

d Ø	D Ø	t mm	L mm	L1 mm	F Nw	Package
3.2	8	0.30	0.55	0.36	104	100 pcs.
		0.50	0.70	0.55	357	
4.2	10	0.40	0.60	0.45	209	100 pcs. in package
3.2		0.30	0.65	0.39	98	
		0.40	0.70	0.48	179	
4.2		0.50	0.75	0.56	294	
		0.60	0.85	0.66	502	
5.2	12	0.40	0.70	0.48	209	100 pcs. in package
		0.50	0.75	0.56	325	
4.2		0.40	0.80	0.50	178	
		0.50	0.85	0.59	284	
5.2		0.50	0.90	0.60	349	
6.2	12.5	0.60	0.95	0.69	506	100 pcs. in package
		0.50	0.85	0.59	326	
		0.60	0.95	0.69	551	
6.2		0.50	0.85	0.59	293	
		0.70	1.00	0.78	659	
7.2	14	0.50	0.90	0.60	279	50 pcs. in package
		0.80	1.10	0.87	796	
5.2		0.40	0.95	0.54	175	
		0.60	1.05	0.71	407	
6.2		0.50	1.00	0.63	289	
8.2	15	0.70	1.10	0.80	577	50 pcs. in package
		0.70	1.10	0.80	665	
		0.80	1.20	0.90	982	
8.2		0.40	0.90	0.53	154	
		0.60	1.05	0.71	410	
9.2	16	0.90	1.25	0.99	1012	50 pcs. in package
6.2		0.50	1.10	0.65	245	
		0.70	1.25	0.84	552	
8.2		0.80	1.30	0.92	582	
		1.00	1.40	1.10	1181	
10.2	18	0.70	1.20	0.83	566	50 pcs. in package
		1.00	1.40	1.10	1253	
8.2		0.60	1.30	0.77	412	
		0.80	1.40	0.95	751	
		1.00	1.55	1.14	1294	
10.2	20	0.80	1.35	1.14	748	50 pcs. in package
		1.00	1.55	1.14	1414	

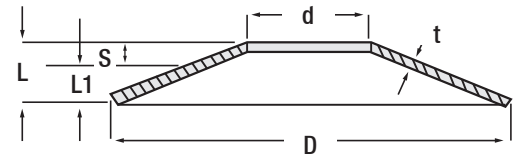
d Ø	D Ø	t mm	L mm	L1 mm	F Nw	Package
8.2	23	0.80	1.55	0.99	718	50 pcs. in package
		0.90	1.60	1.07	918	
10.2	25	1.00	1.70	1.17	1315	50 pcs. in package
		0.70	1.60	0.92	599	
12.2	28	0.90	1.60	1.07	862	50 pcs. in package
		0.80	1.75	1.04	661	
10.2	31.5	1.00	1.90	1.23	1129	50 pcs. in package
		0.80	1.80	1.05	801	
14.2	34	1.00	1.80	1.20	1107	50 pcs. in package
		1.25	2.15	1.48	1912	
16.3	40	1.50	2.40	1.73	3228	50 pcs. in package
		1.25	2.35	1.53	1814	
12.3	45	1.50	2.50	1.75	2719	25 pcs. in package
		1.25	2.40	1.54	1988	
14.3	50	1.50	2.55	1.76	2982	25 pcs. in package
		1.50	2.55	1.76	3153	
16.3	60	2.00	2.85	2.21	5779	25 pcs. in package
		1.50	2.75	1.81	2544	
14.3	70	2.00	3.05	2.26	4766	25 pcs. in package
		1.50	2.80	1.83	2748	
16.3	80	2.00	3.10	2.28	5166	25 pcs. in package
		2.00	3.10	2.28	5698	
20.4	100	2.50	3.45	2.74	9384	10 pcs. in package
		1.75	3.05	2.08	3644	
22.4	120	2.50	3.50	2.75	7712	10 pcs. in package
		2.00	3.50	2.38	4685	
20.4	140	2.50	3.85	2.84	7915	10 pcs. in package
		2.00	3.40	2.35	4760	
25.4	160	2.50	3.90	2.85	9058	10 pcs. in package
		3.00	4.10	3.28	11970	
20.5	180	2.50	4.70	2.95	7293	10 pcs. in package
		3.00	5.20	3.42	11563	
30.5	200	3.00	4.70	3.42	13219	10 pcs. in package
		3.50	5.00	3.88	18143	
40.5	250	4.00	5.70	4.04	23338	10 pcs. in package
		5.00	6.40	5.30	33653	
31	300	4.00	6.10	4.50	19384	10 pcs. in package
		3.00	5.30	3.58	10512	
41	350	5.00	6.70	5.42	33541	10 pcs. in package
		5.00	7.75	5.69	32344	
51	400	6.00	8.20	6.55	47995	10 pcs. in package



