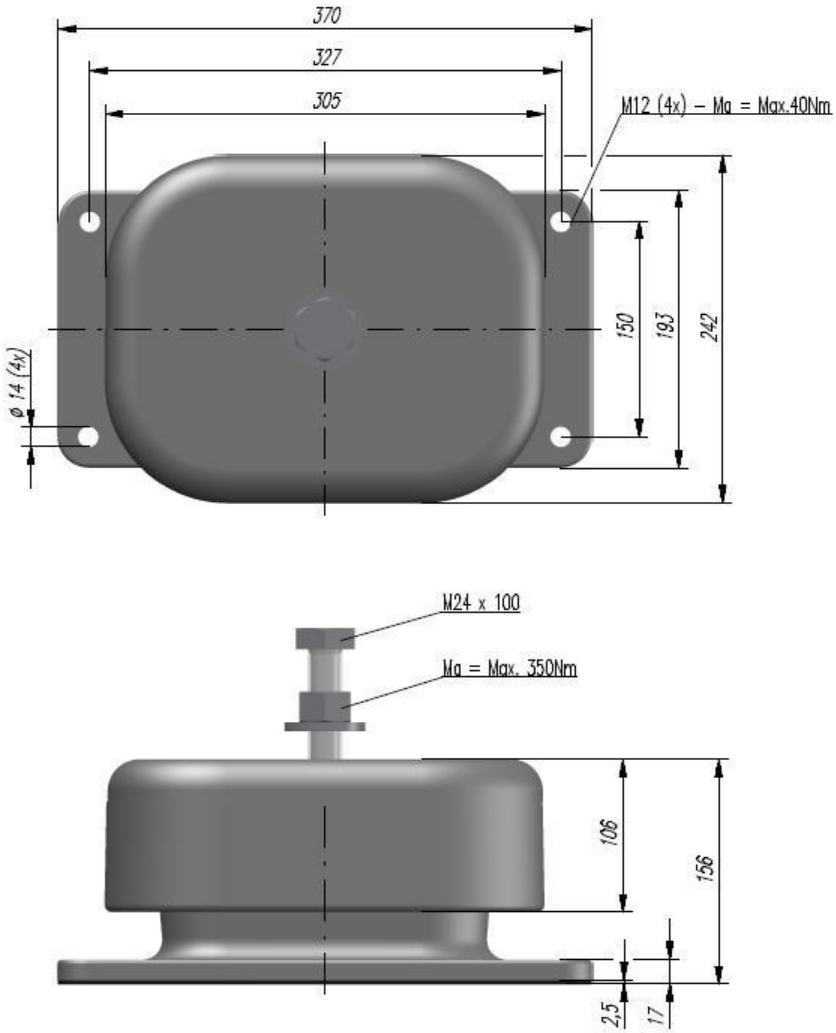
DOCUMENTATION SHEET

Steel Spring Isolator
Type LRX

LRX

Type	Cz [N/mm]	Cx, y [N/mm] at preferential load	Fz max [N]	Fz preferential [N]
LRX3800	684,0	466,0	17370	15045
LRX4560	789,0	537,6	20042	17359
LRX5120	894,0	609,1	22714	19674
LRX5400	945,6	652,8	24020	20804
LRX5900	1033,2	710,0	26244	22731
LRX6400	1120,8	766,4	28469	24658
LRX6900	1208,4	823,2	30683	26585
LRX7400	1310,0	840,3	33273	27702
LRX7900	1411,6	874,5	35853	32171
LRX8400	1488,4	863,7	37810	32749
LRX9000	1590,0	880,8	40390	34984
LRX9500	1664,0	903,0	42260	36602

CHARACTERISTICS



DIMENSIONS

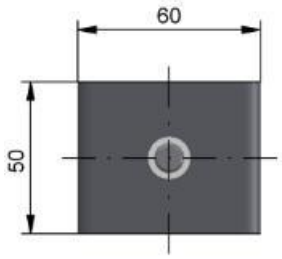
DOCUMENTATION SHEET

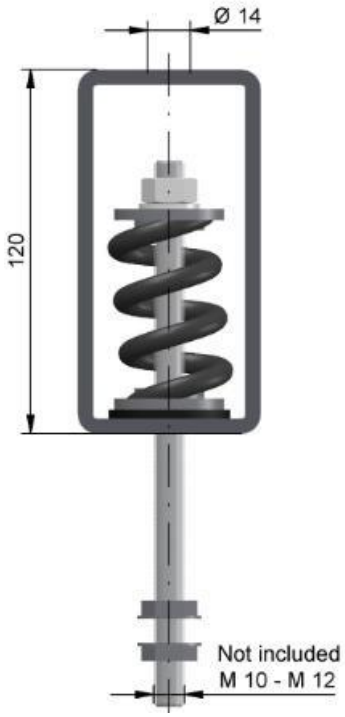
Steel Spring Isolator
Type SH1

SH1

Type	Cz [N/mm]	Cx, y [N/mm] at preferential load	Fz max [N]	Fz preferential [N]
SH1-33	5,3	Depending on rod length	114	116
SH1-60	10,8	Depending on rod length	274	238
SH1-100	18,3	Depending on rod length	464	402
SH1-150	25,9	Depending on rod length	658	570
SH1-200	35,3	Depending on rod length	890	771
SH1-250	43,8	Depending on rod length	1112	963
SH1-300	52,5	Depending on rod length	1335	1156

CHARACTERISTICS





DIMENSIONS

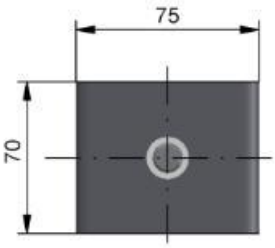
DOCUMENTATION SHEET

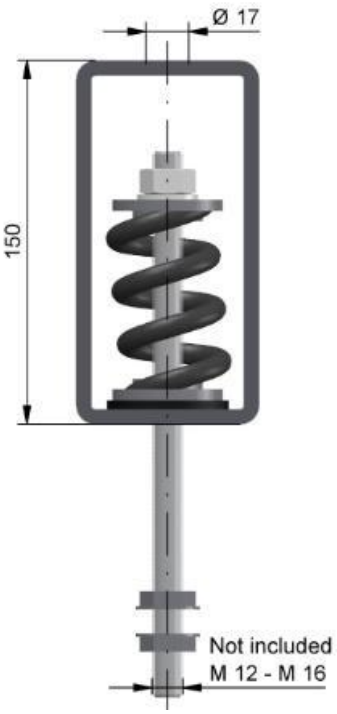
Steel Spring Isolator
Type SH2

SH2

Type	Cz [N/mm]	Cx, y [N/mm]	Fz max [N]	Fz preferential [N]
SH2-253	43,8	Depending on rod length	1112	963
SH2-352	61,3	Depending on rod length	1557	1348
SH2-440	65,7	Depending on rod length	1669	1445
SH2-550	96,3	Depending on rod length	2447	2119
SH2-638	114,6	Depending on rod length	2911	2521
SH2-715	131,4	Depending on rod length	3336	2890

