

Die components

			
	M301-00		M301-11
	Gage		Gage Hardened
	BMW - MERCEDES - BENZ - FCA - FORD - OPEL - VW/AUDI		MERCEDES - BENZ
			
	M301-01		M301-12
	Gage Hardened		Precision Gage Hardened
	BMW - MERCEDES - BENZ - FCA - FORD - OPEL - VW/AUDI		VW/AUDI
			
	M301-02		M301-13
	Gage for Sensor, Hardened		Gage Hardened
			BMW - MERCEDES - BENZ
			
	M301-03		M301-14
	Sensor and Connector		Gage
			
	M301-04		M301-15
	Gage for Sensor		Position Control for Blanks
	VW/AUDI		VW/AUDI
			
	M301-05		M301-16
	Gage for Sensor, Hardened		Gage
	BMW - FCA		
			
	M301-06		M302-01
	Front Gage		Locating Cone
	FCA - OPEL		FCA - VW/AUDI
			
	M301-09		M302-02
	Gage		Locating Cone
			FCA - VW/AUDI
			
	M301-10		M302-03
	Gage		Shim Plates
	MERCEDES - BENZ		

Die components

			
	M302-08		M305-05
	Locating Cones		Flange Lifter
			
	M303-01		M305-06
	Locating Pins FCA		Flange Lifter
			
	M303-02		M305-07
	Locating Pins BMW - VW/AUDI		Flange Lifter FCA
			
	M304-01		M305-08
	Air Pins BMW - FORD - OPEL		Flange Lifter FCA
			
	M304-07		M305-09
	Air Pins VW/AUDI		Universal Lifter Unit BMW
			
	M304-08		M306-02
	Air Pins BMW - MERCEDES - BENZ - VDI 3002		Pad Retainer Pins VW/AUDI - VDI 3365
			
	M304-09		M306-03
	Air Pins VW/AUDI - VDI 3002		Pad Retainer Pins VW/AUDI - VDI 3365
			
	M304-10		M307-01
	Air Pins VW/AUDI		Retainer Bolts FCA - FORD
			
	M305-04		M308-01
	Lifters with Gas Springs Sleeve and Bushes, Self-lubricating		Flux Control

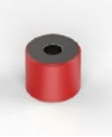
Die components

	M308-07		M310-05
	Air Coupling Brackets		Steel Roller
			VW/AUDI
	M309-02		M310-06
	Slide Stop Block		Plastic Roller
	FCA		
	M309-04		M310-08
	Slide Stop Block		Roller
	VW/AUDI		VW/AUDI
	M309-05		M310-08
	Slide Stop Block		Roller Group
	BMW - VW/AUDI		FCA
	M309-06		M310-09
	Slide Stop Block		Coil Support
	BMW - VW/AUDI		
	M309-07		M311-01
	Slider Stop Damping System		Pin for Elastomer Springs
	VW/AUDI		FCA
	M310-01		M311-05
	Roller Stock Lifter		Pin for Elastomer Springs
	VW/AUDI		DIN 9835
	M310-03		M312-03
	Roller Group		Retainer Bolt Sets
	FIAT		FORD
	M310-04		M312-08
	Ball Carriers		Retainer Bolt Sets
	FCA		

Die components

			
	M313-01		M317-07
	Spacer Tubes		Key
	BMW - MERCEDES - BENZ - FCA - FORD - OPEL - VW/AUDI		FORD
			
	M313-02		M317-08
	Spacer Tubes		Key
	BMW		FCA
			
	M313-04		M317-10
	Washer for Elastomer Spring		Key
			
	M313-05		M317-11
	Washer		Key
			
	M313-06		M317-12
	Washer		Locating Block
			VW/AUDI
			
	M316-01		M317-16
	Coupling Plates		Key
	FORD		VW/AUDI
			
	M316-02		M317-17
	Coupling Nuts		Key
	FCA		VW/AUDI
			
	M317-04		M318-03
	Key		Balance Blocks
	FCA		VW/AUDI
			
	M317-05		M318-05
	Key		Balance Blocks
	VW/AUDI		VW/AUDI

Die components

	M318-06		M321-01
	Balance Blocks		Spacing Bar
	VW/AUDI		VW/AUDI
	M318-07		M321-02
	Cylindrical Stop Block		Pipe with Assembly
	FCA		VW/AUDI
	M318-08		M321-03
	Shim		Pipe with Assembly
			VW/AUDI
	M318-09		M321-04
	Pressure Plate		Laser Cutting Part
			VW/AUDI
	M319-01		M321-04
	Coupling Clamps		Laser Cutting Part
	FCA		VW/AUDI
	M319-01		M321-05
	Sleeve		Pipe Box Set 5 mm
	FCA		VW/AUDI
	M319-02		M321-05
	Spacer Plates, Toothed with Adjusting Plate		Pipe Box Set 3 mm
	BMW - FCA - VW/AUDI		VW/AUDI
	M320-03		M322-01
	Hook for Chute		Strip Guiding Pin with Collar, Spring-loaded
	M320-07		M322-02
	Positive Return Plates, Steel		Screw Plug
	FCA		

Die components

			
	M323-01		Z000166439
	Pilot Unit		Stainless Steel Embossed Sheet
	MERCEDES-BENZ		
			
	S510-02		A101-15
	Shock Absorber for Pad Retainer Pins		Washer
	OPEL		
			
	S511-01		M307-04
	Elastomer Cap		Retainer Bolts
	FCA - PSA		
			
	S515-03		M314-01
	Stripper for Blanking Dies		Spring Plungers
	FCA - VW/AUDI		
			
	Z401-01		M314-02
	Stamp Retainer		Spring Plungers
	FCA - PSA - RENAULT		
			
	Z401-02		M314-03
	Backing Plate		Spring Plungers
	FCA - PSA - RENAULT		
			
	Z401-06		M314-04
	Stamp		Spring Plungers
	FCA - PSA - RENAULT		
			
	Z401-07		M314-05
	Stamp		Insertion Tool for Spring Plungers
	FCA - PSA - RENAULT		
			
	Z402-03		M315-01
	Visual Locator Punch		Shoulder Screws
	VW/AUDI		

Die components

	M315-02		S513-1XX
	Retainer Bolts		Elastomer Springs
	BMW - MERCEDES - BENZ - FCA - FORD - OPEL - VW/AUDI		
	S504-03		S514-XXX
	Spring Plungers		Elastomer Springs, Hollow
	VDI 3004		FCA - PSA
	S504-04		D901-01-745
	Spring Plungers		Dressing Paste for Surface Control
	VDI 3004		
	S504-05		
	Spring Plungers		
	VDI 3004		
	S504-06		
	Spring Plungers		
	VDI 3004		
	S504-07		
	Spring Plungers		
	VDI 3004		
	S504-08		
	Insertion Tool for Spring Plungers		
	S510-05		
	Elastomer Springs, Hollow		
	S512-1XX		
	Elastomer Springs, Hollow		

M301-00

Gage

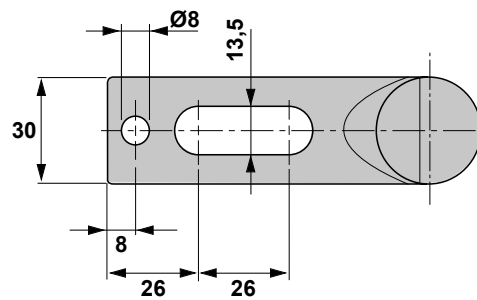
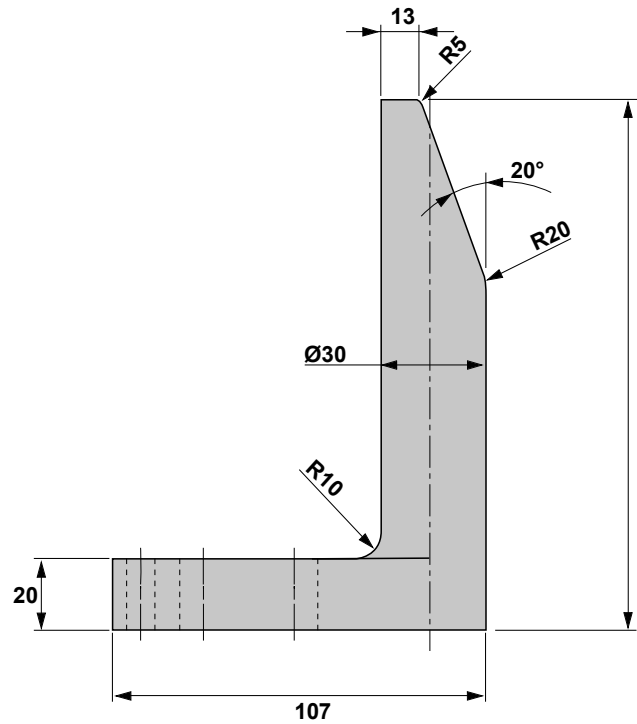
Ordering-Example:
I= 165

Diferent Lengths On Request.
M301-00-165

Material: CK60, Forged



Material : CK60
Forged
Diferent lengths on request;
Max. Length: 350 mm



CODE	I
M301-00-065	65
M301-00-090	90
M301-00-120	120
M301-00-150	150
M301-00-180	180
M301-00-250	250
M301-00-300	300
M301-00-350	350

M301-01

Gage Hardened Einweiser

Ordering-Example:
I= 165

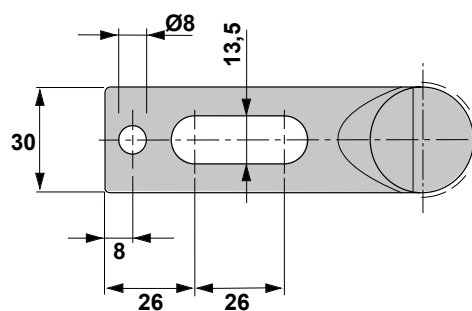
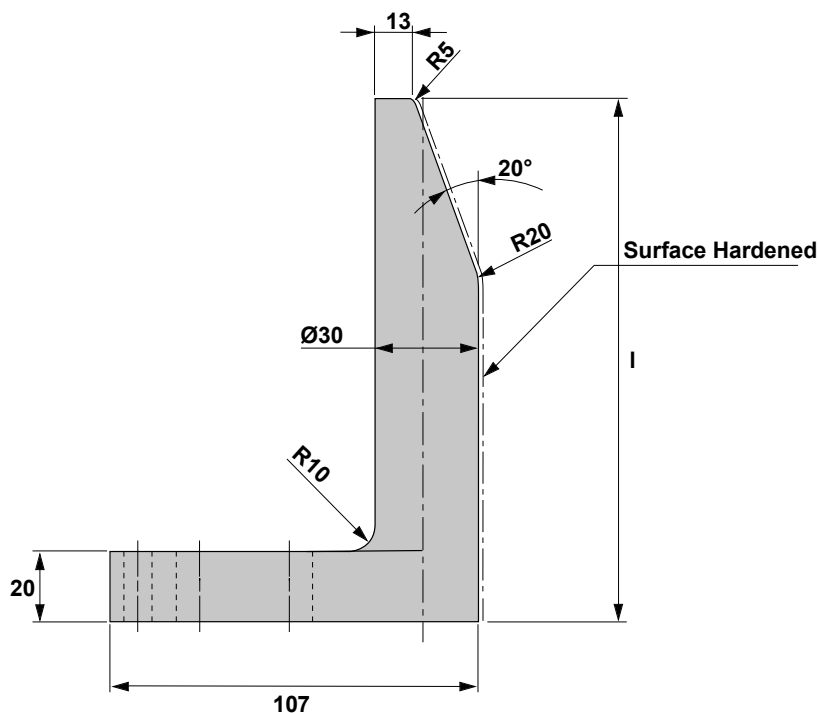
Diferent Lengths On Request.
M301-01-165

Material: CK60, Forged

Hardened: HRC 56 ÷ 60



Material : CK60
Forged
Hardened: HRC 56 ÷ 60
Diferent lengths on request;
Max. Length: 350 mm



CODE	I
M301-01-065	65
M301-01-090	90
M301-01-120	120
M301-01-150	150
M301-01-180	180
M301-01-250	250
M301-01-300	300
M301-01-350	350