Disc Springs

DIN 2093

Code: DCY



d: Inner hole diameter
D: Outer diameter
t: Thickness
L: Free length
L1: Loading length
F max: Flex force
S: Flex length course / motion

Disc Springs: It provides resistance to higher forces at very short working courses. The advantage of springs with very short spring is that when the pressure is applied, it produces high power with less motion. Disc springs sometimes can be used alone and also as stacked array sets.

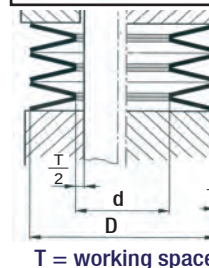
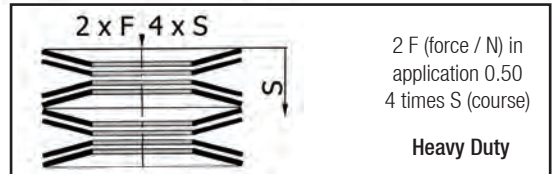
Tension Resistance N: 25 / + 200 50 CrV **Heat Resistance:** -15 / +150°

Disc Spring Working Courses: Applied forces (F / N) should be designed according to the working courses. Specifying the working courses should be according to the hole thickness (t) internal wall. L: 0.25 (1/4) or 0.50 (1/2) of free length.

In addition, with motion up to 0.75 (3/4), different forces (F/N) per each course value may be applied.

F=N / S = mm / course

Disc Spring Array (load application) / 1 Newton : 0.102 Kg.

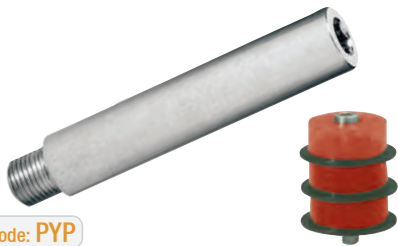


Fixing Disc Spring with Shaft

D	T
> 8 - 16	0.2 mm
> 16 - 20	0.3 mm
> 20 - 26	0.4 mm
> 26 - 34	0.5 mm
> 34 - 50	0.6 mm
> 50 - 100	0.8 mm

Order:
DCY. d x D x t

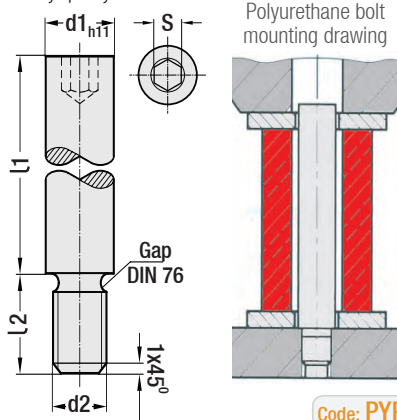




Code: **PYP**

Guide Bolt for Polyurethane Spring

During guiding of polyurethane springs, countersunk allen head metric thread connected guide bolts can be used as single spring as well as cluster by dividing springs.



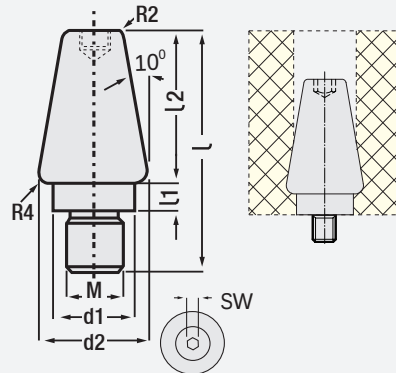
Code: **PYP**

d1	l1	d2	l2	S	Spring Ø
Ø 6 mm	20	M4	6 mm	3	Ø 16 x 6.5
	25				
	32				
Ø 8 mm	25	M6	9 mm	4	Ø 20 x 8.5
	32				
	40				
Ø 10 mm	50	M8	15 mm	5	Ø 25 x 10.5
	63				
	80				
	95				
Ø 13 mm	32	M10	15 mm	6	Ø 32 / 40 x 13.5
	40				
	50				
	63				
	80				
Ø 16 mm	95	M12	18 mm	8	Ø 50 / 63 x 17
	118				
	140				
	155				
	170				
	185				
Ø 20 mm	40	M16	25 mm	10	Ø 80 / 100 x 21
	50				
	63				
	80				
	95				
	118				