CHARACTERISTICS





DIMENSIONS

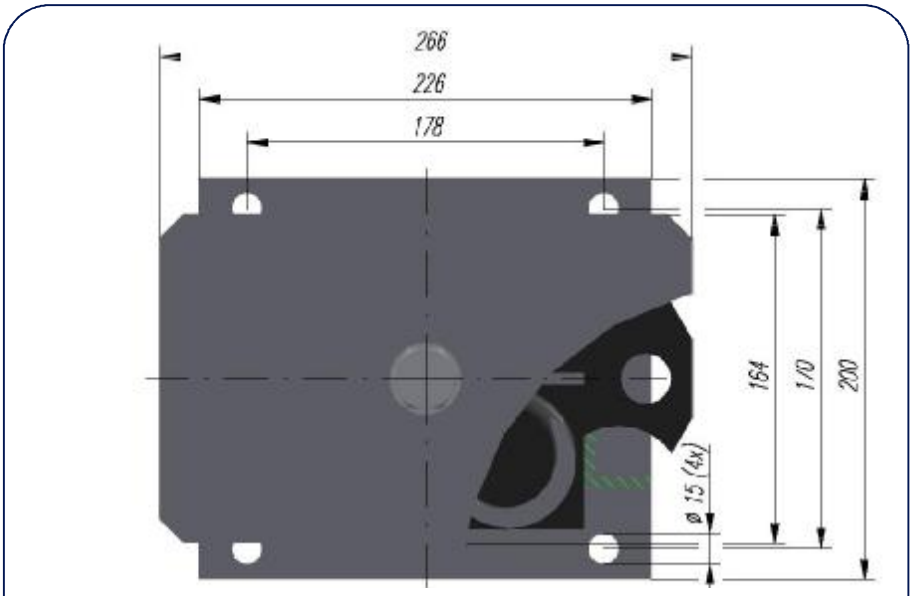
DOCUMENTATION SHEET

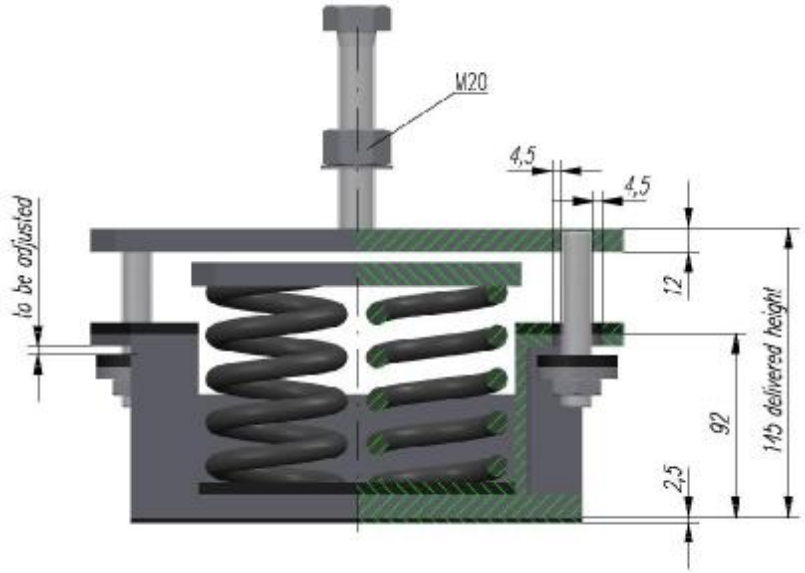
Steel Spring Isolator
Type OS4

OS4

Type	Cz [N/mm]	Cx, y [N/mm] at preferential load	Fz max [N]	Fz preferential [N]
OS4-2400	420,3	304,1	10675	9246
OS4-2700	472,7	332,6	12010	10402
OS4-3000	525,3	368,9	13345	11558
OS4-3300	577,9	397,4	14679	12713
OS4-3600	630,4	435,2	16013	13870
OS4-4100	718,0	492,0	18238	15796
OS4-4600	805,6	548,8	20462	17723
OS4-5320	924,6	564,4	23487	20343
OS4-6200	1085,6	588,9	27579	23888

