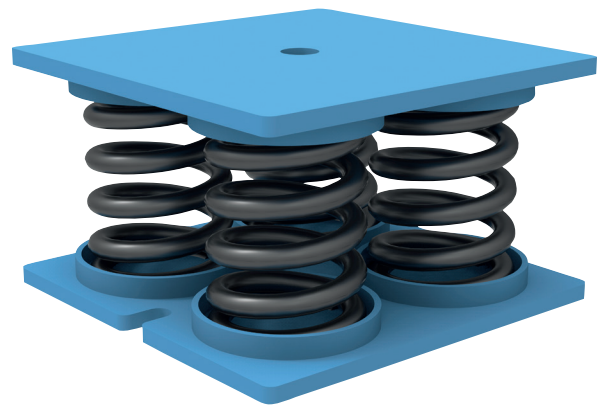


Product catalogue



**VICODA<sup>®</sup>**

**SMALL SPRING ELEMENTS**

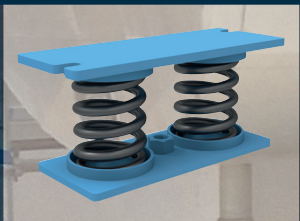




S-P...



S-P...-2



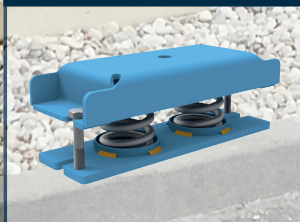
S-P...-4



S-P...-6



S-U..-2



S-U...-4



S-U...-6





Innovative solutions:

## Vibration isolation for small and medium-sized plants and machinery

Appropriate vibration isolation and/or structure-borne noise damping in machinery, components, aggregates and buildings is becoming increasingly important to protect humans and material assets against vibrations.

VICODA® spring elements and damped spring elements ensure that the vibration induced by the equipment – the source of the vibration – is not transmitted to the environment (isolation of source). Spring elements can also be used to isolate a vibratory system against vibrations induced by the environment (isolation of recipient). We offer spring elements with or without integrated CRD type damping covering frequencies between 2.5 and 5Hz. All spring elements can be additionally equipped with viscoelastic dampers to adapt to increased damping requirements.

Contact us to benefit from our expertise.

## Design

VICODA® spring elements are designed as follows:

- same total height within a series
- large load range between 90 and 72,200N
- frequencies from 2.5Hz
- pressure- and form-locking height adjustment (also available in stainless steel) (optional)
- high-quality corrosion protection (CDP coated springs)
- CRD type damping using the same dimensions (optional)
- structure-borne noise damping (optional)
- lift-off device (optional)

LISEGA is pleased to provide you support when selecting spring elements.

## Fields of application

VICODA® spring elements are suitable for use in a variety of applications. They provide the best solution for vibration and structure-borne noise isolation, for example in:

- fans or ventilation systems
- air-conditioning systems
- pumps or pumping systems
- electronic equipment
- measuring devices
- small and medium-sized power presses

## Application examples

### Spring element S-U17-4

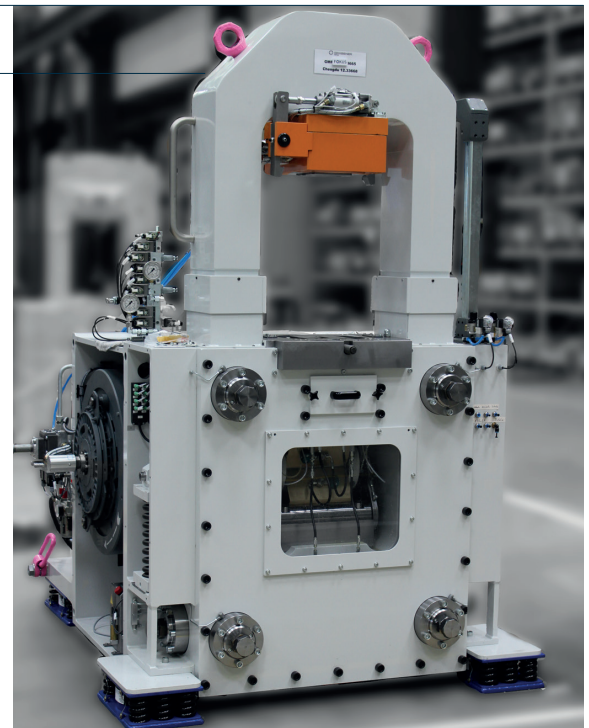
Project	Vibration-isolated installation of a radial fan at a fertilizer plant
Country	Hungary
Brief description	Limiting vibrational amplitudes and ground reactions by vibration-isolated installation of a radial fan weighing approx. 13 t in total.
Challenge	Previous elastic installations at the plant were accompanied by major horizontal movements during operation due to resonances in horizontal direction.
Solution	Using 11 VICODA® spring elements with a bearing capacity of approx. 50kN and special coating for highly corrosive media. Vertical tuning frequency of installation approx. 7Hz, isolation degree 55%. Reducing vibration movements by increasing horizontal stiffness.