Order: **PYP.**
d1 x l1

Code: **PSP**

Locating Bolt for Polyurethane Spring



M	l	d1	d2	l1	l2	SW	Spring Ø
M12	56	19	28	8	30	6	63
M16	74	22	32	10	40	8	80-100
M20	100	28	38	15	55	10	125-140

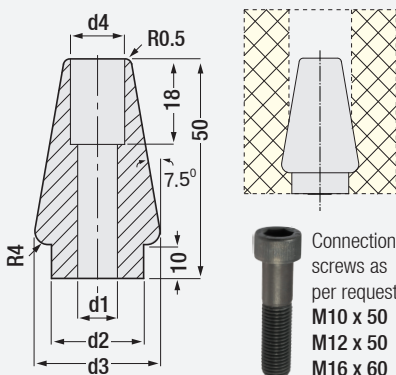
Order: **PSP.** M x l

Material:
1.7131 (16MnCr5)



Code: **PMV**

Locating Pin for Polyurethane Spring



Connection screws as per request:
M10 x 50
M12 x 50
M16 x 60

Upper screwed locating pins for polyurethane springs

M	d1	d2	d3	d4	Spring Ø
M10	11	18	28	17	63
M12	13.5	22	32	19	80-100
M16	17.5	28	38	25	125

Order: **PMV.** M

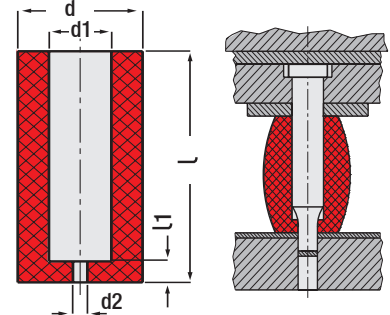
Material:
1.7131 (16MnCr5)



Code: **PYB**

Polyurethane Punch Stripper

Overspread on punch (shock absorber)



In dies that polyurethane punch stripper is used, there is no need to dismantle stripper plate to make repair whetting and modification on die components, there is not any effect on precise parts, it is excellent for all painted / anodized, plastic plated and polished parts. It is compatible to use with oil and grease.

It is overspread on punch. Placement is done according to the stripper hardness. There is no need for extra holder. Stepped-punch hole will be opened at the first stroke of press on stripper edge.

Especially, in large dies requiring very wide stripper plate, this product is very compatible.

Code: **PYB**

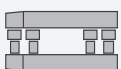
Order	d1 Ø	d Ø	d2 Ø	l1 mm	l mm	Punch Length
PYB.445	4.0	17	1.6	5.0	45	56 / 63
PYB.655	6.0	19				
PYB.855	8.0	21	3.0	5.0	55	63
PYB.1055	10	23				71
PYB.1355	13	26				80
PYB.1655	16	30	3.0	5.0	55	90
PYB.2055	20	38				
PYB.2555	25	50				100

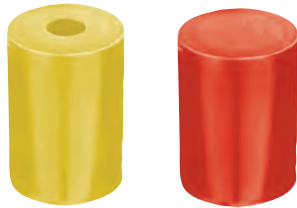
d2: (1.6 - 3.0 mm) (d1) while opening hole diameter / drilling, polyurethane (punch) bush should be applied and drilled in pressed (S max) position. Spring load is obtained while extending outwards.

In S. max flexion, load coefficient data daN / Kg.

d mm	17	19	21	23	26	30	38	50
S daN	60	65	70	90	110	140	210	370
3 mm	daN	daN	daN	daN	daN	daN	daN	daN
S daN	115	120	130	160	190	230	360	650
6 mm	daN	daN	daN	daN	daN	daN	daN	daN
S daN	-	180	210	240	300	370	550	1020
9 mm		daN	daN	daN	daN	daN	daN	daN

S max: Load coefficient daN = Kg. / (10 newton), while polyurethane bush S max in pressed, load data is advisory.