CHARACTERISTICS





DIMENSIONS

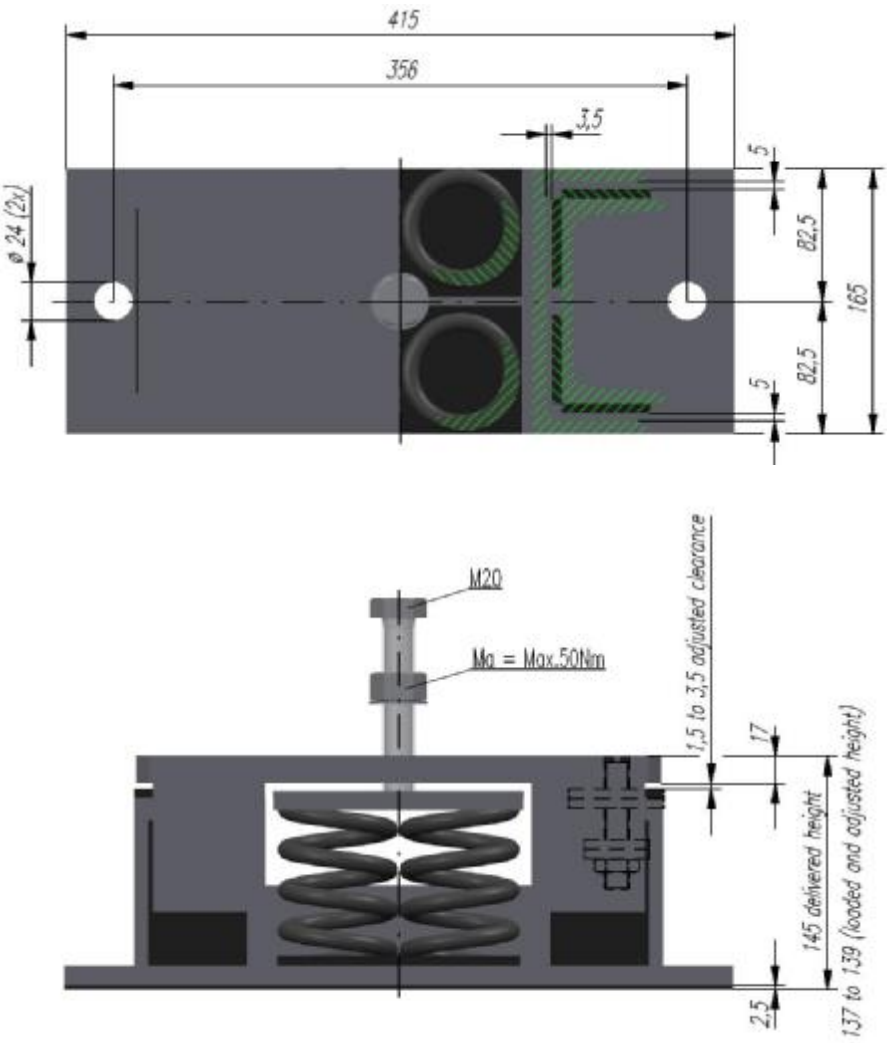
DOCUMENTATION SHEET

Steel Spring Isolator
Type SO4

SO4

Type	Cz [N/mm]	Cx, y [N/mm] at preferential load	Fz max [N]	Fz preferential [N]
SO4-1200	210,4	157,8	5345	4597
SO4-1400	245,3	177,4	6231	5381
SO4-1600	280,2	197,0	7117	6165
SO4-1800	315,2	230,5	8006	6934
SO4-2000	350,2	264,0	8896	7704
SO4-2300	402,8	300,4	10230	8860
SO4-2600	455,3	336,8	11565	10017
SO4-2900	507,9	365,4	12900	11173
SO4-3200	560,4	394,0	14234	12329
SO4-4000	700,8	504,2	17800	15400
SO4-5200	1214,7	766,0	23140	19900
SO4-6300	2031,5	1157,8	28906	24860

CHARACTERISTICS



DIMENSIONS

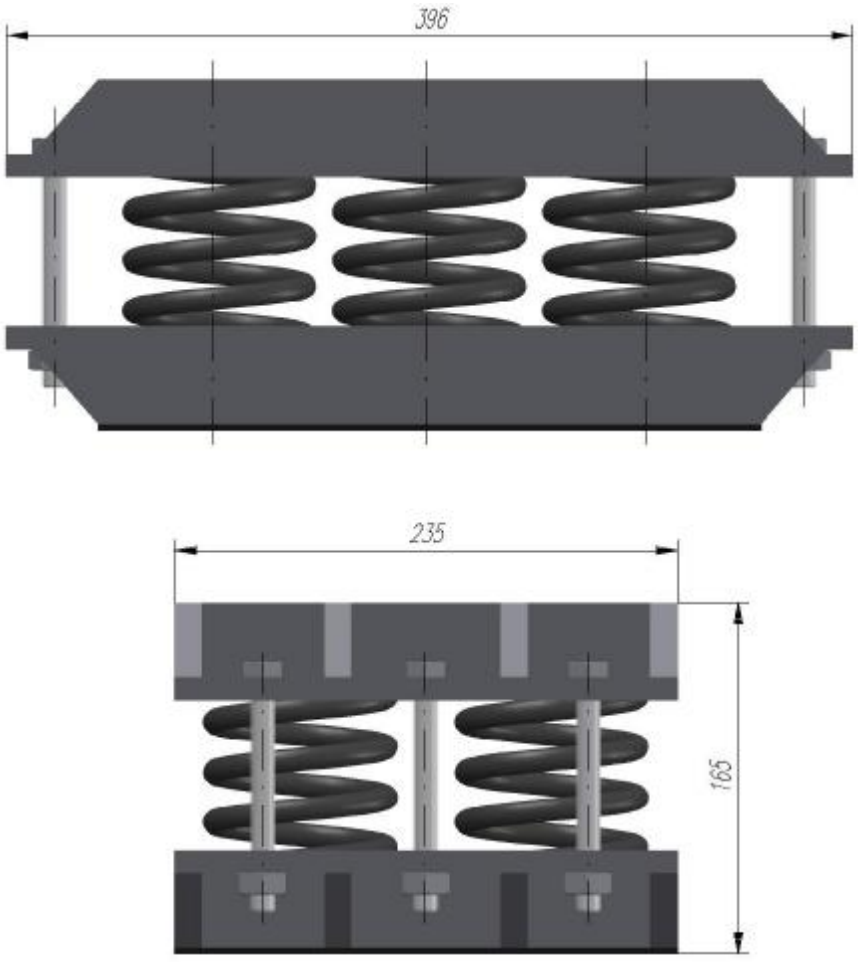
DOCUMENTATION SHEET

Steel Spring Isolator
Type MDL 450

MDL 450

Type	Cz [N/mm]	Cx, y [N/mm] at preferential load	Fz max [N]	Fz preferential [N]
MDL3-450	236	208	11000	9525
MDL4-450	315	278	14000	12050
MDL5-450	393	347	18000	15500
MDL6-450	472	417	22000	18925