© thyssenkrupp Industrial Solutions AG

### Spring element S-P with additional damping

Project	Vibration-isolated installation of a forming press, Medal press GMP 360
Country	Germany
Brief description	Vibration-isolated installation of a medal press (GMP 360 type) while minimizing press movements during operation.
Challenge	Coins up to 50 mm in diameter are minted at a stroke rate of 80 strokes/min. If the installation is too soft and undamped, press movements would fall in the intolerable range.
Solution	Mounting the press on 4 spring elements (S-P type) with additionally integrated viscoelastic damping provided an optimum compromise between vibration isolation and press movement during operation. A damping degree of 10% was achieved with a maximum bearing capacity of 130 kN per element.



## MINIMUM INFORMATION

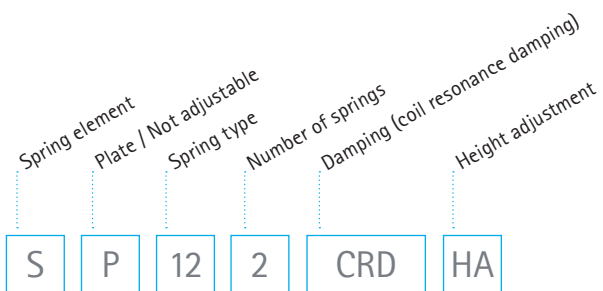


To calculate the dimensions of an elastic mounting for your facility/equipment, we require the following information:

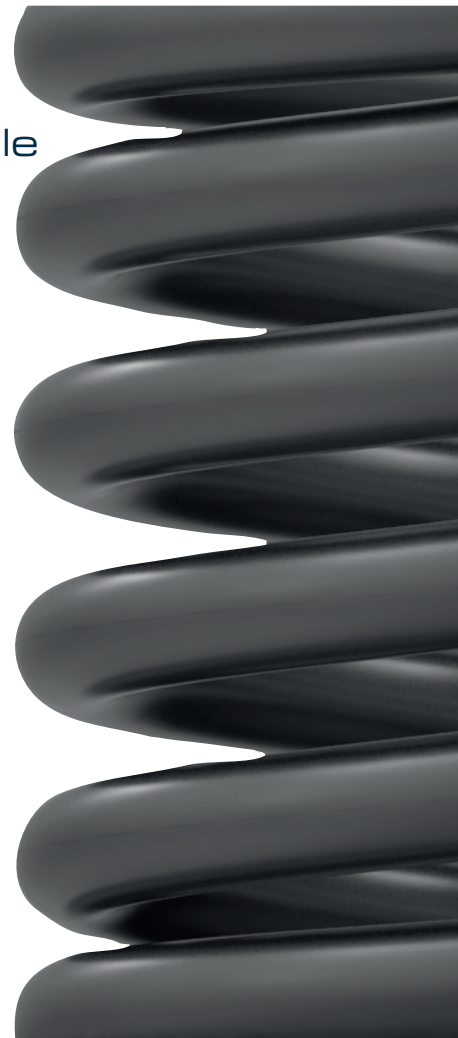
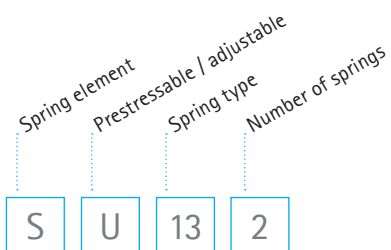
- Type of system/equipment requiring vibration-isolated installation
- Total mass of system/equipment or individual weight of components in kN
- Centre of gravity of system/equipment or individual centres of gravity of components (if not available, we will assume a central centre of gravity)
- Frequency of excitation or rotational speed in Hz or rotations/min
- Desired isolation efficiency
- Indoor or outdoor installation
- Special features to be considered in the calculation