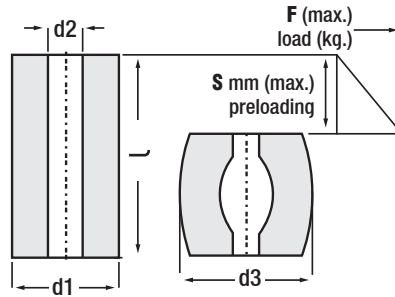
90 Shore / Red Springs

Code: **PMK**

80 Shore / Yellow Springs

Code: **PMS**

D = Solid / B = Hollow



Compression (Length)

Red / 90 Shore: % 25

Yellow / 80 Shore: % 35

Polyurethane Compression Spring

They do not create any problem at water / oil emulsions (resistance to thermal shock). They do not have any abrasion effects that can be distinguished with fixed and high load under normal temperature and environmental conditions at serial motion dies. Especially, they are efficient in ambient that do not require magnetization. Polyurethane springs can be machining with ordinary machine tools (such as lathe) as well as can be machining with traditional cutting tools (with sharp cutting edge). Polyurethane compression spring is incompressible material, spring load is obtained by extending outwards. Most of the expansion is reflected outwards. When desired higher flexion, selected spring is cut into two pieces from centre, then metal thick washer is inserted, thus flexion is increased two times. Pin diameter of polyurethane compression springs should be less than the inner diameter of spring.

Ø d1 mm	L mm	Ø d2 mm	Ø d3 mm	% 25		% 35	
				90 Shore (red)		80 Shore (yellow)	
				Max. Force		Max. Force	
				S mm	F Kg	S mm	F Kg
16	12	6.5	21	3.6	171	4.3	104
	16			4.8	169	5.6	100
	20			6.0	165	7.0	97
	25			7.5	161	8.7	96
20	16	8.5	36	4.8	265	5.6	156
	20			6.0	260	7.0	154
	25			7.5	258	8.7	153
	32			9.6	255	10.6	152
25	20	10.5	32	6.0	439	7.0	265
	25			7.5	428	8.7	260
	32			9.6	423	10.6	257
	40			12.0	420	14.0	255
32	32	13.5	42	9.6	653	10.6	398
	40			12.0	648	14.0	393
	50			15.0	643	17.5	390
	63			18.9	638	22.0	388
40	32	13.5	52	9.6	1122	10.6	683
	40			12.0	1112	14.0	673
	50			15.0	1101	17.5	668
	63			18.9	1097	22.0	663
50	32	17	65	9.6	1775	10.6	1102
	40			12.0	1765	14.0	1061
	50			15.0	1734	17.5	1041
	63			18.9	1698	22.0	1020

Order:

Code. D or B . d1 . L

Order Example:

PMS.B.25.40

Heat resistance: 70°C

Note: Under 18°C gradual increase in hardness.

In special forms are produced as per request!



Plates



Cylinder



Discs



Pipes



Square



Formed Moulding



Formed Moulding



Formed Moulding

Polyurethane Compression Spring

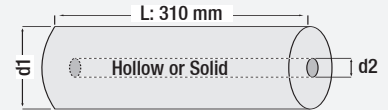
90 Shore / Red Springs

Code: **PYK**

80 Shore / Yellow Springs

Code: **PYS**

D = Solid / B = Hollow



Solid Type	d2 Hollow	d1	Solid Type	d2 Hollow	d1
90 Shore: Flexion %25 Loaded Spring	6.5	16	80 Shore: Flexion % 35 Loaded Spring	6.5	16
	8.5	20		8.5	20
	10.5	25		10.5	25
	13.5	32		13.5	32
	13.5	40		13.5	40
	17.0	50		17.0	50
	17.0	63		17.0	63
	21.0	80		21.0	80
	21.0	100		21.0	100
	27.0	125		27.0	125
Length (L): 310 mm			Length (L): 310 mm		

Order:

Code. D or B . d1

Order Example:

PYK.D.32

Polyurethane Shock Absorbing Washer

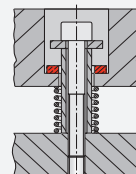


Code: **PRPS**



Code: **PRPK**

90 Shore - red / %25
80 Shore - yellow / %35



d2	d1	s	d2	d1	s
Ø 16	6.5	3 mm	Ø 40	13.5	5 mm
	11	4 mm		17	6 mm
Ø 20	8.5	3 mm		21	7 mm
	11	4 mm		32	8 mm
Ø 25	13	5 mm	Ø 50	17	6 mm
	10.5	3 mm		26	7 mm
Ø 32	12	4 mm		32	8 mm
	23.5	5 mm		37	10 mm
Ø 32	13.5	3 mm	Ø 63	17	6 mm
	18	4 mm		32	10 mm
	21	5 mm	Ø 80	21	8 mm
	25	7 mm		42	10 mm
			Ø 100	21	10 mm

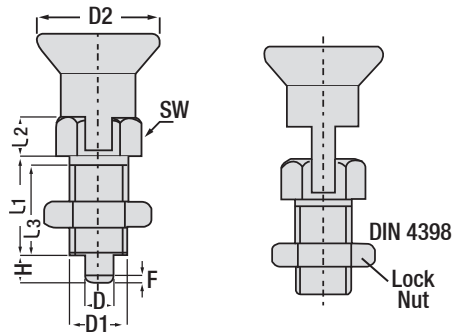
Order: Code. d1 x d2 x s

Order Example: PRPS. 11 x 20 x 4



Indexing Plunger with Lock Nut

Movable Support Pin

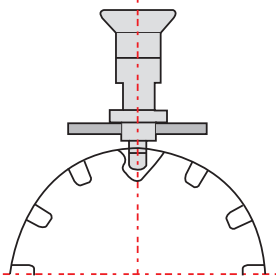


Code: **MM102ST**

Material Structure : Coated steel material
or stainless steel - 304

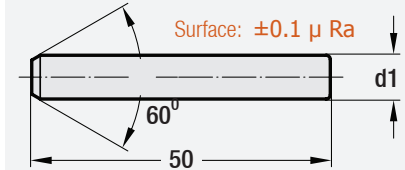
Locking Pin : Hardened steel
or stainless steel - 304

Handle : Plastic (PA6) black
non-demountable head



Precision Pin Gauge Kit Code: PKMS

DIN 2269 - Dia. tolerance: $\pm 0.001 / 2$



Small Set: 91 pieces measurement / control pin
between $\varnothing 1 - 10$ mm. in 0.1 mm stepped complete
wooden box.

Large Set: 273 pieces measurement / control pin
between $\varnothing 1 - 10$ mm. in 0.1 mm stepped complete
wooden box. For each pin, over 0.01 mm and under
0.01 mm pins are available.

In addition, pins are protected with plastic tube.
The measures of all measurement pins over
3 mm are stamped on them.

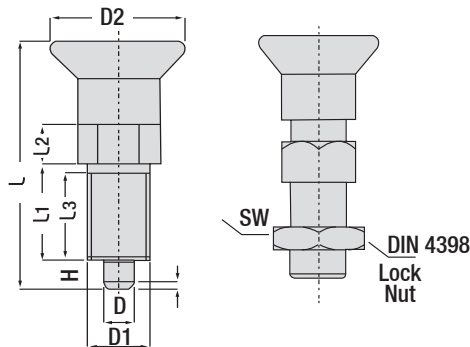
Order	D -0.02 / -0.04	D1	D2	L	L1	L2	L3	H	SW
MM102ST05	5	M10 x 1.0	21	43.7	17	7	15	5	12
MM102ST06	6	M12 x 1.5	25	51.7	20	7	17	6	14
MM102ST08	8	M16 x 1.5	33	68.7	26	10	23	8	19
MM102ST10	10	M20 x 1.5	33	74	28	12	25	10	22
MM102ST12	12	M20 x 1.5	33	78	28	14	25	12	22