CHARACTERISTICS



DIMENSIONS

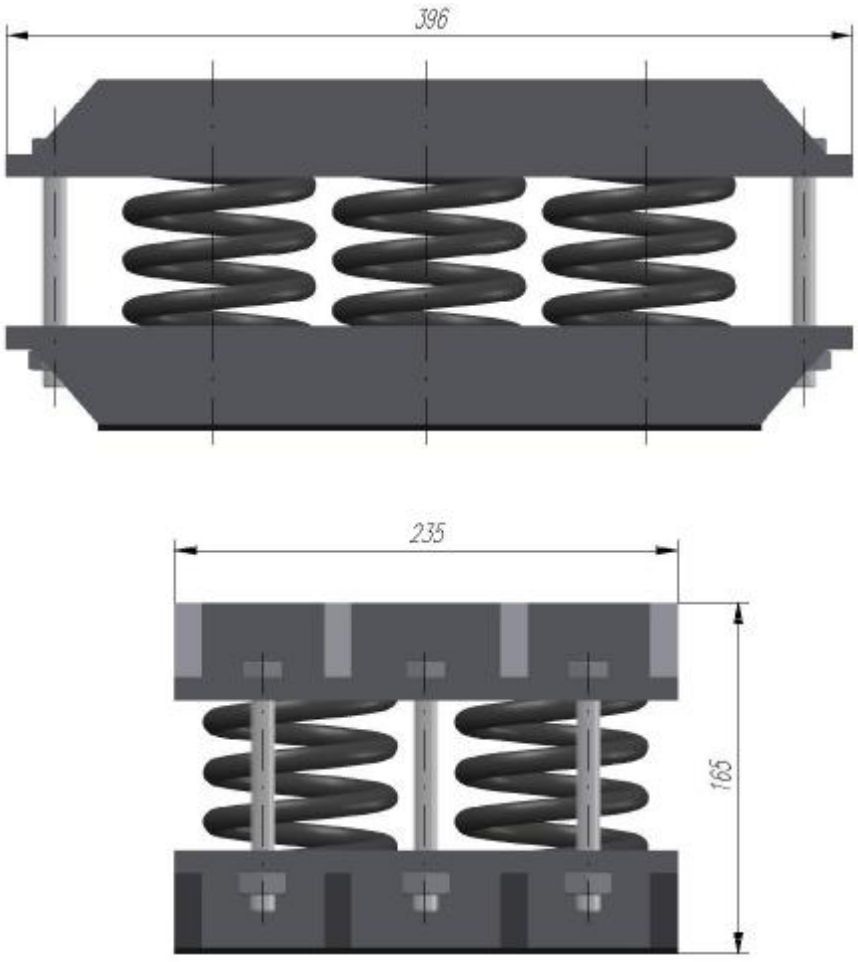
DOCUMENTATION SHEET

Steel Spring Isolator
Type MDL 4000

MDL 4000

Type	Cz [N/mm]	Cx, y [N/mm] at preferential load	Fz max [N]	Fz preferential [N]
MDL3-4000	2100	1636	47000	40700
MDL4-4000	2800	2180	62000	53700
MDL5-4000	3500	2725	78000	67500
MDL6-4000	4200	3270	94000	81400

CHARACTERISTICS



DIMENSIONS

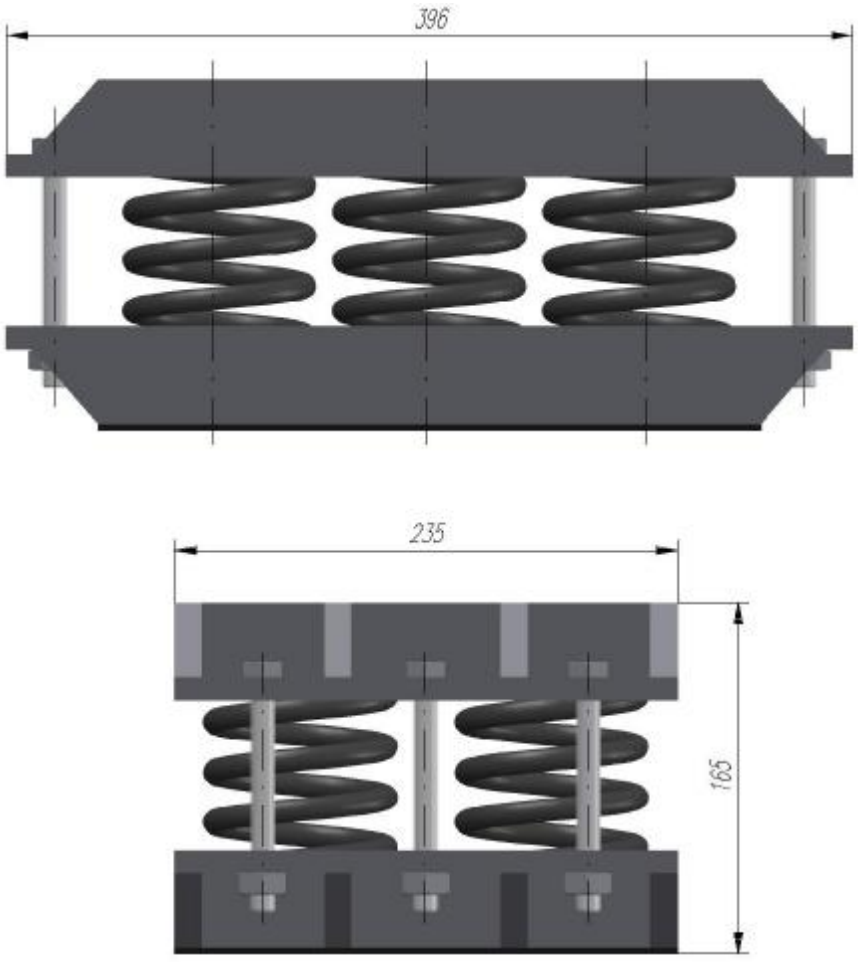
DOCUMENTATION SHEET

Steel Spring Isolator
Type MDL 5300

MDL 5300

Type	Cz [N/mm]	Cx, y [N/mm] at preferential load	Fz max [N]	Fz preferential [N]
MDL3-5300	2790	2010	47000	40700
MDL4-5300	3720	2680	62000	53700
MDL5-5300	4650	3350	78000	67500
MDL6-5300	5580	4020	94000	81400

CHARACTERISTICS



DIMENSIONS

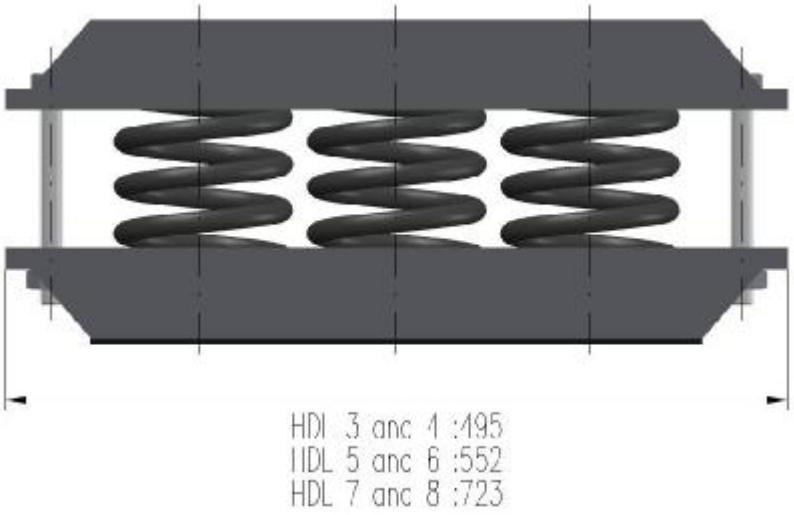
DOCUMENTATION SHEET

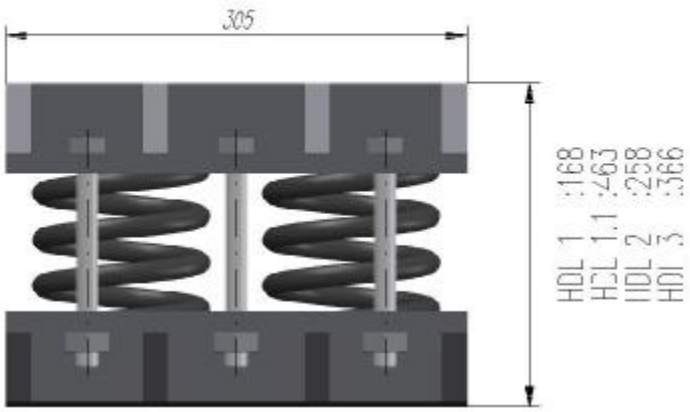
Steel Spring Isolator
Type HDL

HDL

Type	Cz [N/mm]	Cx, y [N/mm] at preferential load	Fz max [N]	Fz preferential [N]
HDL 31.1	5430	1848	151750	130475
HDL 41.1	7240	2464	202250	174000
HDL 51.1	9050	3080	252850	217450
HDL 61.1	10860	3696	303500	260950
HDL 71.1	12670	4312	354000	304450
HDL 81.1	14480	4928	404500	348000