M301-02

Gage for Sensor, Hardened

Ordering-Example:
I= 165

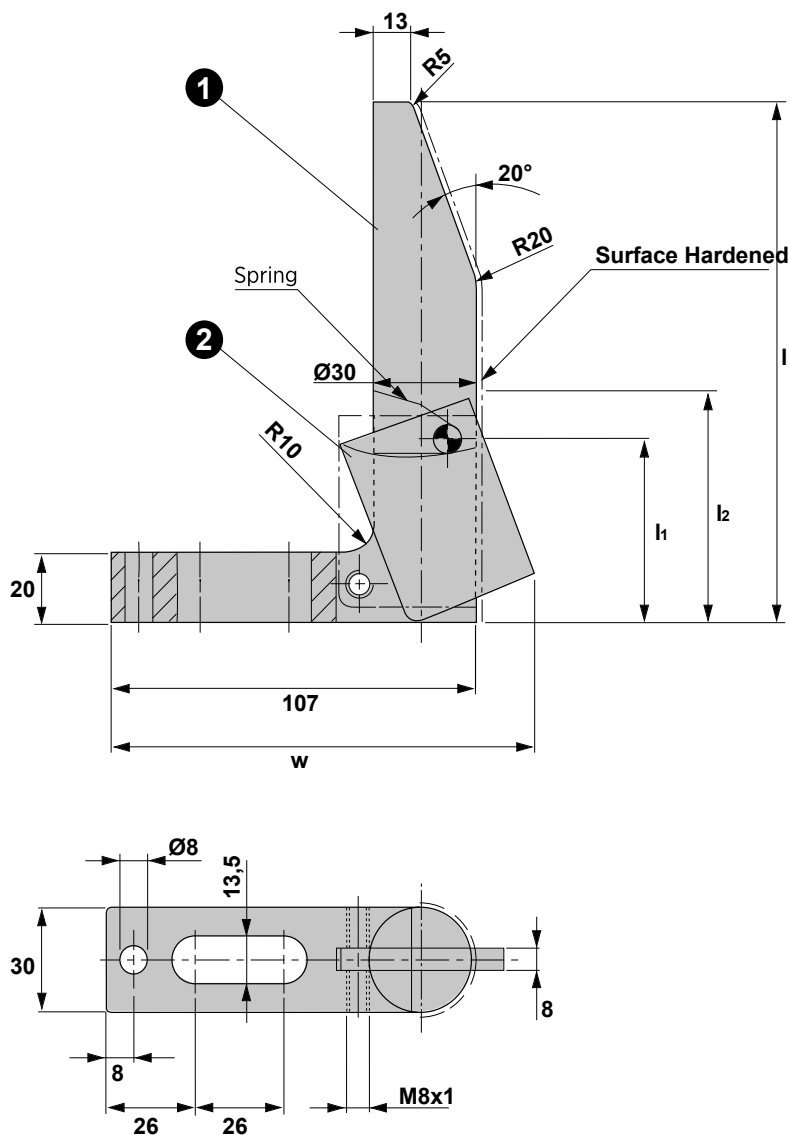
Diferent Lengths On Request.
M301-02-165

Material: CK60, Forged
Material: Plate, St37

Hardened: HRC 50 ÷ 55



1 Material : CK60
Forged
Hardened HRC 50 ÷ 55
2 Material: Plate St37
Diferent lengths on request;
Max. Length: 250 mm



CODE	w	I	I ₁	I ₂
M301-02-120	120	120	55	70
M301-02-150	120	150	55	70
M301-02-180	124	180	105	120
M301-02-250	124	250	105	120
CODE	w	I	I ₁	I ₂
M301-02-I	120	121 ÷ 179	55	70
M301-02-I	124	181 ÷ 249	105	120

M301-03

Sensor and Connector

Ordering-Example:
I= 165

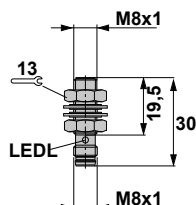
Diferent Lengths On Request.
M301-00-165

Manufactured by BALLUFF

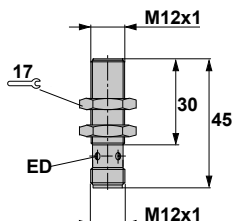


SENSORS

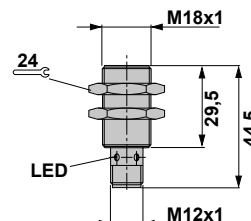
M301-03-01-001



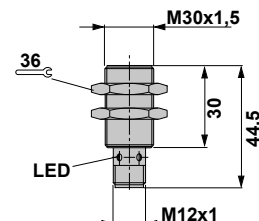
M301-03-01-002



M301-03-01-003



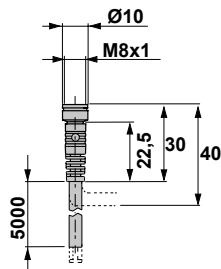
M301-03-01-004



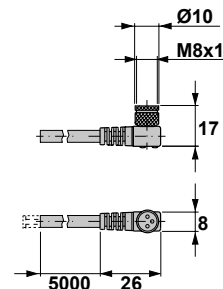
Manufactured by BALLUFF

CONNECTORS

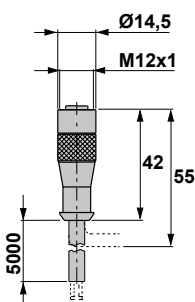
M301-03-02-001



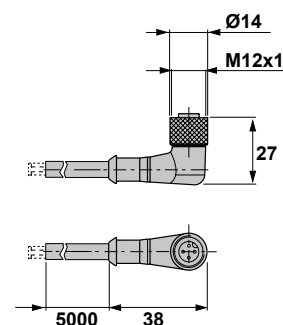
M301-03-02-002



M301-03-02-003



M301-03-02-004



CODE	M301-03-01-001	M301-03-01-002	M301-03-01-003	M301-03-01-004
Rated operational voltage (Ue)	24 V DC	24 V DC	24 V DC	24 V DC
Supply voltage (Ub)	10...30 V DC	10...30 V DC	10...30 V DC	10...30 V DC
No load supply current (I _o max.)	≤ 7 mA	≤ 10 mA	≤ 10 mA	≤ 25 mA
Residual current (I _r)	≤ 10 µA	≤ 50 µA	≤ 50 µA	≤ 80 µA
Repeat accuracy (R)	≤ 5 %	≤ 5 %	≤ 5 %	≤ 5 %
Ambient temperature range (Ta)	-40...+85° C	-25...+85° C	-25...+70° C	-25...+70° C
Frequency of operating cycles (f)	5000 Hz	2000 Hz	1000 Hz	150 Hz
Degree of protection per IEC 60529	IP 68	IP 68	IP 67	IP 67
Housing Material	Stainless Steel	Stainless Stee	Brass	Brass
Connection	Connector	Connector	Connector	Connector
Approval	CE/UL	CE/UL	CE/UL	CE/UL

M301-04

Gage for Sensor

Ordering-Example:

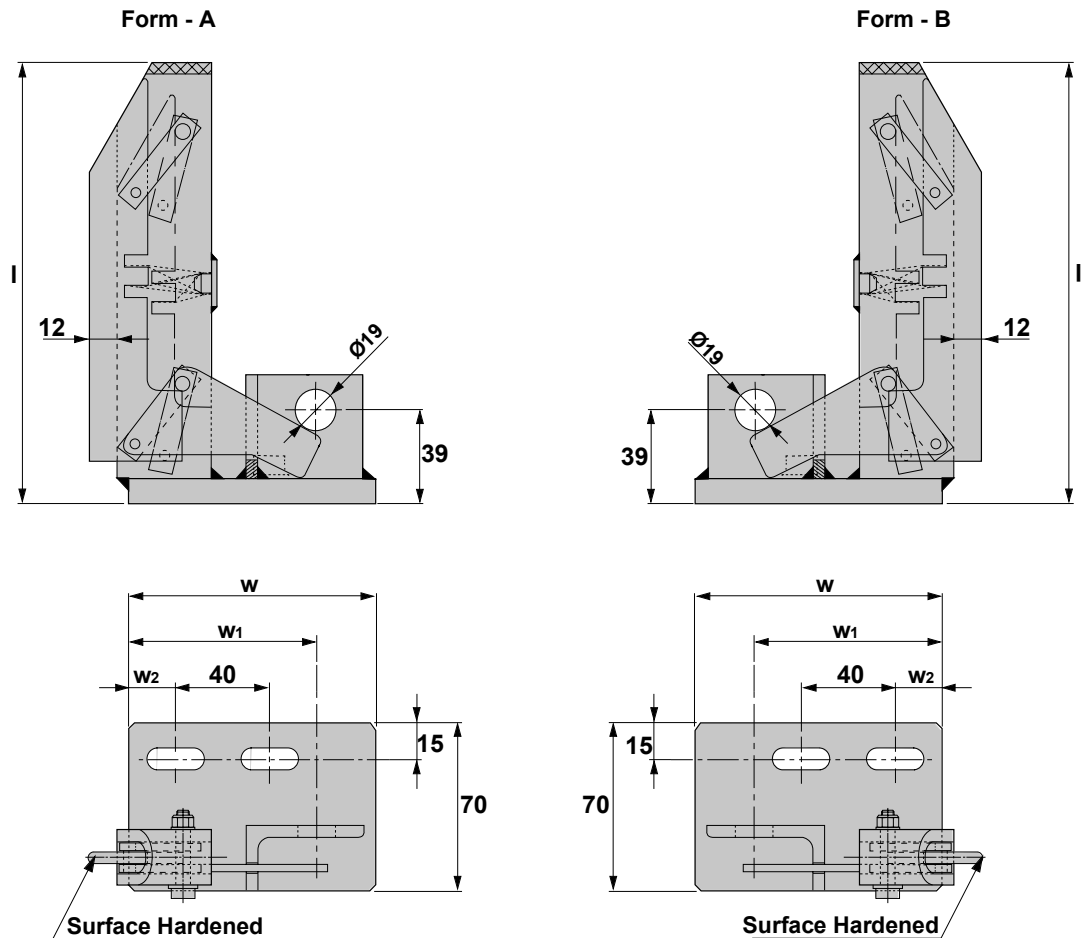
Diferent Lengths On Request.

Material: Steel

Hardened: HRC 60 ÷ 62



Material : Steel
Hardened HRC 60 ÷ 62



CODE	Form	w	l	w1	w2
M301-04-0145001	A	105	145	80	25
M301-04-0145002	B	105	145	80	25
M301-04-0145030	A	101	145	76	21
M301-04-0145031	B	101	145	76	21
M301-04-0185003	A	105	185	80	25
M301-04-0185004	B	105	185	80	25
M301-04-0185032	A	101	185	76	21
M301-04-0185033	B	101	185	76	21
M301-04-0225005	A	105	225	80	25
M301-04-0225006	B	105	225	80	25
M301-04-0225034	A	101	225	76	21
M301-04-0225035	B	101	225	76	21

M301-05

Gage for Sensor, Hardened

Ordering-Example:

Diferent Lengths On Request.