## Description of type designation, for example

S-P12-2-CRD-HA



S-U13-2



NOTE: This legend is valid for all following data sheets. The drawings are not true to scale. Other load ranges and natural frequencies on request.  
All data and dimensions are subject to change.

### Spring element type: S-P5 to S-P21

#### LEGEND

$H_0$ : unloaded height

$H_n$ : height at nominal load

Standard spring element for the vibration control of structure-borne noise and vibrations.

#### DIMENSIONS

S-P5 to S-P12

#### S-P5 TO S-P12

Type	Nom. load [kN]		Vertical stiffness <sup>1)</sup> [N/mm]	Natural frequency [Hz]	Height [mm]		
	min.	max.			$H_0$	$H_n$	
						$F_{n_{min}}$	$F_{n_{max}}$
S-P5	410	1465	70	3.4 - 6.5	71	65	50
S-P6	480	1875	81	3.3 - 6.5			48
S-P7	575	1760	98	3.7 - 6.5			53
S-P8	710	2425	121	3.5 - 6.5			51
S-P9	830	2675	141	3.6 - 6.5			54
S-P10	1015	2770	173	4.0 - 6.5			55
S-P11	1160	3160	197	4.0 - 6.5			55
S-P12	1430	3895	243	4.0 - 6.5			55

max. weight: 1.2kg

Spring element without height adjustment



Spring element with height adjustment



#### DIMENSIONS

S-P13 to S-P21

#### S-P13 TO S-P21

Type	Nom. load [kN]		Vertical stiffness <sup>1)</sup> [N/mm]	Natural frequency [Hz]	Height [mm]		
	min.	max.			$H_0$	$H_n$	
						$F_{n_{min}}$	$F_{n_{max}}$
S-P13	90	750	15	2.4 - 6.5	117	111	67
S-P14	160	1350	27	2.4 - 6.5			67
S-P15	205	1680	35	2.4 - 6.5			69
S-P16	435	2800	74	2.6 - 6.5			79
S-P17	845	5160	143	2.6 - 6.5			81
S-P18	1415	5060	241	3.4 - 6.5			96
S-P19	1830	8080	311	3.1 - 6.5			91
S-P20	2310	10220	393	3.1 - 6.5			91
S-P21	2970	12120	505	3.2 - 6.5	93		

max. weight: 2.7kg

#### REMARKS:

- 1) calculated according to DIN EN 13906-1  
for -CRD type: dynamic stiffening factor approx. 1.2 to 1.4
- 2) Natural frequency range: 2.4 Hz to 6.5 Hz
- 3) Casing made of carbon steel, corrosion protection galvanized.  
Long-term corrosion protection on request.

- 4) Damping (CRD) and height adjustment (HA) are optional equipment and have to be ordered separately (addition -CRD and/or -HA to the type e.g. S-P13-CRD-HA).

## Spring element type: S-P5-2 to S-P21-2

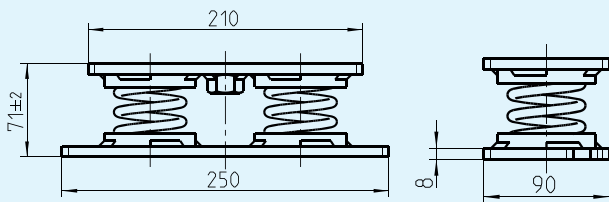
## LEGEND

 $H_0$ : unloaded height $H_n$ : height at nominal load

Standard spring element for the vibration control of structure-borne noise and vibrations.