CHARACTERISTICS





DIMENSIONS

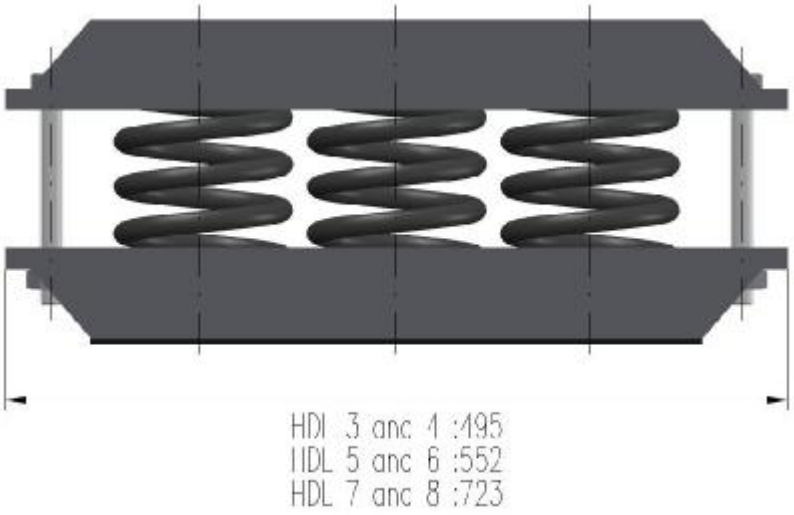
DOCUMENTATION SHEET

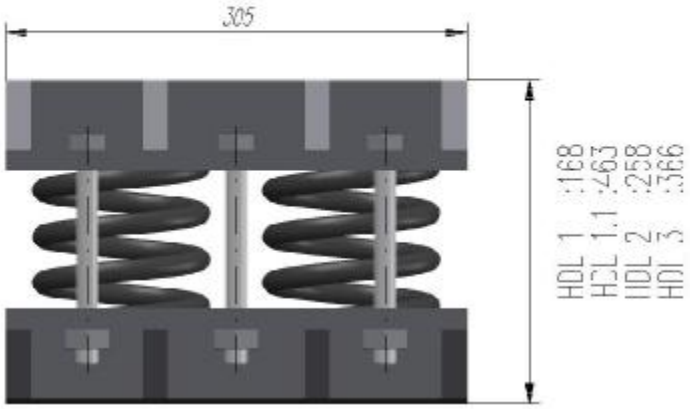
Steel Spring Isolator
Type HDL 1

HDL 1

Type	Cz [N/mm]	Cx, y [N/mm] at preferential load	Fz max [N]	Fz preferential [N]
HDL 31	2445	2677	65800	56600
HDL 41	3260	3570	87760	75475
HDL 51	4075	4462	109700	94340
HDL 61	4890	5354	131640	113200
HDL 71	5705	6247	153580	132000
HDL 81	6520	7140	175500	150950

CHARACTERISTICS





DIMENSIONS

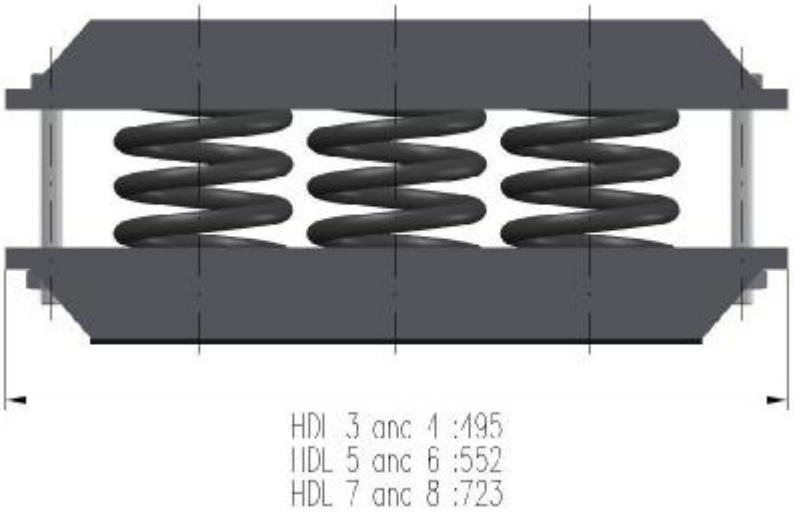
DOCUMENTATION SHEET

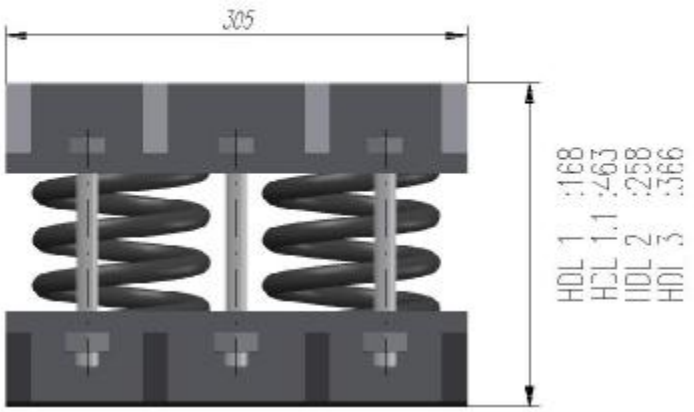
Steel Spring Isolator
Type HDL 2

HDL 2

Type	Cz [N/mm]	Cx, y [N/mm] at preferential load	Fz max [N]	Fz preferential [N]
HDL 32	1320	633	65700	56500
HDL 42	1760	844	87650	75375
HDL 52	3080	1055	109560	94220
HDL 62	2640	1266	131400	113000
HDL 72	3080	1477	153350	131875
HDL 82	3520	1688	175300	150750