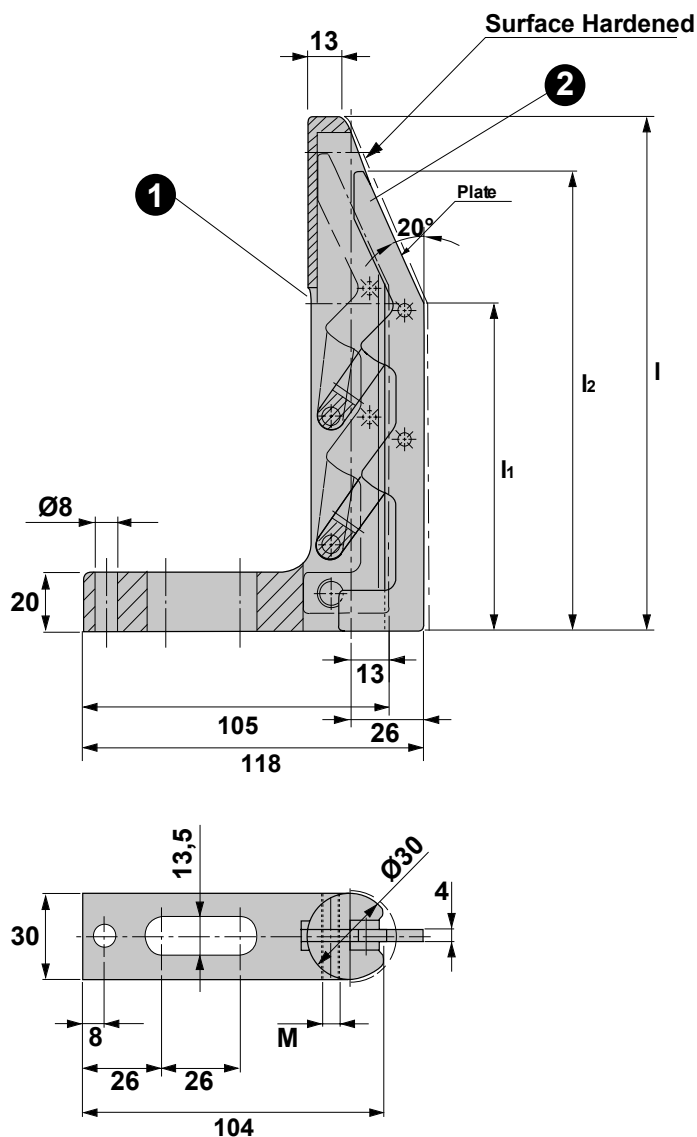
Material (Gage): CK60, Forged
Material (Plate): St37

Hardened: HRC 58 ÷ 60
Hardened: HRC 58 ÷ 60



**1 Material (Gage) : CK60 Forged
Hardened HRC 58 ÷ 60**

2 Material (Plate) : St37
Hardened HRC 58 ÷ 60



CODE	I	I1	I2	M
M301-05-120	120	78	113	M8x1
M301-05-120-002	120	78	113	M12x1
M301-05-150	150	90	130	M8x1
M301-05-150-002	150	90	130	M12x1
M301-05-180	180	114	160	M8x1
M301-05-180-002	180	114	160	M12x1
M301-05-250	250	114	160	M8x1
M301-05-250-002	250	114	160	M12x1
M301-05-250-003	250	184	230	M8x1
M301-05-250-004	250	184	230	M12x1

M301-06

Front Gage

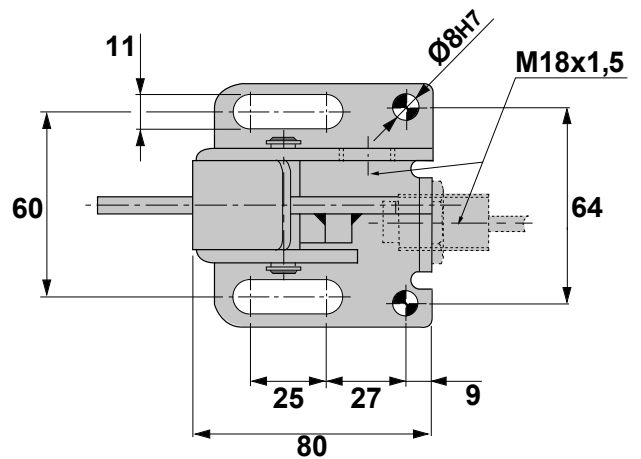
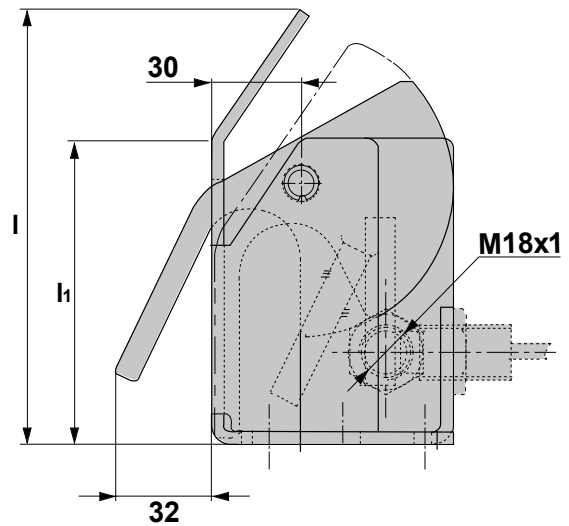
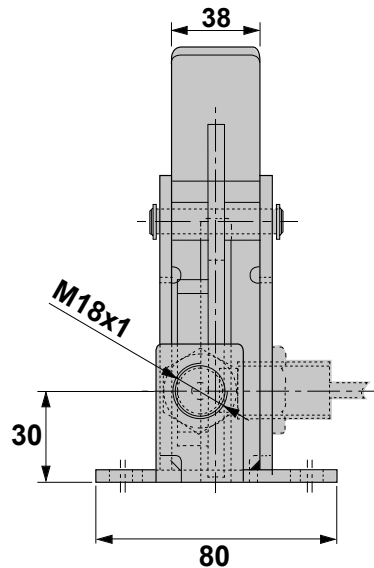
Ordering-Example:

Diferent Lengths On Request.

Material: St37



Material : St37
Sensor not included.



CODE	I	I1
M301-06-075-117	117	75
M301-06-100-142	142	100
M301-06-150-192	192	150

M301-09

Gage

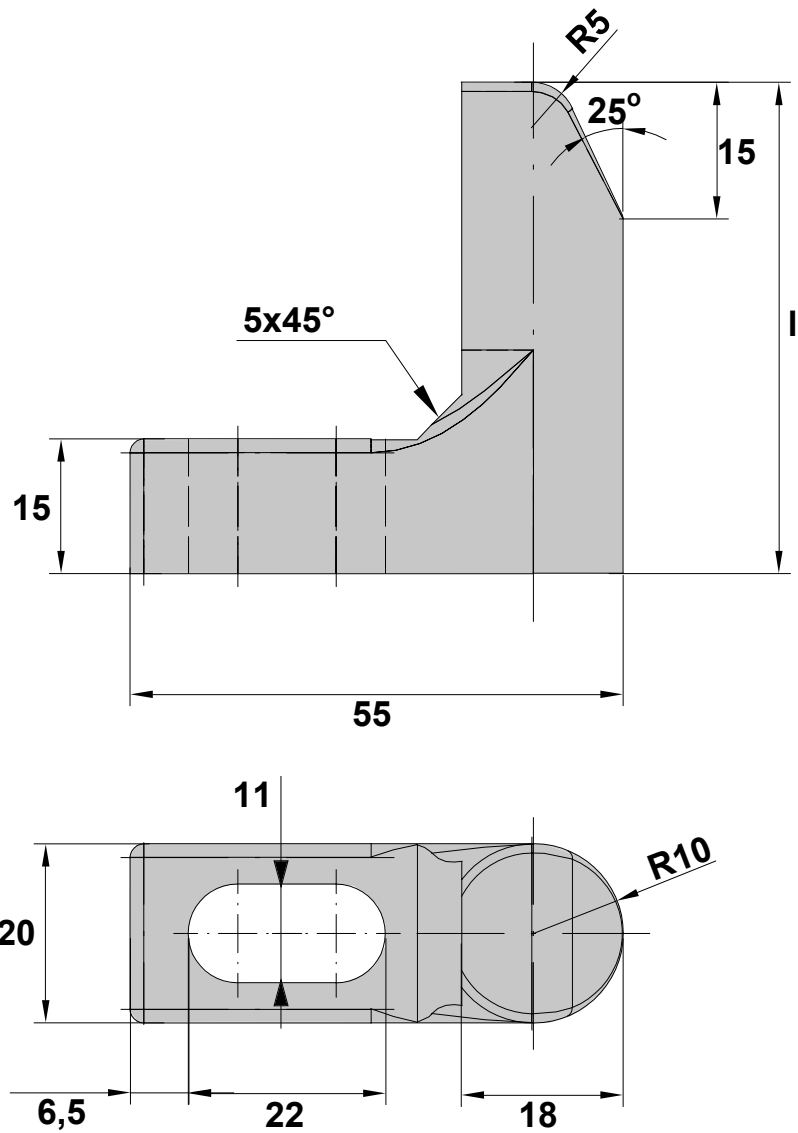
Ordering-Example:
I= 120

Diferent Lengths On Request.
M301-09-120

Material: CK45, Forged



Material : CK45 Forged



CODE	I
M301-09-055	55
M301-09-065	65
M301-09-090	90
M301-09-095	95
M301-09-120	120

M301-10

Gage

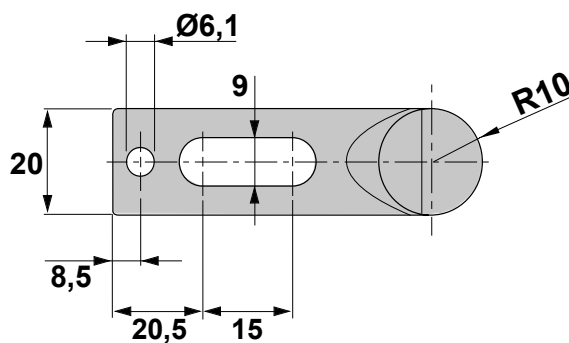
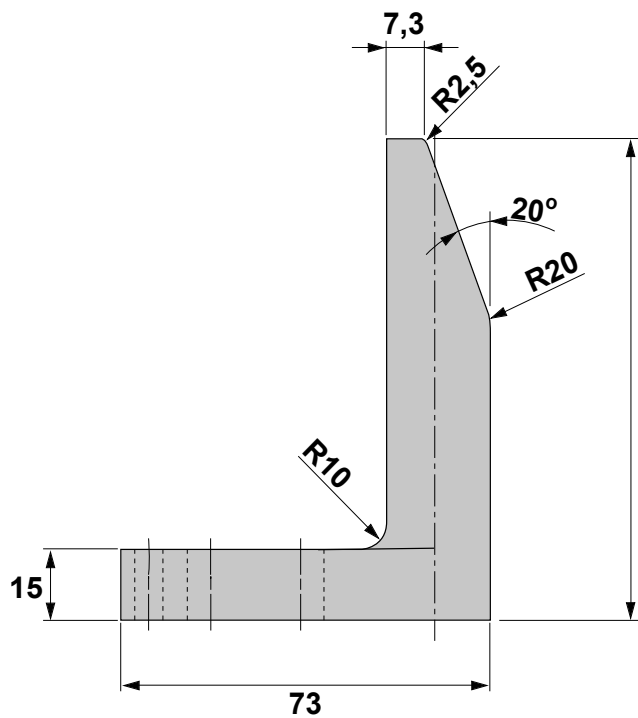
Ordering-Example:

Diferent Lengths On Request.

Material: CK60, Forged



Material : CK60 Forged



CODE	I
M301-10-065	65
M301-10-090	90

M301-11

Gage Hardened

Ordering-Example:

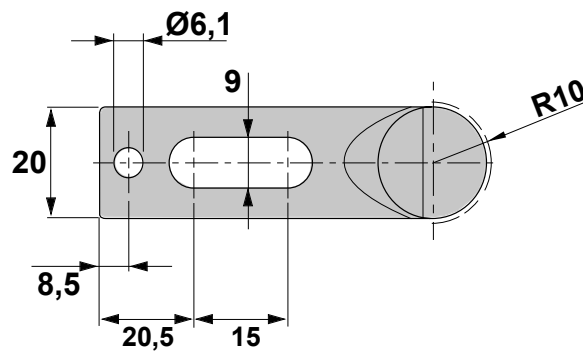
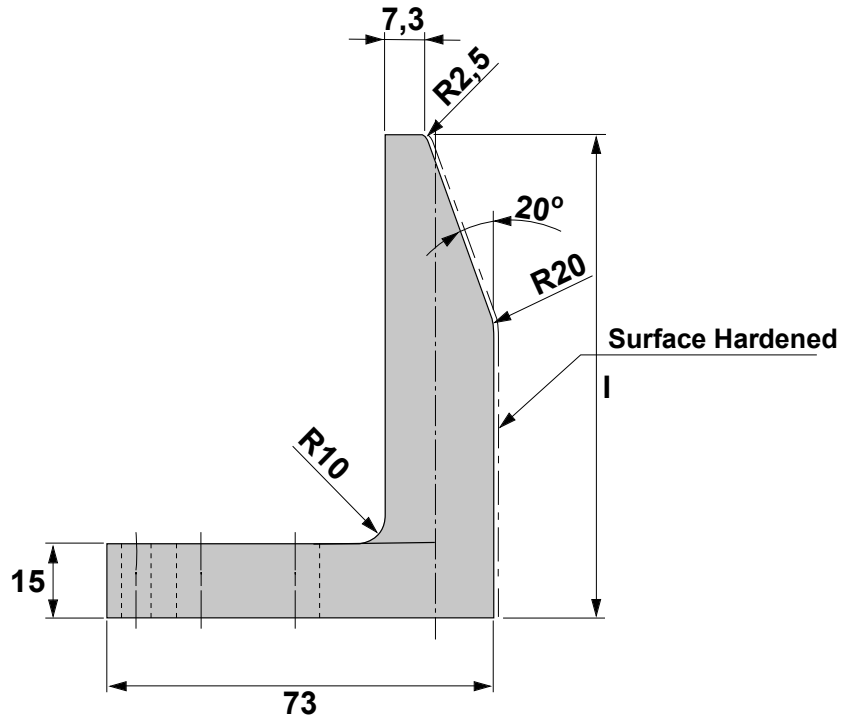
Diferent Lengths On Request.