Code: **MM102ST**



Indexing Plunger

Fixed Support Pin



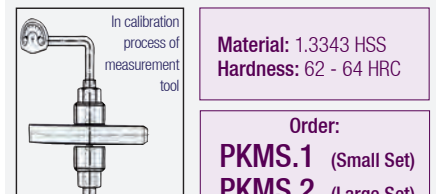
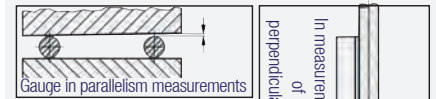
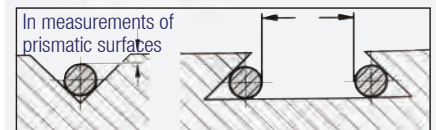
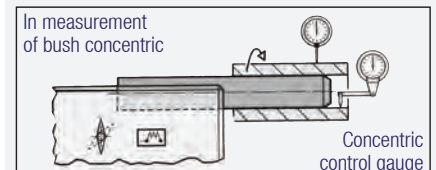
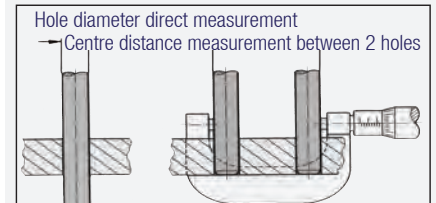
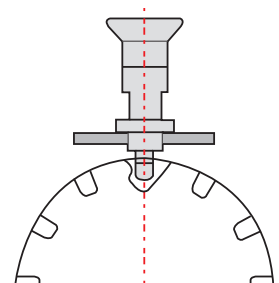
Code: **MM101ST**

Order	D -0.02 / -0.04	D1	D2	L	L1	L2	L3	H	SW
MM101ST05	5	M10 x 1.0	21	43.7	17	7	15	5	12
MM101ST06	6	M12 x 1.5	25	51.7	20	7	17	6	14
MM101ST08	8	M16 x 1.5	33	68.7	26	10	23	8	19
MM101ST10	10	M20 x 1.5	33	74	28	12	25	10	22
MM101ST12	12	M20 x 1.5	33	78	28	14	25	12	22

Material Structure : Coated steel material
or stainless steel - 304

Locking Pin : Hardened steel
or stainless steel - 304

Handle : Plastic (PA6) black
non-demountable head

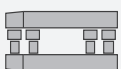


Material: 1.3343 HSS
Hardness: 62 - 64 HRC

Order:

PKMS.1 (Small Set)

PKMS.2 (Large Set)

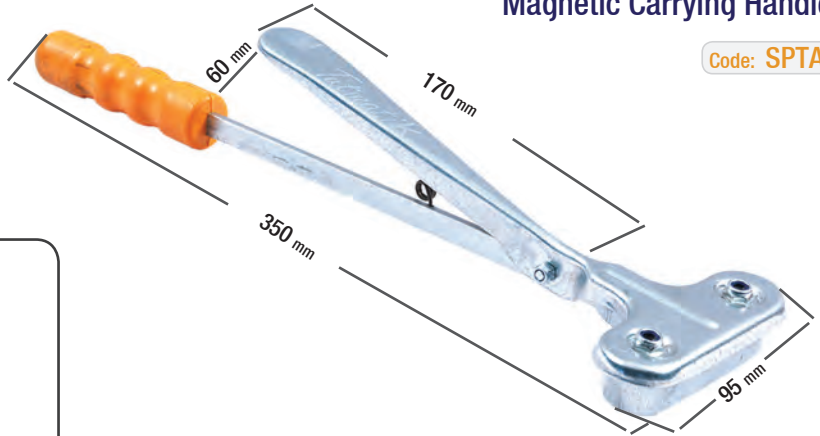


NEW



Magnetic Carrying Handle

Code: SPTA



Sheet Holding Tool for Dies

Modern dies are generally built with closed system and feeder machines. Most of the occupational accidents occur in eccentric press machines during operation of open position dies with traditional systems and obligatory workpiece designs. These accidents occur because of chopping or crushing of fingers in the dies when press is operating. There is a security gap in this matter or companies endeavour to take measures with their own means. So, this simply designed magnetic handle / sheet holding tool is created.



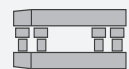
Product is lightweight (260 g.) and can be used with single hand. It does not require force as the spring tongs do. It can strongly hold the material via its magnetic jaw. Thus, hands are protected when eccentric press is lowered in open dies operating with functionally simple systems via magnetic carrier tool in the open die. So, the problems happened in the past will not be encountered again.



Please visit www.guvenal.net to watch videos and mounting process.



Dies



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