## DIMENSIONS

## S-P5-2 to S-P12-2



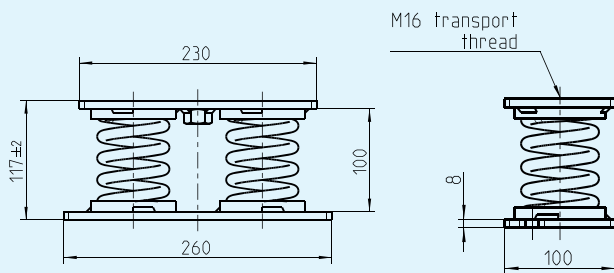
## S-P5-2 TO S-P12-2

Type	Nom. load [kN]		Vertical stiffness <sup>1)</sup> [N/mm]	Natural frequency [Hz]	Height [mm]		
	min.	max.			$H_0$	$H_n$	
						$F_{n_{min}}$	$F_{n_{max}}$
S-P5-2	0.820	2.920	140	3.4 - 6.5	71	65	50
S-P6-2	0.965	3.750	163	3.3 - 6.5			48
S-P7-2	1.160	3.530	196	3.7 - 6.5			53
S-P8-2	1.430	4.840	242	3.5 - 6.5			51
S-P9-2	1.665	5.340	281	3.6 - 6.5			54
S-P10-2	2.050	5.535	346	4.0 - 6.5			55
S-P11-2	2.340	6.320	395	4.0 - 6.5			55
S-P12-2	2.880	7.790	487	4.0 - 6.5			55

max. weight: 3.6kg

## DIMENSIONS

## S-P13-2 to S-P21-2



## S-P13-2 TO S-P21-2

Type	Nom. load [kN]		Vertical stiffness <sup>1)</sup> [N/mm]	Natural frequency [Hz]	Height [mm]		
	min.	max.			$H_0$	$H_n$	
						$F_{n_{min}}$	$F_{n_{max}}$
S-P13-2	0.180	1.300	30	2.4 - 6.5	117	114	74
S-P14-2	0.320	2.330	54	2.4 - 6.5			74
S-P15-2	0.410	2.970	70	2.4 - 6.5			74
S-P16-2	0.870	5.585	147	2.6 - 6.5			79
S-P17-2	1.690	10.330	286	2.6 - 6.5			81
S-P18-2	2.835	10.120	482	3.4 - 6.5			96
S-P19-2	3.655	16.145	622	3.1 - 6.5			91
S-P20-2	4.625	20.435	786	3.1 - 6.5			91
S-P21-2	5.940	24.240	1010	3.2 - 6.5			93

max. weight: 8.5kg

## REMARKS:

- 1) calculated according to DIN EN 13906-1 for -CRD type: dynamic stiffening factor approx. 1.2 to 1.4
- 2) Natural frequency range: 2.4 Hz to 6.5 Hz
- 3) Casing made of carbon steel, corrosion protection C3-RAL 5012. Long-term corrosion protection on request.

- 4) Damping (CRD) and height adjustment (HA) are optional equipment and have to be ordered separately (addition -CRD and/or -HA to the type e.g. S-P13-2-CRD-HA).

## Spring element type: S-P5-4 to S-P21-4

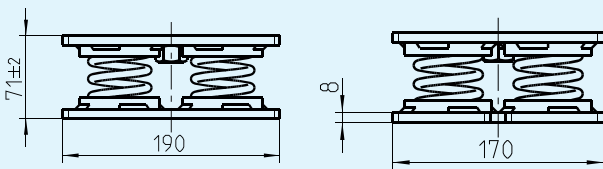
## LEGEND

 $H_0$ : unloaded height $H_n$ : height at nominal load

Standard spring element for the vibration control of structure-borne noise and vibrations.