Material: CK60, Forged

Hardened: HRC 58 ÷ 60



Material : CK60 Forged
Hardened HRC 58 ÷ 60



CODE	I
M301-11-065	65
M301-11-090	90

M301-12

Precision Gage Hardened

Ordering-Example:
I= 165

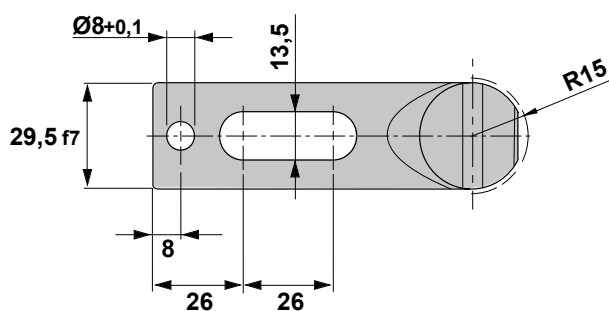
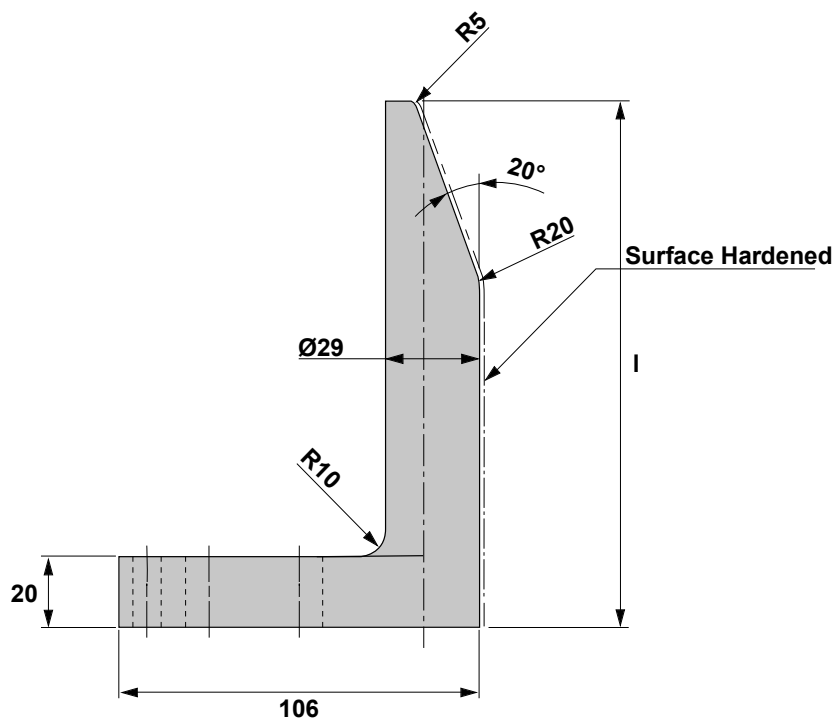
Diferent Lengths On Request.
M301-12-165

Material: CK60, Forged

Hardened: HRC 58 ÷ 60



Material : CK60 Forged
Hardened HRC 58 ÷ 60
Diferent lengths on request;
Max. Length: 350 mm



CODE	I
M301-12-065	65
M301-12-090	90
M301-12-120	120
M301-12-150	150
M301-12-180	180
M301-12-250	250
M301-12-300	300
M301-12-350	350

M301-13

Gage Hardened

Ordering-Example:

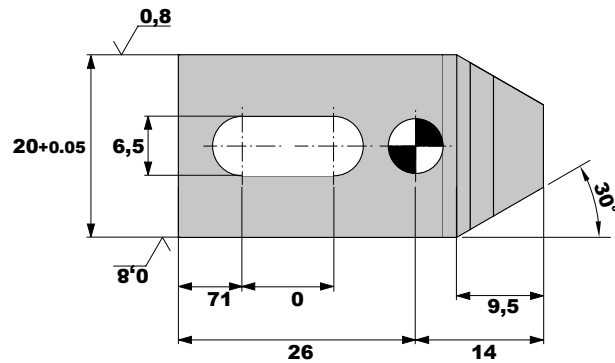
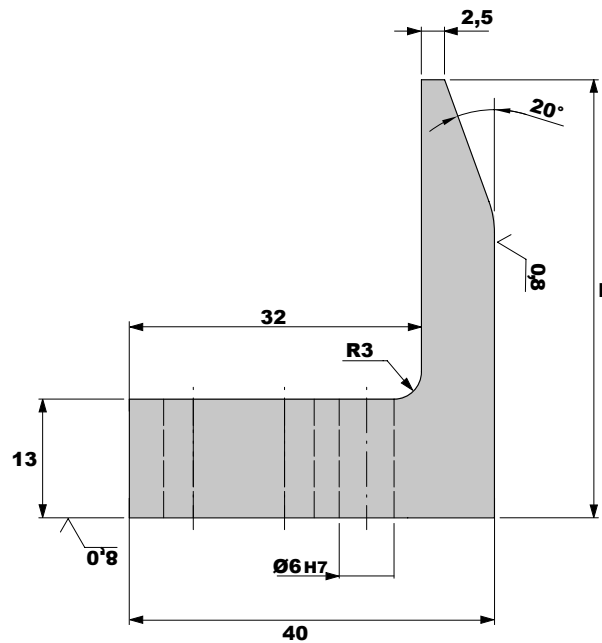
Diferent Lengths On Request.

Material: 21MnCr5

Hardened: HRC 58 ÷ 60



Material : 21MnCr5
Hardened HRC 58 ÷ 60



CODE	I
M301-13-028	28
M301-13-038	38
M301-13-048	48
M301-13-058	58
M301-13-068	68
M301-13-078	78
M301-13-088	88

M301-14

Gage

Ordering-Example:
I= 160, F1=10

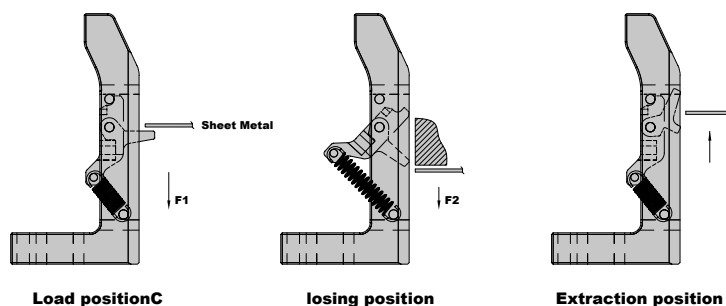
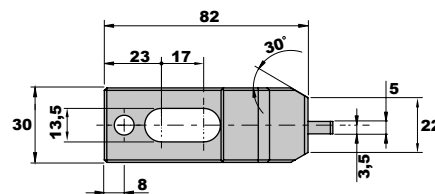
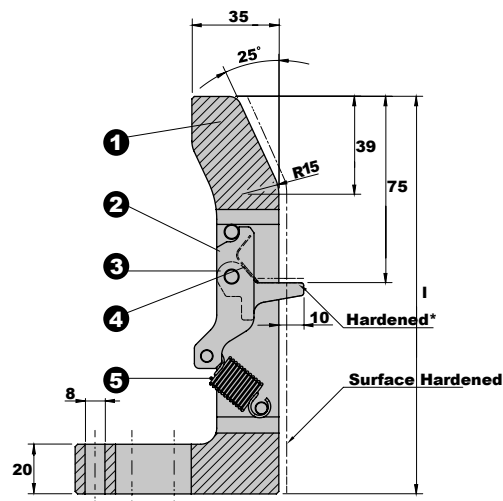
Diferent Lengths On Request.
M301-14-1601

Material: CK45
Hardened*: HRC 58 ÷ 60

Hardened: HRC 58 ÷ 60
Hardened: HRC 54 ÷ 56



- 1** Material : CK45
Hardened HRC 58 ÷ 60
- 2** Material : CK45
Hardened HRC 54 ÷ 56
- 3** Material : CK45
Hardened* HRC 58 ÷ 60
- 4** Spring
- 5** Spring



CODE	I	F1(N)	F2 (N)
M301-14-160	160	5,90	18,50
M301-14-1601		10,00	30,00
M301-14-1602		22,00	65,00
M301-14-170	170	5,90	18,50
M301-14-1701		10,00	30,00
M301-14-1702		22,00	65,00
M301-14-180	180	5,90	18,50
M301-14-1801		10,00	30,00
M301-14-1802		22,00	65,00
M301-14-190	190	5,90	18,50
M301-14-1901		10,00	30,00
M301-14-1902		22,00	65,00
M301-14-200	200	5,90	18,50
M301-14-2001		10,00	30,00
M301-14-2002		22,00	65,00

M301-15

Position Control for Blanks

Ordering-Example:

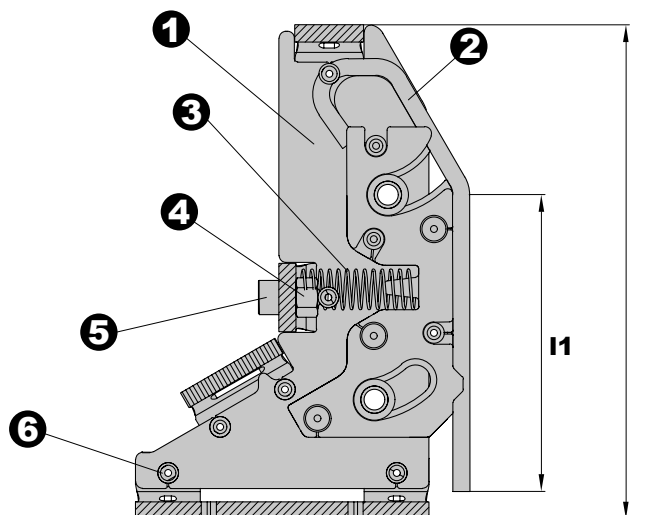
Diferent Lengths On Request.

Material: 1.4021

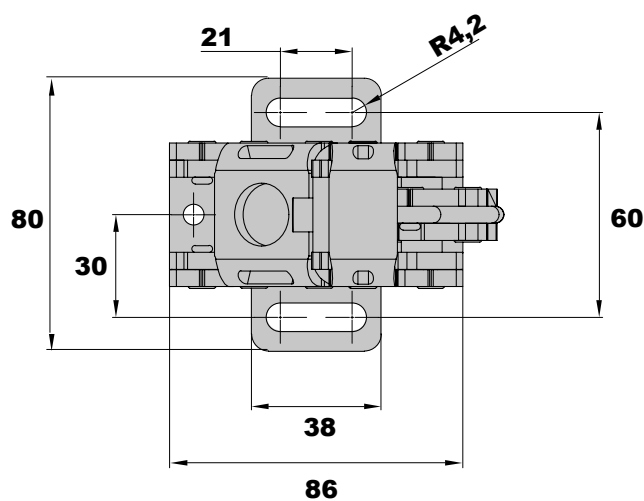
Material: S235

Hardened: HRC 40-45

Material: Spring DIN 2098



- 1** Material : S235
- 2** Material : 1.4021
Hardened HRC 40-45
- 3** Material : Spring DIN 2098
- 4** Material : M6 DIN 934
- 5** Material : Screw M6x12 I
SO 4762
- 6** Material : Rivet Ø4x14 DIN 7337



CODE	I1	I
M301-15-145	87	145
M301-15-185	127	185
M301-15-225	167	225

M301-16

Gage

Ordering-Example:

Diferent Lengths On Request.