CHARACTERISTICS





DIMENSIONS

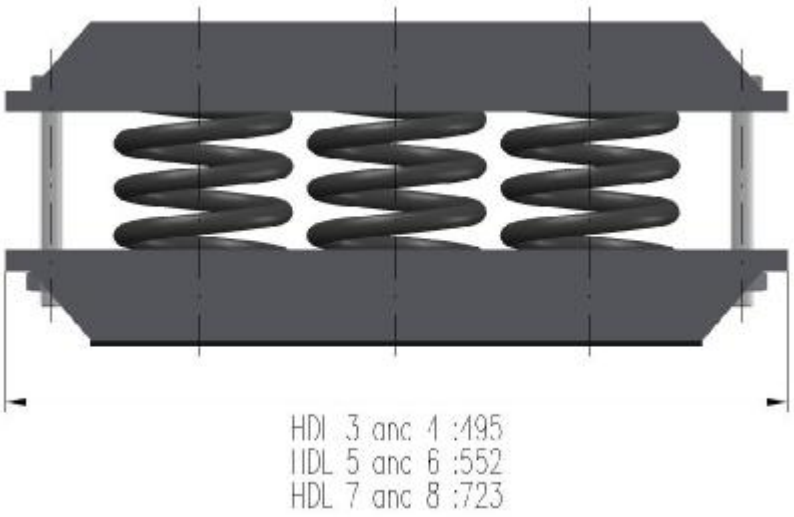
DOCUMENTATION SHEET

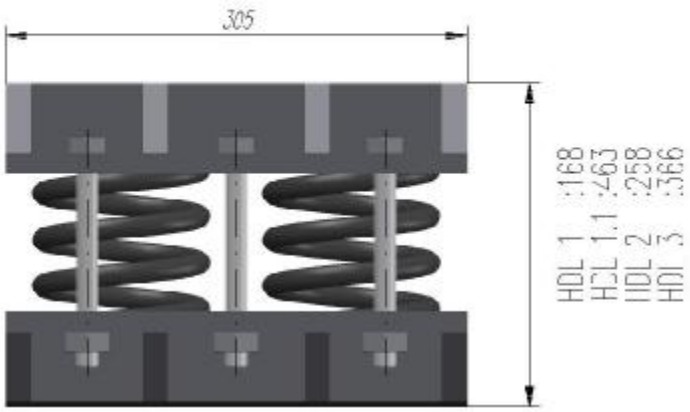
Steel Spring Isolator
Type HDL 3

HDL 3

Type	Cz [N/mm]	Cx, y [N/mm] at preferential load	Fz max [N]	Fz preferential [N]
HDL 33	867	115	66000	56815
HDL 43	1156	153	88000	75750
HDL 53	1445	191,5	110000	94600
HDL 63	1734	306	132000	113500
HDL 73	2023	268	154000	132400
HDL 83	2312	306	176000	151500

CHARACTERISTICS





DIMENSIONS

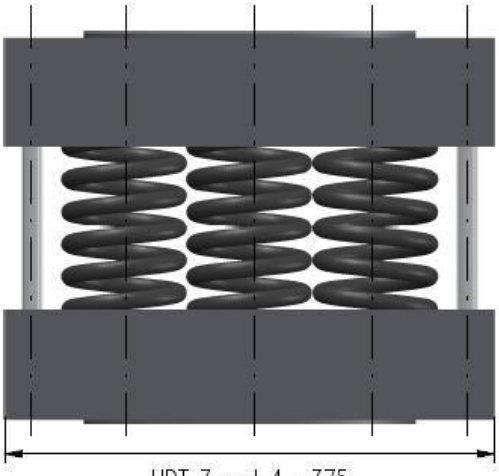
DOCUMENTATION SHEET

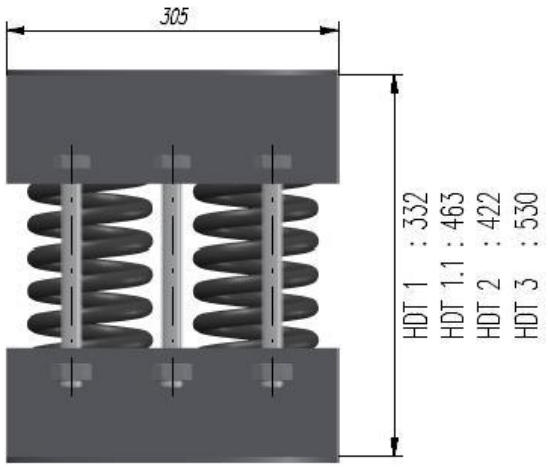
Steel Spring Isolator
Type HDT

HDT

Type	Cz [N/mm]	Cx, y [N/mm] at preferential load	Fz max [N]	Fz preferential [N]
HDT 31.1	5430	1848	151750	130475
HDT 41.1	7240	2464	202250	174000
HDT 51.1	9050	3080	252850	217450
HDT 61.1	10860	3696	303500	260950
HDT 71.1	12670	4312	354000	304450
HDT 81.1	14480	4928	404500	348000

CHARACTERISTICS





DIMENSIONS

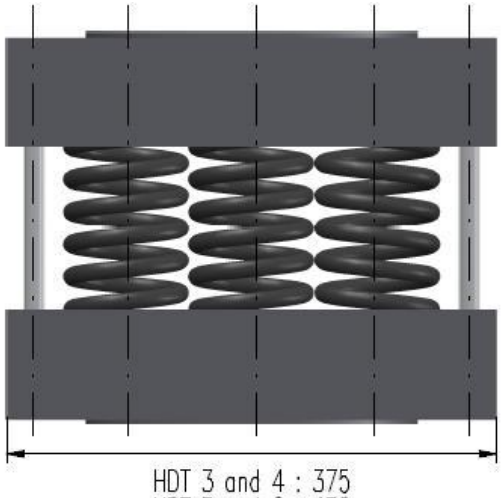
DOCUMENTATION SHEET

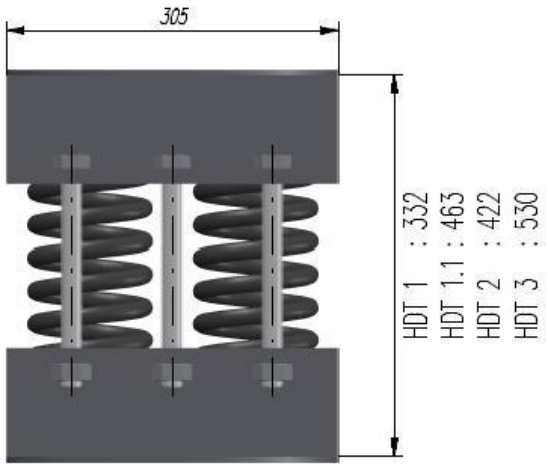
Steel Spring Isolator
Type HDT 1

HDT 1

Type	Cz [N/mm]	Cx, y [N/mm] at preferential load	Fz max [N]	Fz preferential [N]
HDT 31	2445	2677	65800	56600
HDT 41	3260	3570	87760	75475
HDT 51	4075	4462	109700	94340
HDT 61	4890	5354	131640	113200
HDT 71	5705	6247	153580	132000
HDT 81	6520	7140	175500	150950