## DIMENSIONS

## S-P5-4 to S-P12-4



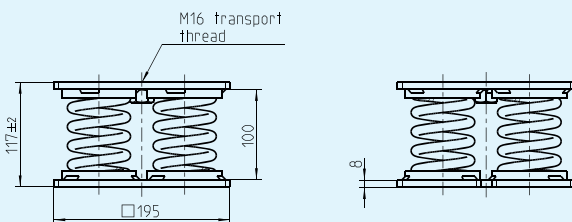
## S-P5-4 TO S-P12-4

Type	Nom. load [kN]		Vertical stiffness <sup>1)</sup> [N/mm]	Natural frequency [Hz]	Height [mm]		
	min.	max.			$H_0$	$H_n$	
						$F_{n_{min}}$	$F_{n_{max}}$
S-P5-4	1.650	5.860	280	3.4 - 6.5	71	65	50
S-P6-4	1.930	7.500	326	3.3 - 6.5			48
S-P7-4	2.315	7.040	391	3.7 - 6.5			53
S-P8-4	2.870	9.700	485	3.5 - 6.5			51
S-P9-4	3.330	10.700	563	3.6 - 6.5			54
S-P10-4	4.090	11.055	691	4.0 - 6.5			55
S-P11-4	4.675	12.640	790	4.0 - 6.5			55
S-P12-4	5.760	15.570	973	4.0 - 6.5			55

max. weight approx.: 6.6 kg

## DIMENSIONS

## S-P13-4 to S-P21-4



## S-P13-4 TO S-P21-4

Type	Nom. load [kN]		Vertical stiffness <sup>1)</sup> [N/mm]	Natural frequency [Hz]	Height [mm]		
	min.	max.			$H_0$	$H_n$	
						$F_{n_{min}}$	$F_{n_{max}}$
S-P13-4	0.355	2.600	60	2.4 - 6.5	117	114	74
S-P14-4	0.640	4.660	110	2.4 - 6.5			74
S-P15-4	0.815	5.945	140	2.4 - 6.5			74
S-P16-4	1.745	11.210	295	2.6 - 6.5			79
S-P17-4	3.390	20.630	575	2.6 - 6.5			81
S-P18-4	5.700	20.225	965	3.4 - 6.5			96
S-P19-4	7.360	32.320	1245	3.1 - 6.5			91
S-P20-4	9.310	40.900	1575	3.1 - 6.5			91
S-P21-4	11.960	48.480	2020	3.2 - 6.5			93

max. weight: 12 kg

## REMARKS:

- 1) calculated according to DIN EN 13906-1  
for -CRD type: dynamic stiffening factor approx. 1.2 to 1.4
- 2) Natural frequency range: 2.4 Hz to 6.5 Hz
- 3) Casing made of carbon steel, corrosion protection C3-RAL 5012.  
Long-term corrosion protection on request.

- 4) Damping (CRD) and height adjustment (HA) are optional equipment and have to be ordered separately (addition -CRD and/or -HA to the type e.g. S-P13-4-CRD-HA).



### Spring element type: S-P5-6 to S-P21-6

#### LEGEND

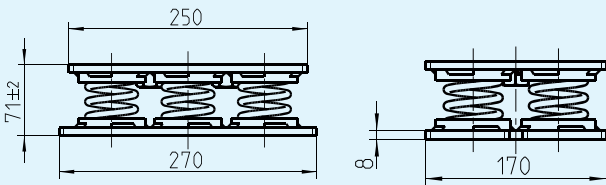
$H_0$ : unloaded height

$H_n$ : height at nominal load

Standard spring element for the vibration control of structure-borne noise and vibrations.

#### DIMENSIONS

##### S-P5-6 to S-P12-6



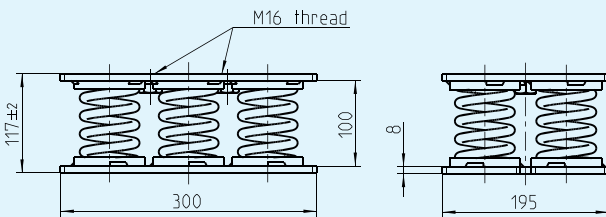
##### S-P5-6 TO S-P12-6

Type	Nom. load [kN]		Vertical stiffness <sup>1)</sup> [N/mm]	Natural frequency [Hz]	Height [mm]		
	min.	max.			$H_0$	$H_n$	
						$F_{n_{min}}$	$F_{n_{max}}$
S-P5-6	2.475	8.775	418	3.4 - 6.5	71	65	50
S-P6-6	2.890	11.225	488	3.3 - 6.5			48
S-P7-6	3.475	10.565	587	3.7 - 6.5			53
S-P8-6	4.300	14.540	727	3.5 - 6.5			51
S-P9-6	4.995	16.035	844	3.6 - 6.5			54
S-P10-6	6.135	16.590	1037	4.0 - 6.5			55
S-P11-6	7.005	18.940	1184	4.0 - 6.5			55
S-P12-6	8.645	23.360	1460	4.0 - 6.5			55