Material: C-M8X40-12,9

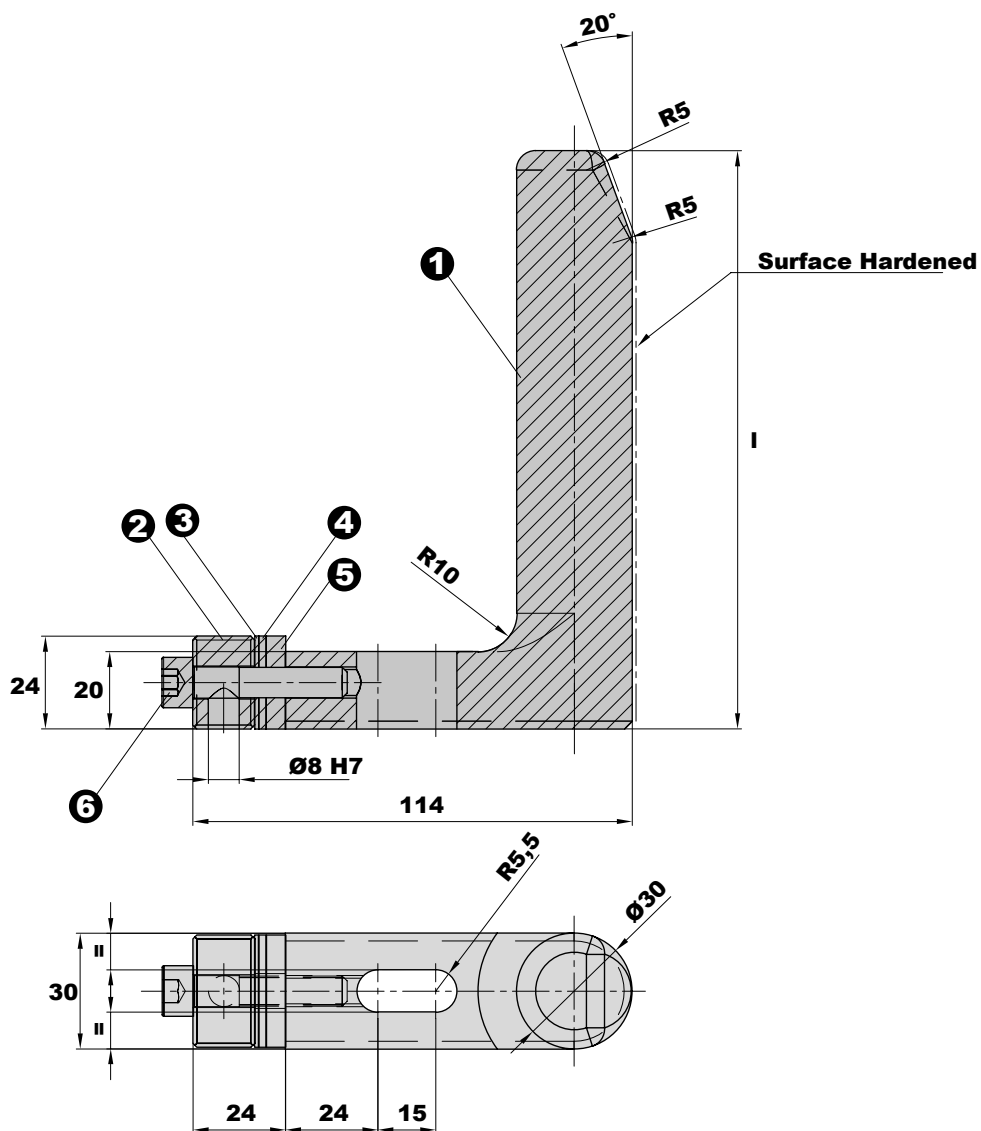
Material: C45, C15



1, 2 Material : C45

3, 4, 5 Material : C15

6 Material : C-M8X40-12,9



CODE	I
M301-16-065	65
M301-16-090	90
M301-16-120	120
M301-16-150	150
M301-16-190	190
M301-16-220	220

M301-17

Gage

Ordering-Example:
I= 160, F1=10

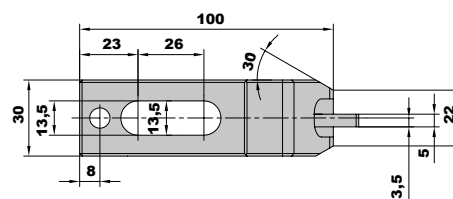
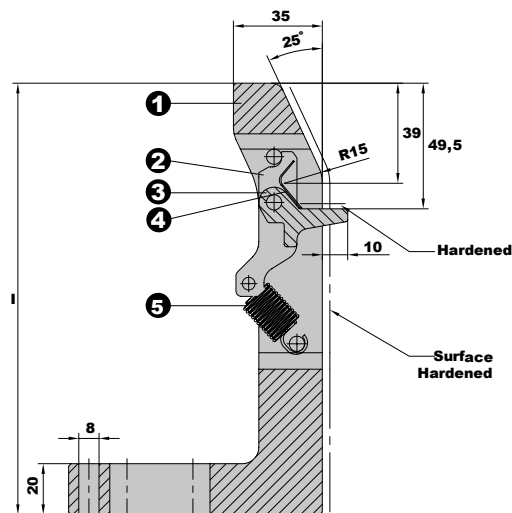
Diferent Lengths On Request.
M301-17-1601

Material: CK45
Hardened: HRC 54 ÷ 56

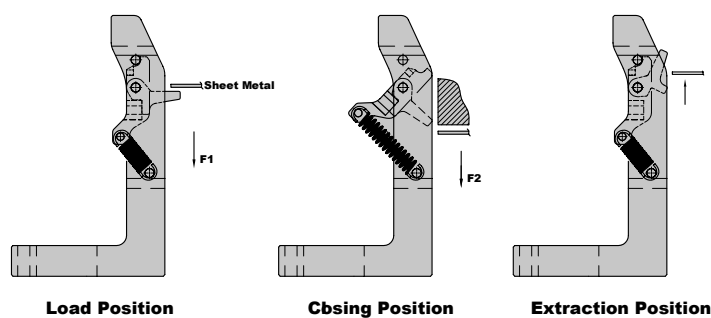
Hardened: HRC 58 ÷ 60
Hardened*: HRC 58 ÷ 60



- 1** Material : CK45
Hardened HRC 58 ÷ 60
- 2** Material : CK45
Hardened HRC 54 ÷ 56
- 3** Material : CK45
Hardened* HRC 58 ÷ 60
- 4** Spring
- 5** Spring



CODE	I	F1(N)	F2 (N)
M301-17-160	160	5,90	18,50
M301-17-1601		10,00	30,00
M301-17-1602		22,00	65,00
M301-17-170	170	5,90	18,50
M301-17-1701		10,00	30,00
M301-17-1702		22,00	65,00
M301-17-180	180	5,90	18,50
M301-17-1801		10,00	30,00
M301-17-1802		22,00	65,00
M301-17-190	190	5,90	18,50
M301-17-1901		10,00	30,00
M301-17-1902		22,00	65,00
M301-17-200	200	5,90	18,50
M301-17-2001		10,00	30,00
M301-17-2002		22,00	65,00
M301-17-210	210	5,90	18,50
M301-17-2101		10,00	30,00
M301-17-2102		22,00	65,00
M301-17-250	250	5,90	18,50
M301-17-2501		10,00	30,00
M301-17-2502		22,00	65,00
M301-17-300	300	5,90	18,50
M301-17-3001		10,00	30,00
M301-17-3002		22,00	65,00



M302-01

Locating Cone

Ordering-Example:

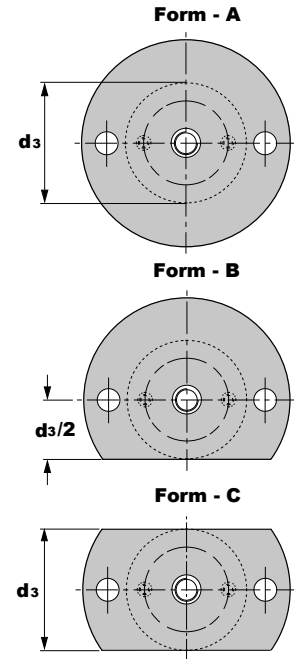
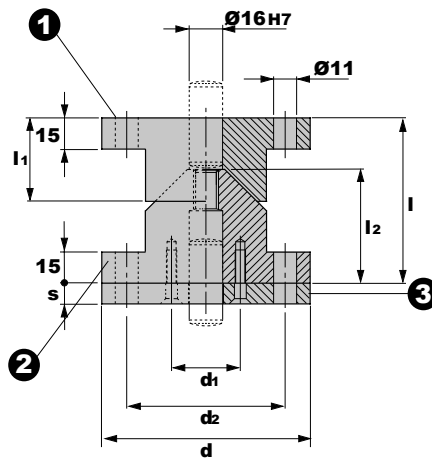
Diferent Lengths On Request.

Material: Forged 16MnCr5
Material: CK45

Hardened: HRC 60 ÷ 64



1, 2 Material : Forged 16MnCr5
Hardened HRC 60 ÷ 64
3 Material : CK45



CODE	Form	d	l, ±0,05	l1	l2	d1	d2	d3	s
M302-01-100-001	A	100	80	40	55	40,5	76	58	10,5
M302-01-100-002	C	100	80	40	55	40,5	76	58	10,5
M302-01-100-005	A	100	80	40	55	40,5	76	58	5,5
M302-01-100-010	A	100	80	40	55	40,5	76	58	10
M302-01-100-105	B	100	80	40	55	40,5	76	58	5,5
M302-01-100-110	B	100	80	40	55	40,5	76	58	10
M302-01-100-205	C	100	80	40	55	40,5	76	58	5,5
M302-01-100-210	C	100	80	40	55	40,5	76	58	10
M302-01-120-001	A	120	90	50	65	50,5	96	78	10,5
M302-01-120-002	C	120	90	50	65	50,5	96	78	10,5
M302-01-120-005	A	120	90	50	65	50,5	96	78	5,5
M302-01-120-010	A	120	90	50	65	50,5	96	78	10
M302-01-120-105	B	120	90	50	65	50,5	96	78	5,5
M302-01-120-110	B	120	90	50	65	50,5	96	78	10
M302-01-120-205	C	120	90	50	65	50,5	96	78	5,5
M302-01-120-210	C	120	90	50	65	50,5	96	78	10

M302-02

Locating Cone

Ordering-Example:

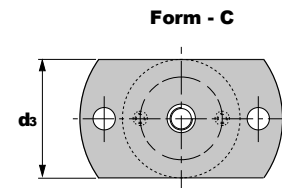
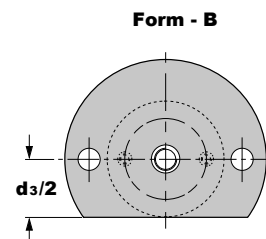
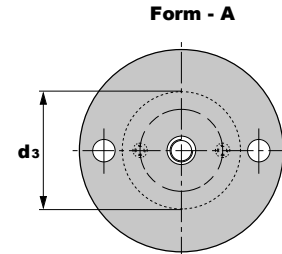
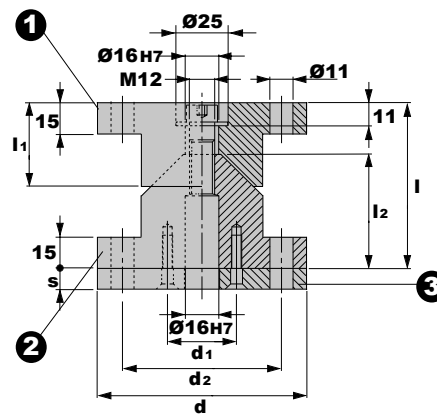
Diferent Lengths On Request.

Material: Forged, 16MnCr5
Material: CK45

Hardened: HRC 60 ÷ 64



1, 2 Material : Forged 16MnCr5
Hardened HRC 60 ÷ 64
3 Material : CK45



CODE	Form	d	l, ±0,05	l1	l2	d1	d2	d3	s
M302-02-100-005	A	100	80	04	55	40,5	76	58	5,5
M302-02-100-010	A	100	80	40	55	40,5	76	58	10
M302-02-100-105	B	100	80	40	55	40,5	76	58	5,5
M302-02-100-110	B	100	80	40	55	40,5	76	58	10
M302-02-100-205	C	100	80	40	55	40,5	76	58	5,5
M302-02-100-210	C	100	80	40	55	40,5	76	58	10
M302-02-100-215	C	100	80	40	55	40,5	76	58	10,5
M302-02-120-005	A	120	90	50	65	50,5	96	78	5,5
M302-02-120-010	A	120	90	50	65	50,5	96	78	10
M302-02-120-105	B	120	90	50	65	50,5	96	78	5,5
M302-02-120-110	B	120	90	50	65	50,5	96	78	10
M302-02-120-205	C	120	90	50	65	50,5	96	78	5,5
M302-02-120-210	C	120	90	50	65	50,5	96	78	10
M302-02-120-215	C	120	90	50	65	50,5	96	78	10,5

M302-03

Shim Plates

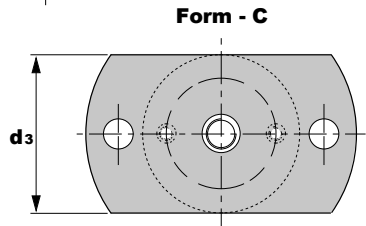
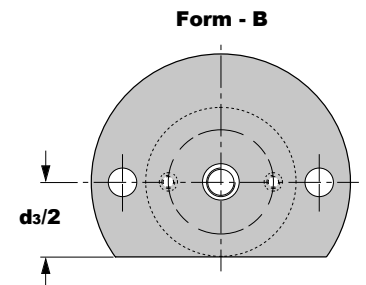
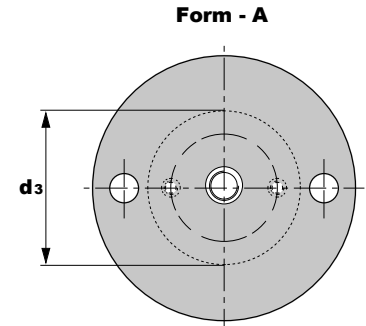
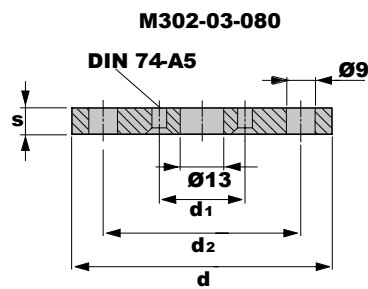
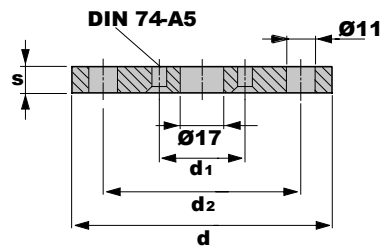
Ordering-Example:

Diferent Lengths On Request.