CHARACTERISTICS





DIMENSIONS

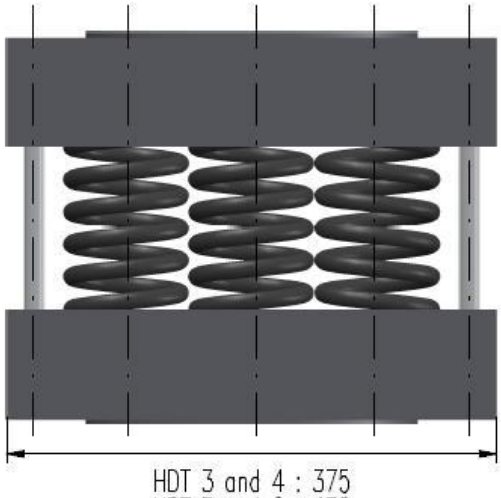
DOCUMENTATION SHEET

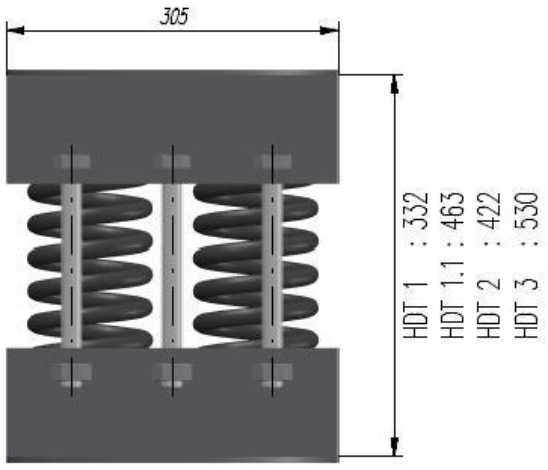
Steel Spring Isolator
Type HDT 2

HDT 2

Type	Cz [N/mm]	Cx, y [N/mm] at preferential load	Fz max [N]	Fz preferential [N]
HDT 32	1320	633	65700	56500
HDT 42	1760	844	87650	75375
HDT 52	3080	1055	109560	94220
HDT 62	2640	1266	131400	113000
HDT 72	3080	1477	153350	131875
HDT 82	3520	1688	175300	150750

CHARACTERISTICS





DIMENSIONS

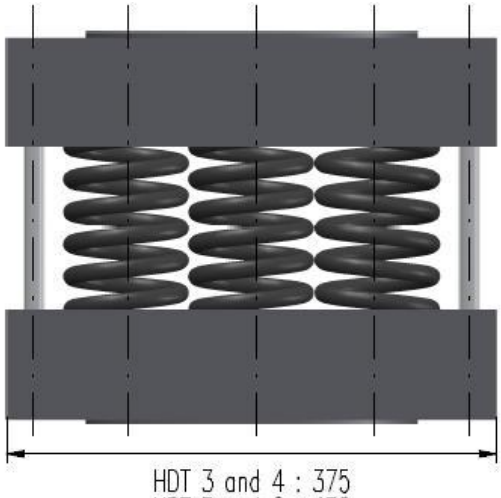
DOCUMENTATION SHEET

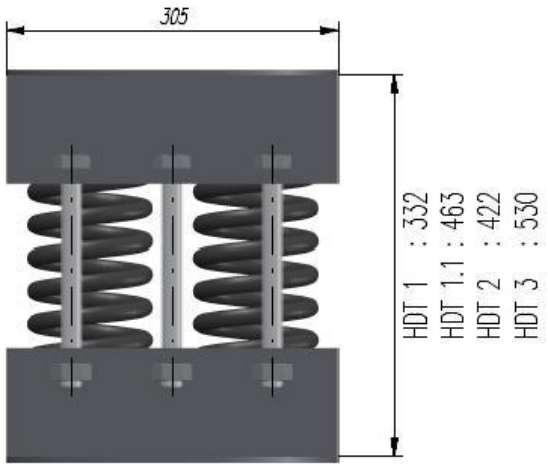
Steel Spring Isolator
Type HDT 3

HDT 3

Type	Cz [N/mm]	Cx, y [N/mm] at preferential load	Fz max [N]	Fz preferential [N]
HDT 33	867	115	66000	56815
HDT 43	1156	153	88000	75750
HDT 53	1445	191.5	110000	94600
HDT 63	1734	306	132000	113500
HDT 73	2023	268	154000	132400
HDT 83	2312	306	176000	151500

CHARACTERISTICS



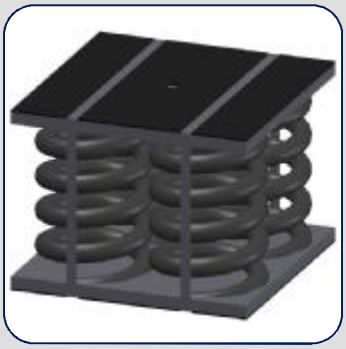


DIMENSIONS

DOCUMENTATION SHEET

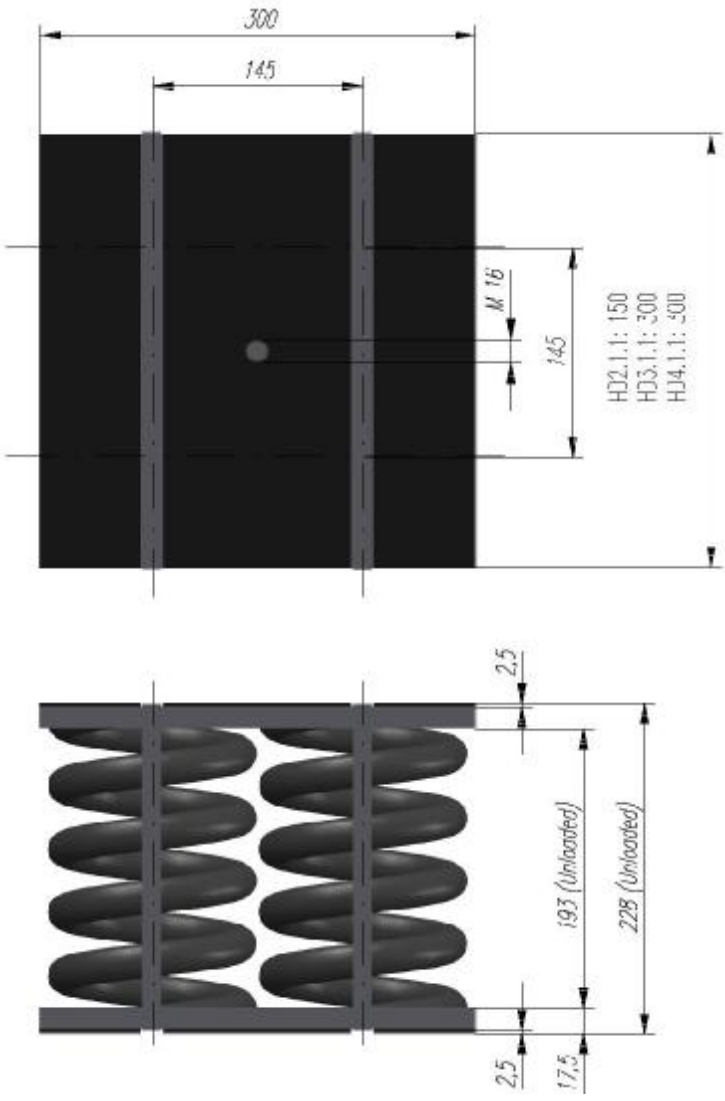
Steel Spring Isolator
Type HD

HD



Type	Cz [N/mm]	Cx, y [N/mm] at preferential load	Fz max [N]	Fz preferential [N]
HD 2.1.1	3620	1232	101125	87000
HD 3.1.1	5430	1848	151688	130500
HD 4.1.1	7240	2464	202250	174000