max. weight approx.: 8.8kg

#### DIMENSIONS

##### S-P13-6 to S-P21-6



##### S-P13-6 TO S-P21-6

Type	Nom. load [kN]		Vertical stiffness <sup>1)</sup> [N/mm]	Natural frequency [Hz]	Height [mm]		
	min.	max.			$H_0$	$H_n$	
						$F_{n_{min}}$	$F_{n_{max}}$
S-P13-6	0.540	3.900	90	2.4 - 6.5	117	114	74
S-P14-6	0.965	6.990	165	2.4 - 6.5			74
S-P15-6	1.225	8.915	205	2.4 - 6.5			74
S-P16-6	2.615	16.795	440	2.6 - 6.5			79
S-P17-6	5.090	30.960	860	2.6 - 6.5			81
S-P18-6	8.555	30.345	1445	3.4 - 6.5			96
S-P19-6	11.035	48.465	1865	3.1 - 6.5			91
S-P20-6	13.965	61.335	2360	3.1 - 6.5			91
S-P21-6	17.940	72.720	3030	3.2 - 6.5			93

max. weight: 17kg

#### REMARKS:

- 1) calculated according to DIN EN 13906-1 for -CRD type: dynamic stiffening factor approx. 1.2 to 1.4
- 2) Natural frequency range: 2.4 Hz to 6.5 Hz
- 3) Casing made of carbon steel, corrosion protection C3-RAL 5012. Long-term corrosion protection on request.

- 4) Damping (CRD) and height adjustment (HA) are optional equipment and have to be ordered separately (addition -CRD and/or -HA to the type e.g. S-P13-6-CRD-HA).

## Spring element type: S-U13-2 to S-U21-4

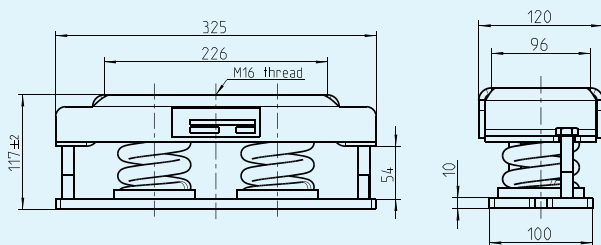
## LEGEND

 $H_0$ : unloaded height $H_n$ : height at nominal load

Standard spring element for the vibration control of structure-borne noise and vibrations.

## DIMENSIONS

## S-U13-2 to S-U21-2



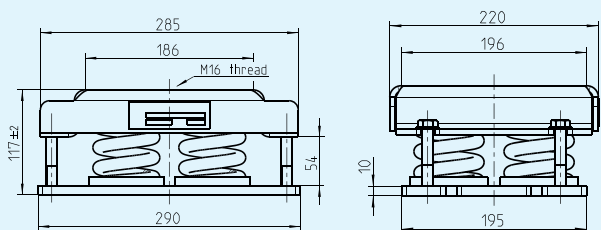
## S-U13-2 TO S-U21-2

Type	Nom. load [kN]		Vertical stiffness <sup>1)</sup> [N/mm]	Natural frequency [Hz]	Height [mm]		
	min.	max.			$H_0$	$H_n$	
						$F_{n_{min}}$	$F_{n_{max}}$
S-U13-2	0.180	1.300	30	2.4 - 6.5	117	111	74
S-U14-2	0.320	2.330	54	2.4 - 6.5			74
S-U15-2	0.410	2.970	70	2.4 - 6.5			74
S-U16-2	0.870	5.585	147	2.6 - 6.5			79
S-U17-2	1.690	10.330	286	2.6 - 6.5			81
S-U18-2	2.835	10.120	482	3.4 - 6.5			96
S-U19-2	3.655	16.145	622	3.1 - 6.5			91
S-U20-2	4.625	20.435	786	3.1 - 6.5			91
S-U21-2	5.940	24.240	1010	3.2 - 6.5			93