Material: CK45



Material :CK45



CODE	Form	d	d1	d2	d3	s
M302-03-080-005	A	80	32	63	48	5,5
M302-03-080-055	A	80	32	63	48	5,5
M302-03-080-105	C	80	32	63	48	5
M302-03-080-155	C	80	32	63	48	5,5
M302-03-100-005	A	100	40,5	76	58	5,5
M302-03-100-010	A	100	40,5	76	58	10
M302-03-100-105	B	100	40,5	76	58	5,5
M302-03-100-110	B	100	40,5	76	58	10
M302-03-100-205	C	100	40,5	76	58	5,5
M302-03-100-210	C	100	40,5	76	58	10
M302-03-100-215	C	100	40,5	76	58	10,5
M302-03-120-005	A	120	50,5	96	78	5,5
M302-03-120-010	A	120	50,5	96	78	10
M302-03-120-105	B	120	50,5	96	78	5,5
M302-03-120-110	B	120	50,5	96	78	10
M302-03-120-205	C	120	50,5	96	78	5,5
M302-03-120-210	C	120	50,5	96	78	10
M302-03-120-215	C	120	50,5	96	78	10,5

M302-08

Locating Cones

Ordering-Example:

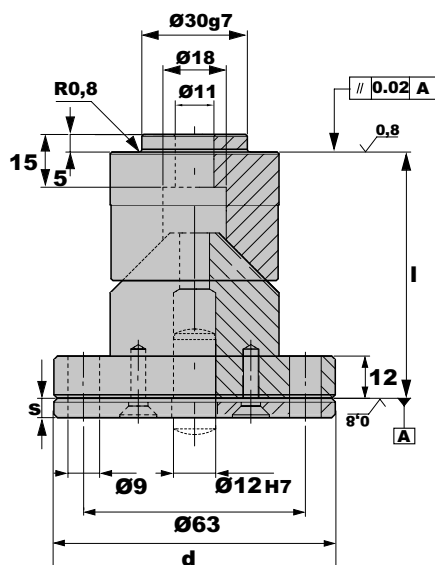
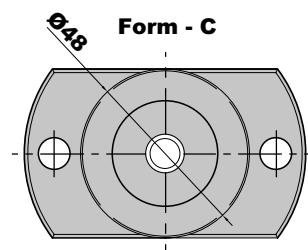
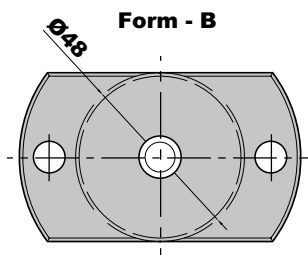
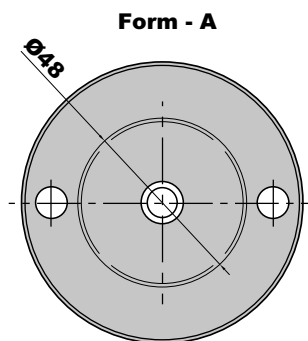
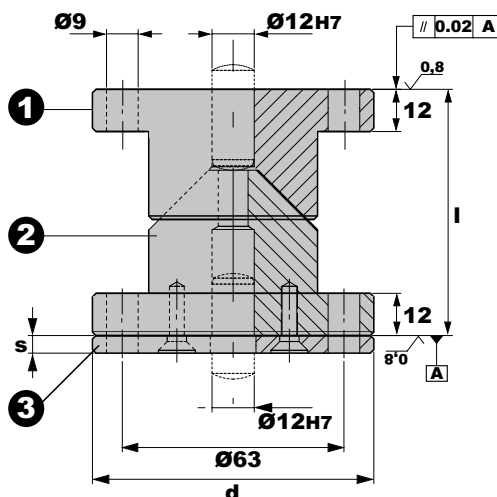
Diferent Lengths On Request.

Material: Forged, 16MnCr5
Material: CK45

Hardened: HRC 60 ÷ 62



1,2 Material :Forged16MnCr5
Hardened HRC 60 ÷ 62
3 Material : CK45



CODE	Form	d	s	I, ±0,05
M302-08-080-005	A	80	5	70
M302-08-080-055	A	80	5,5	70
M302-08-080-105	B	80	5	70
M302-08-080-155	B	80	5,5	70
M302-08-080-205	C	80	5	70
M302-08-080-255	C	80	5,5	70

M303-01

Locating Pins

Ordering-Example:

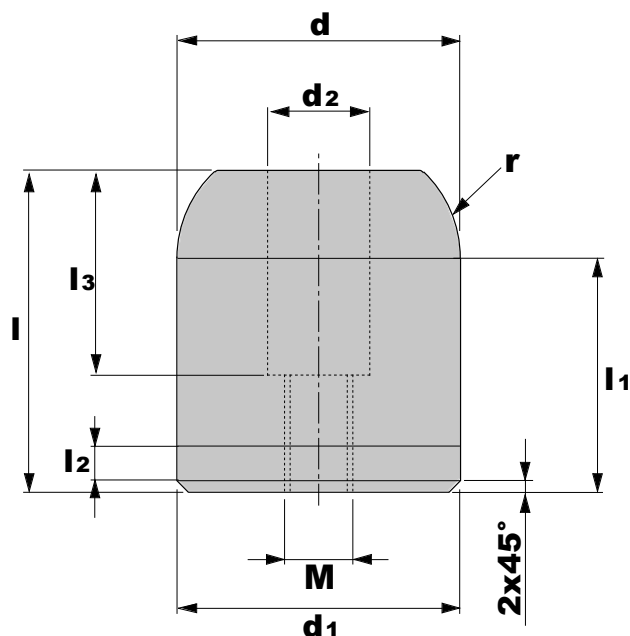
Diferent Lengths On Request.

Material: 16MnCr5

Hardened: HRC 58 ÷ 60



Material : 16MnCr5
Hardened HRC 58 ÷ 60



CODE	d, j6	d1, -0,05 / -0,1	l	l1	l2	l3	d2, ±0,2	M	r
M303-01-022045	22	22	45	37,5	8	25	14	M10	12,5
M303-01-032050	32	32	50	40	10	35	18	M12	20
M303-01-040055	40	40	55	40	10	35	18	M12	20
M303-01-050055	50	50	55	40	10	35	18	M12	20

M303-02

Locating Pins

Ordering-Example:

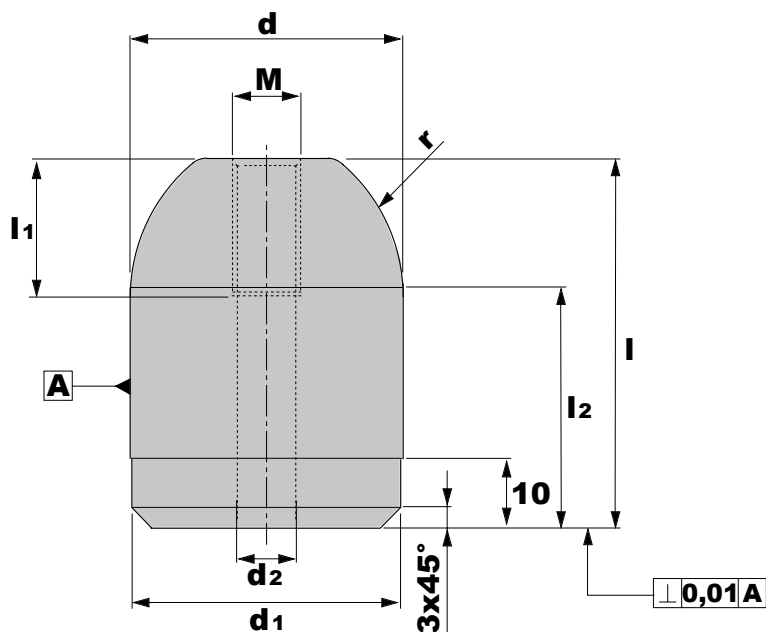
Diferent Lengths On Request.

Material: 16MnCr5

Hardened: HRC 58 ÷ 60



Material : 16MnCr5
Hardened HRC 58 ÷ 60



CODE	d, h6	l	l1	l2	d1, -0,05	d2	M	r
M303-02-022045	22	45	16	35	22	7	M8	15
M303-02-022055	22	55	16	45	22	7	M8	15
M303-02-032050	32	50	20	37,5	32	9	M10	20
M303-02-040055	40	55	20	35	40	9	M10	25
M303-02-040065	40	65	20	45	40	9	M10	25
M303-02-040085	40	85	20	65	40	9	M10	25
M303-02-050055	50	55	20	41,25	50	9	M10	25
M303-02-056080	56	80	20	60	56	9	M10	30

M304-01

Air Pins

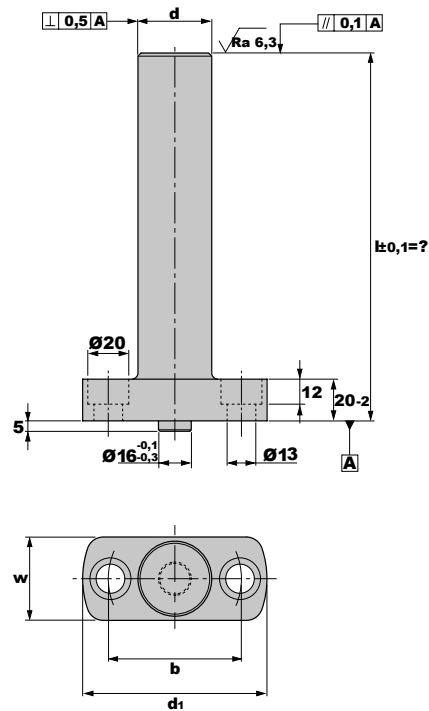
Ordering-Example:
d= 36, l= 205

Diferent Lengths On Request.
M304-01-036-205

Material: CK45, Forged



Material : CK45 Forged
800 ÷ 1000 N/mm²
Length (l) is given
by the customer;
Max. Length: 360 mm



CODE	d+2	w	b	d1, ±1	Max. Load (kN)
M304-01-036-l	36	40	65	90	50
M304-01-045-l	45	50	75	100	70

M304-07

Air Pins

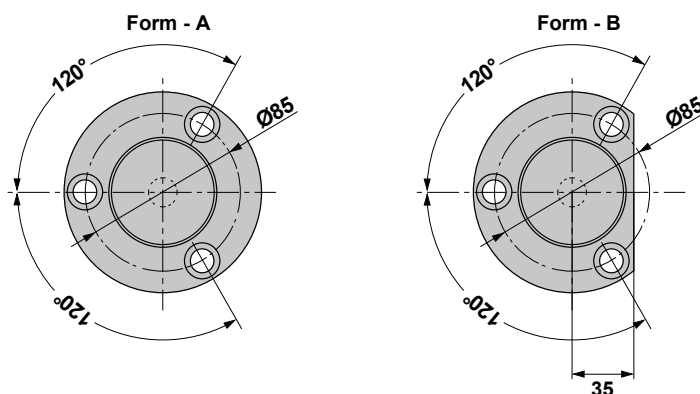
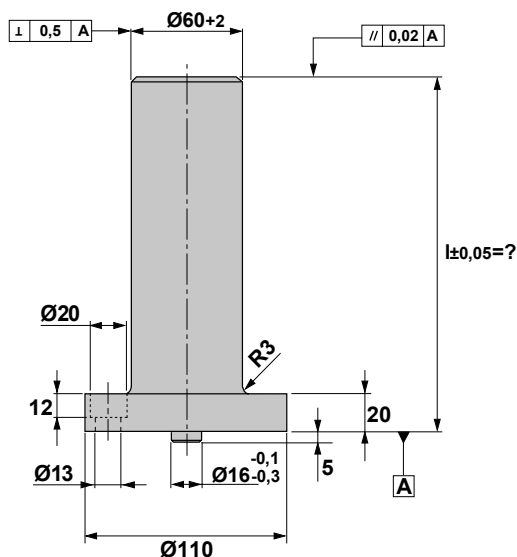
Ordering-Example:
Form= A, l= 205