CHARACTERISTICS



DIMENSIONS

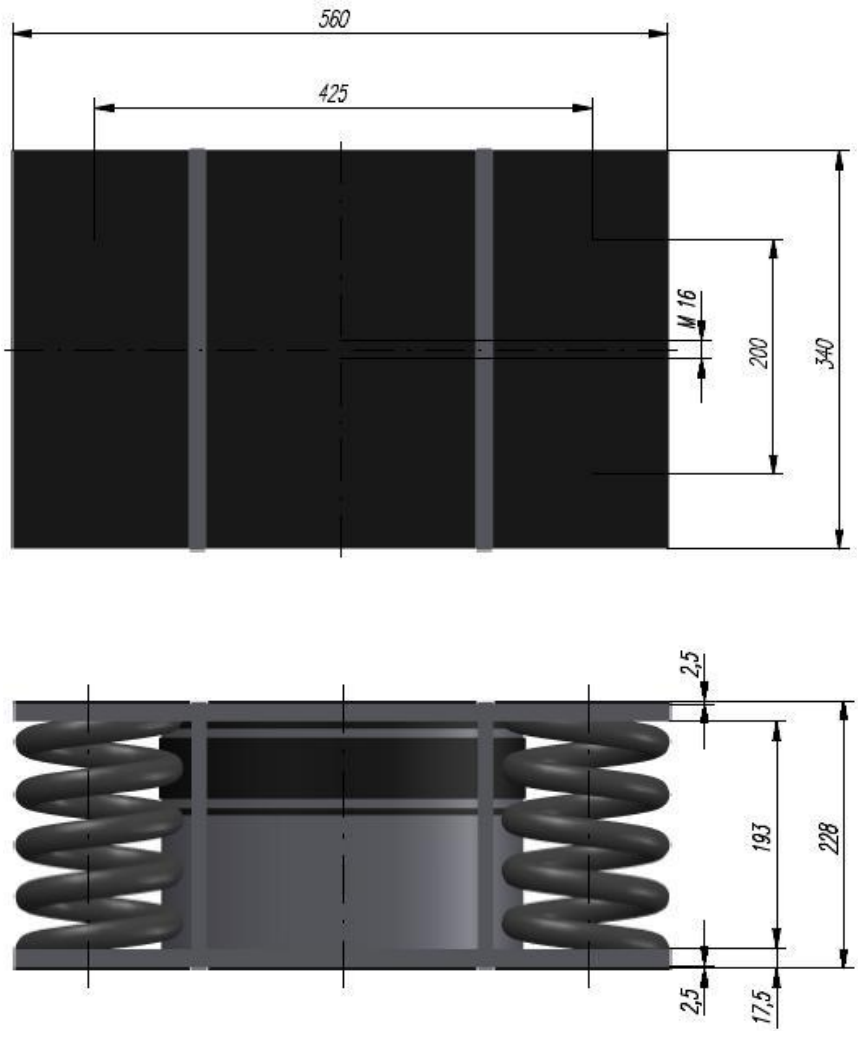
DOCUMENTATION SHEET

Steel Spring Isolator
Type HDV

HDV

Type	Cz [N/mm]	Cx, y [N/mm] at preferential load	Fz max [N]	Fz preferential [N]
HDV 4.1.1	7240	2464	202250	174000

CHARACTERISTICS



DIMENSIONS

DOCUMENTATION SHEET

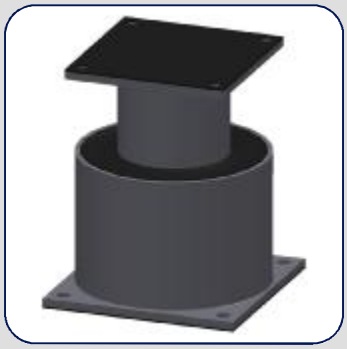
Steel Spring Isolator

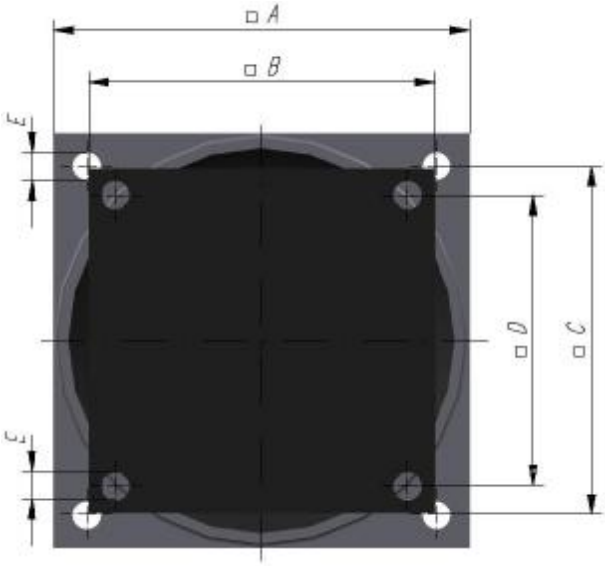
Visco damper units; Type DV

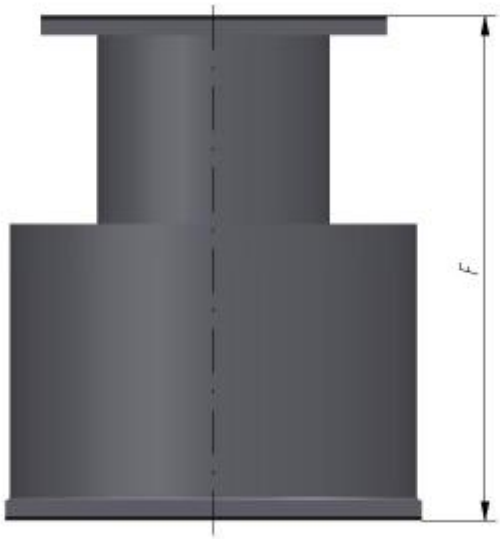
DV

Type	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]
DV 1	250	250	210	210	17	300
DV 2	330	305	270	265	22	400
DV 3	406	330	330	270	29	450

CHARACTERISTICS







DIMENSIONS