max. weight: 8kg

## DIMENSIONS

## S-U13-4 to S-U21-4



## S-U13-4 TO S-U21-4

Type	Nom. load [kN]		Vertical stiffness <sup>1)</sup> [N/mm]	Natural frequency [Hz]	Height [mm]		
	min.	max.			$H_0$	$H_n$	
						$F_{n_{min}}$	$F_{n_{max}}$
S-P13-4	0.355	2.600	60	2.4 - 6.5	117	111	74
S-P14-4	0.640	4.660	110	2.4 - 6.5			74
S-P15-4	0.815	5.945	140	2.4 - 6.5			74
S-P16-4	1.745	11.210	295	2.6 - 6.5			79
S-P17-4	3.390	20.630	575	2.6 - 6.5			81
S-P18-4	5.700	20.225	965	3.4 - 6.5			96
S-P19-4	7.360	32.320	1245	3.1 - 6.5			91
S-P20-4	9.310	40.900	1575	3.1 - 6.5			91
S-P21-4	11.960	48.480	2020	3.2 - 6.5			93

max. weight: 14kg

## REMARKS:

- 1) calculated according to DIN EN 13906-1  
for -CRD type: dynamic stiffening factor approx. 1.2 to 1.4
- 2) Natural frequency range: 2.4 Hz to 6.5 Hz
- 3) Casing made of carbon steel, corrosion protection C3-RAL 5012.  
Long-term corrosion protection on request.

- 4) Damping (CRD) and height adjustment (HA) are optional equipment and have to be ordered separately (addition -CRD and/or -HA to the type e.g. S-U13-4-CRD-HA).

## Spring element type: S-U13-6 to S-U21-6

### LEGEND

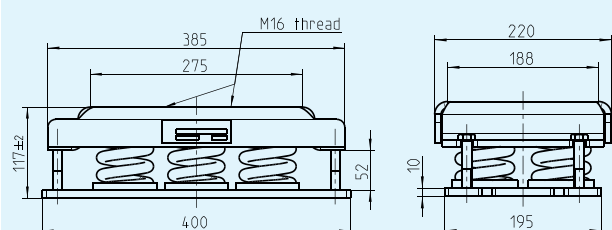
$H_0$ : unloaded height

$H_n$ : height at nominal load

Standard spring element for the vibration control of structure-borne noise and vibrations.

### DIMENSIONS

#### S-U13-6 to S-U21-6



#### S-U13-6 TO S-U21-6

Type	Nom. load [kN]		Vertical stiffness <sup>1)</sup> [N/mm]	Natural frequency [Hz]	Height [mm]		
	min.	max.			$H_0$	$H_n$	
						$F_{n_{min}}$	$F_{n_{max}}$
S-U13-6	0.540	3.900	90	2.4 - 6.5	117	111	74
S-U14-6	0.965	6.990	165	2.4 - 6.5			74
S-U15-6	1.225	8.915	205	2.4 - 6.5			74
S-U16-6	2.615	16.795	440	2.6 - 6.5			79
S-U17-6	5.090	30.960	860	2.6 - 6.5			81
S-U18-6	8.555	30.345	1445	3.4 - 6.5			96
S-U19-6	11.035	48.465	1865	3.1 - 6.5			91
S-U20-6	13.965	61.335	2360	3.1 - 6.5			91
S-U21-6	17.940	72.720	3030	3.2 - 6.5			93

max. weight: 22kg

### REMARKS:

- 1) calculated according to DIN EN 13906-1 for -CRD type: dynamic stiffening factor approx. 1.2 to 1.4
- 2) Natural frequency range: 2.4 Hz to 6.5 Hz
- 3) Casing made of carbon steel, corrosion protection C3-RAL 5012. Long-term corrosion protection on request.

- 4) Damping (CRD) and height adjustment (HA) are optional equipment and have to be ordered separately (addition -CRD and/or -HA to the type e.g. S-U13-6-CRD-HA).



**LISEGA SE | GERMANY**

Gerhard-Liesegang-Straße 1  
27404 Zeven  
P. O. Box 1357  
27393 Zeven

T. | +49 (0) 42 81 – 713-0  
M. | [info@de.liseqa.com](mailto:info@de.liseqa.com)  
[www.liseqa.com](http://www.liseqa.com)