Diferent Lengths On Request.
M304-07-00-205

Material: CK45, Forged



Material : CK45 Forged
800 ÷ 1000 N/mm2
Length (l) is given
by the customer;
Max. Length: 440 mm



CODE	Form	Max. Load (kN)
M304-07-00-I	A	80
M304-07-01-I	B	80

M304-08

Air Pins

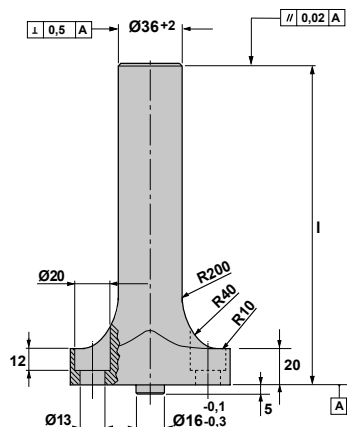
Ordering-Example:
Form= A, l= 205

Diferent Lengths On Request.
M304-08-00-205

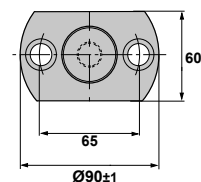
Material: 42CrMo4+QT, Forged



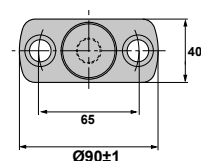
Material : 42CrMo4+QT Forged
800 ÷ 1000 N/mm²
Different lengths on request;
Max. Length: 360 mm



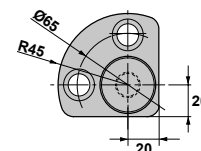
Form - A
(M304-08-00)



Form - B
(M304-08-01)



Form - C
(M304-08-02)



CODE	l, ±0,05	Max. Load (kN)
M304-08-??-150	150	50
M304-08-??-155	155	50
M304-08-??-160	160	50
M304-08-??-165	165	50
M304-08-??-170	170	50
M304-08-??-175	175	50
M304-08-??-180	180	50
M304-08-??-185	185	50
M304-08-??-190	190	50
M304-08-??-195	195	50
M304-08-??-200	200	50
M304-08-??-205	205	50

CODE	l, ±0,05	Max. Load (kN)
M304-08-??-210	210	50
M304-08-??-215	215	50
M304-08-??-220	220	50
M304-08-??-225	225	50
M304-08-??-230	230	50
M304-08-??-235	235	50
M304-08-??-240	240	50
M304-08-??-245	245	50
M304-08-??-250	250	50
M304-08-??-255	255	50
M304-08-??-260	260	50
M304-08-??-265	265	50

CODE	l, ±0,05	Max. Load (kN)
M304-08-??-270	270	50
M304-08-??-275	275	50
M304-08-??-280	280	50
M304-08-??-285	285	50
M304-08-??-290	290	50
M304-08-??-295	295	50
M304-08-??-300	300	50
M304-08-??-310	310	50
M304-08-??-320	320	50
M304-08-??-330	330	50
M304-08-??-340	340	50
M304-08-??-350	350	50
M304-08-??-360	360	50

M304-09

Air Pins

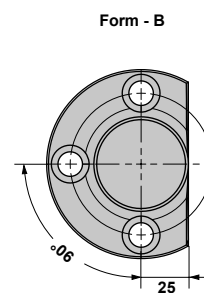
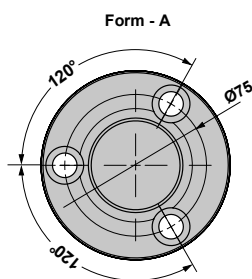
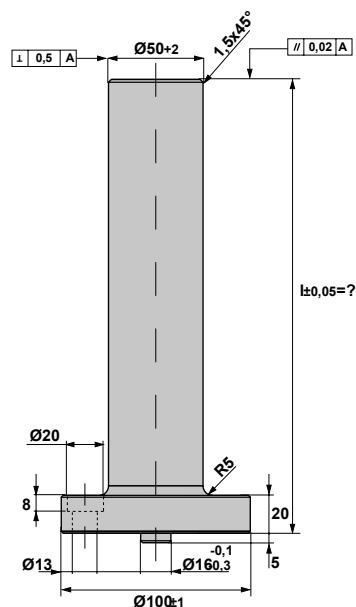
Ordering-Example:
Form= A, l= 220

Diferent Lengths On Request.
M304-09-00-220

Material: CK45, Forged



Material : CK45 Forged
800 ÷ 1000 N/mm²
Length (l) is given
by the customer;
Max. Length: 600 mm



CODE	Form	Max. Load (kN)
M304-09-00-l	A	80
M304-09-01-l	B	80

M304-10

Air Pins

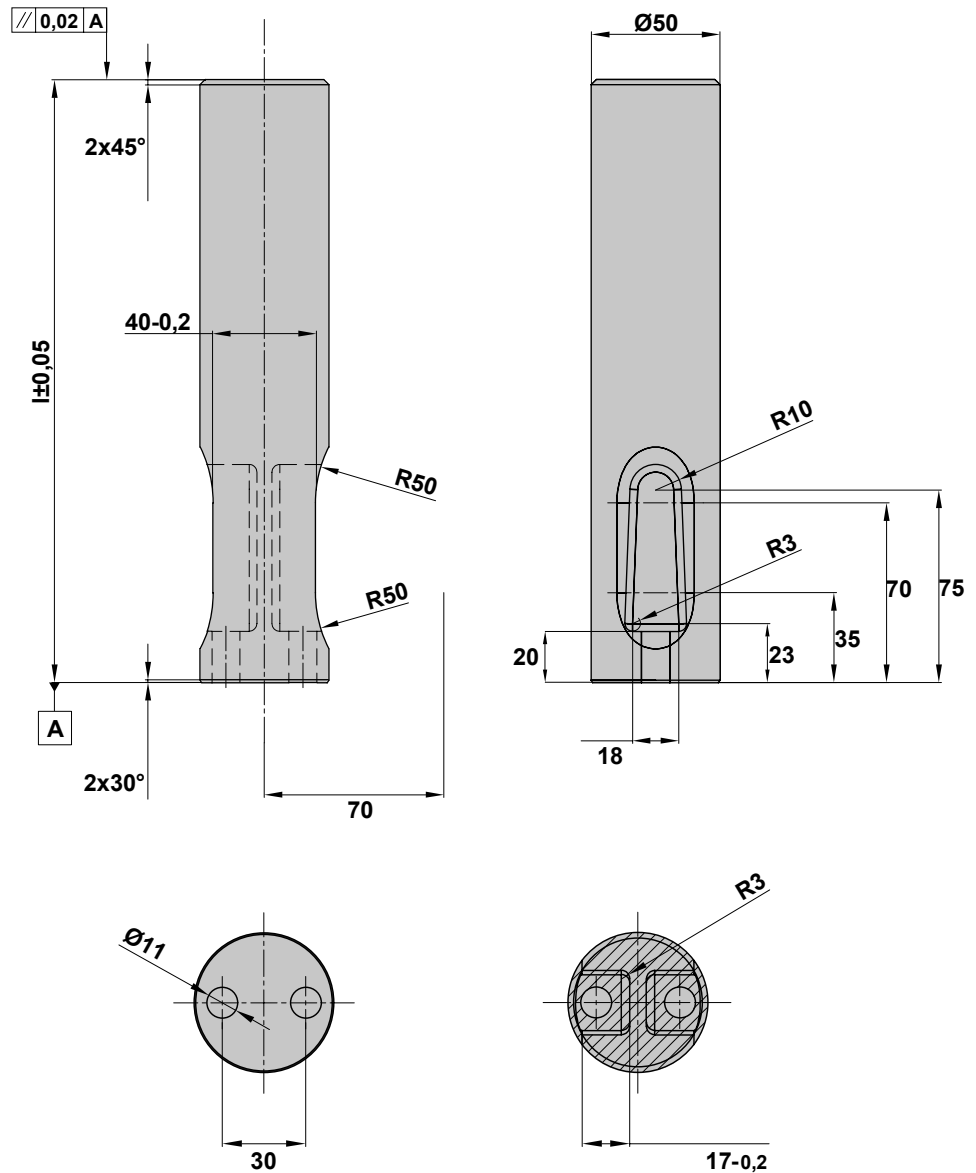
Ordering-Example:
I= 220

Diferent Lengths On Request.
M304-10-220

Material: 1.7227 (42CrMoS4+QT)



Material : 1.7227 (42CrMoS4+QT)



CODE	Max. Load (kN)
M304-10-L	80

M305-04

Lifters with Gas Springs, Sleeve and Bushes, Self-lubricating

Ordering-Example:

Diferent Lengths On Request.

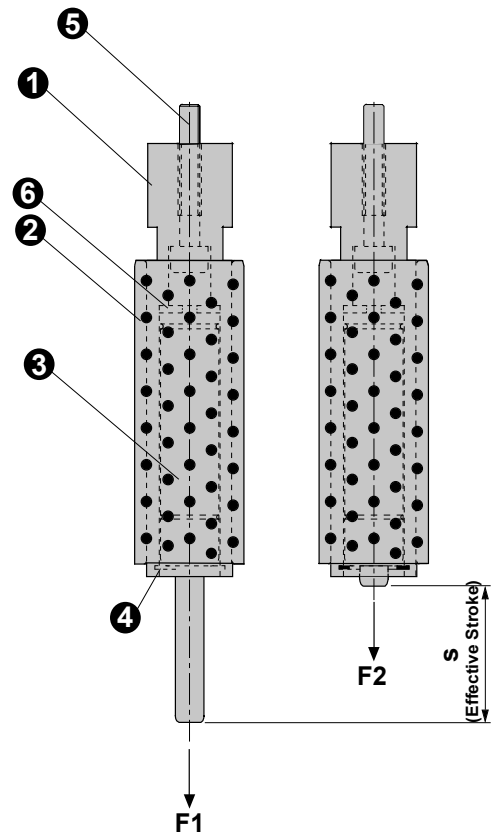
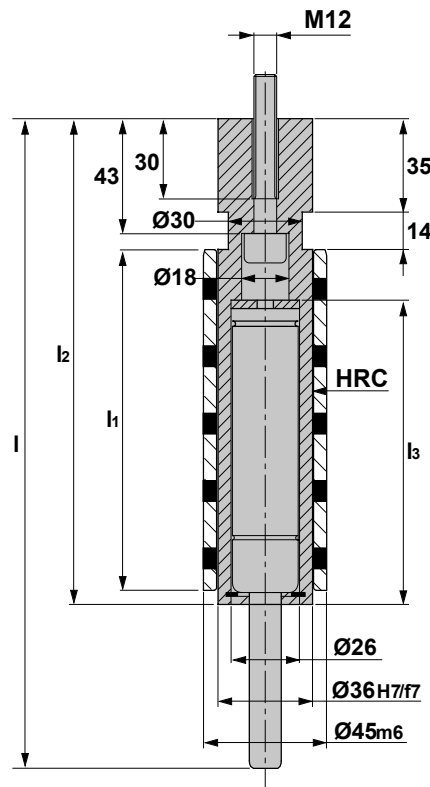
Material (Sleeve): CK45

Material : 90MnCrV8

Material (Bushes): Bronze with Non-Liquid Lubricant HB ≥ 190



- 1** Material (Sleeve): CK45
Hardened HRC 58 ÷ 62
- 2** Material (Bushes):
Bronze with Non-Liquid Lubricant
HB ≥ 190
- 3** Gas Spring
- 4** DIN 472
- 5** M10x60 DIN 912
- 6** Material : 90MnCrV8
Hardened HRC 54 ÷ 60



CODE	l	l1	l2	l3	F1 (daN)	F2 (daN)	s
M305-04-50050	240	115	182	118	50	68	50
M305-04-50100	240	115	182	118	100	136	50
M305-04-50150	240	115	182	118	150	204	50
M305-04-50200	240	115	182	118	200	272	50
M305-04-65050	274	145	200	135	50	68	65
M305-04-65100	274	145	200	135	100	136	65
M305-04-65150	274	145	200	135	150	204	65
M305-04-65200	274	145	200	135	200	272	65
M305-04-80050	314	170	220	155	50	68	80
M305-04-80100	314	170	220	155	100	136	80
M305-04-80150	314	170	220	155	150	204	80
M305-04-80200	314	170	220	155	200	272	80

M305-05

Flange Lifter

Ordering-Example:

Diferent Lengths On Request.

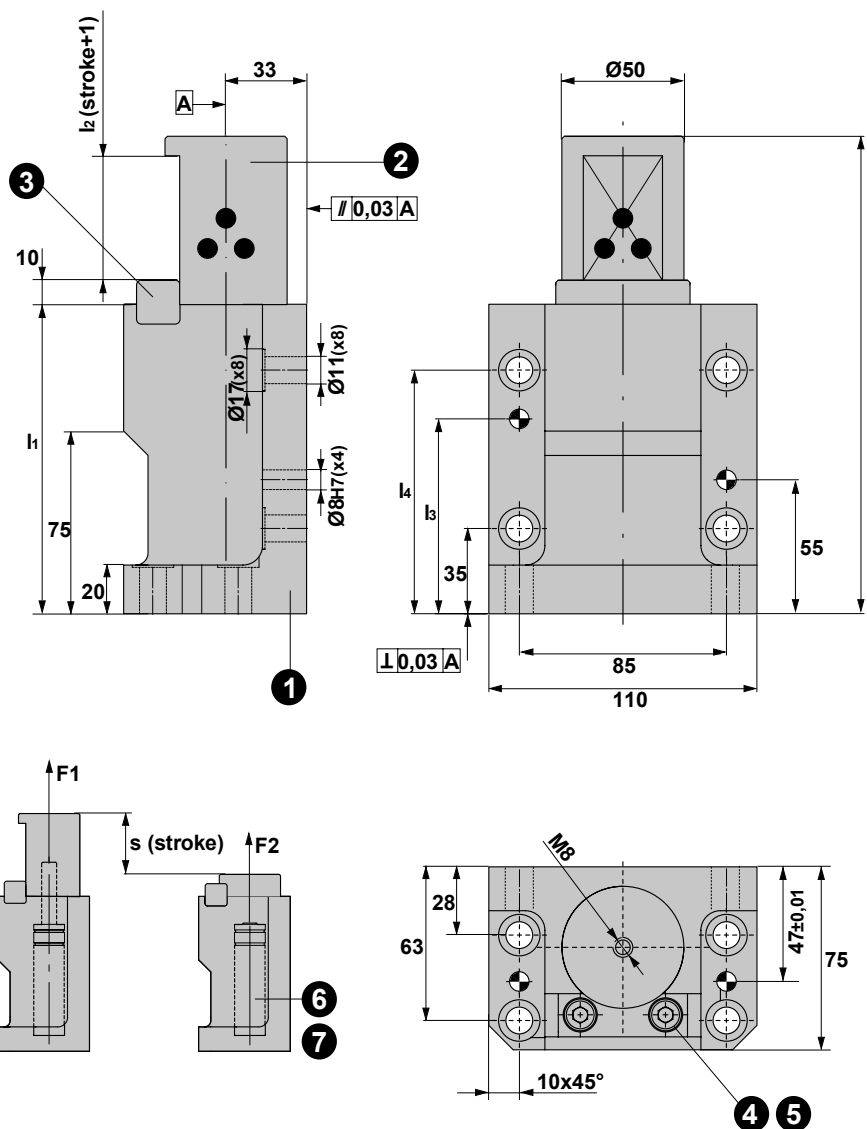
Material: CK45

Material : 36NiCrMo4

Material: Bronze+Graphite



- 1** Material : CK45
- 2** Material : Bronze + Graphite
HB > 190
- 3** Material : 36NiCrMo4
- 4** M8x30 DIN 912
- 5** Schnorr Ø8
- 6** Gas Spring
- 7** M6x12 DIN 7991



CODE	I	I1	I2	I3	I4	F1 (daN)	F2 (daN)	s
M305-05-50050	196	127	51	80	100	50	86	50
M305-05-50100	196	127	51	80	100	100	172	50
M305-05-50150	196	127	51	80	100	150	258	50
M305-05-50200	196	127	51	80	100	200	344	50
M305-05-80050	256	157	81	110	130	50	86	80
M305-05-80100	256	157	81	110	130	100	172	80
M305-05-80150	256	157	81	110	130	150	258	80
M305-05-80200	256	157	81	110	130	200	344	80

M305-06

Flange Lifter

Ordering-Example:

Diferent Lengths On Request.

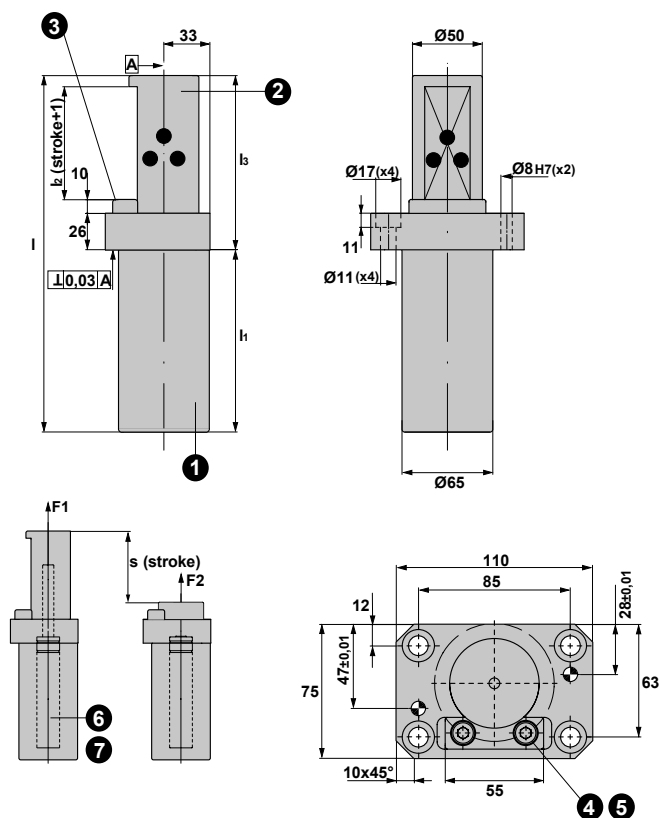
Material: CK45

Material : 36NiCrMo4

Material: Bronze+Graphite



- 1** Material : CK45
- 2** Material : Bronze + Graphite
HB > 190
- 3** Material : 36NiCrMo4
- 4** M8x30 DIN 912
- 5** Schnorr Ø8
- 6** Gas Spring
- 7** M6x12 DIN 7991



CODE	I	I1	I2	I3	F1 (daN)	F2 (daN)	s
M305-06-50050	196	101	51	95	50	86	50
M305-06-50100	196	101	51	95	100	172	50
M305-06-50150	196	101	51	95	150	258	50
M305-06-50200	196	101	51	95	200	344	50
M305-06-80050	256	131	81	125	50	86	80
M305-06-80050	256	131	81	125	100	172	80
M305-06-80150	256	131	81	125	150	258	80
M305-06-80200	256	131	81	125	200	344	80

M305-07

Flange Lifter

Ordering-Example:

Diferent Lengths On Request.

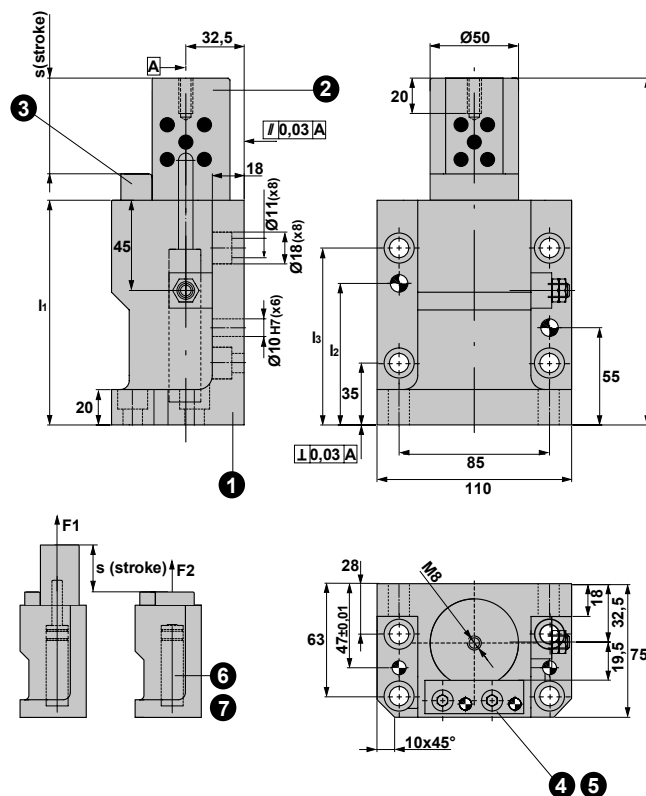
Material: CK45

Material: Bronze + Graphite

Material : 36NiCrMo4



- 1** Material :CK45
- 2** Material :Bronze + Graphite
HB > 190
- 3** Material : 36NiCrMo4
- 4** M8x30 DIN 912
- 5** Schnorr Ø8
- 6** Gas Spring
- 7** M6x12 DIN 7991



CODE	I	I1	I2	I3	F1 (daN)	F2 (daN)	s
M305-07-50050	196	125	80	100	50	65	50
M305-07-50100	196	125	80	100	100	135	50
M305-07-50150	196	125	80	100	150	200	50
M305-07-50200	196	125	80	100	200	260	50
M305-07-80050	256	155	110	130	50	65	80
M305-07-80100	256	155	110	130	100	135	80
M305-07-80150	256	155	110	130	150	200	80
M305-07-80200	256	155	110	130	200	260	80
M305-07-100050	296	175	130	150	50	65	100
M305-07-100100	296	175	130	150	100	135	100
M305-07-100150	296	175	130	150	150	200	100
M305-07-100200	296	175	130	150	200	260	100

M305-08

Flange Lifter

Ordering-Example:

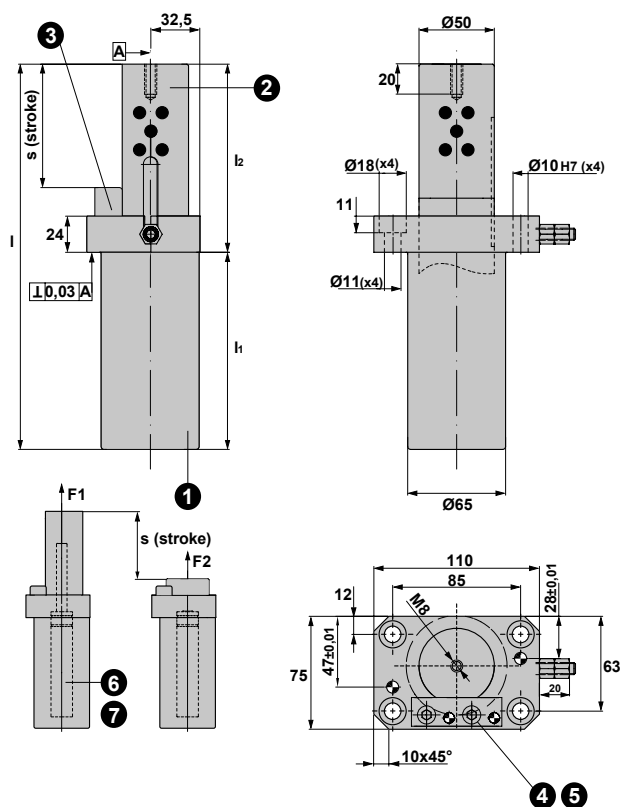
Diferent Lengths On Request.

Material: CK45
Material : 36NiCrMo4

Material: Bronze + Graphite



- 1** Material :CK45
- 2** Material :Bronze + Graphite
HB > 190
- 3** Material : 36NiCrMo4
- 4** M8x30 DIN 912
- 5** Schnorr Ø8
- 6** Gas Spring
- 7** M6x12 DIN 7991



CODE	l	l1	l2	F1 (daN)	F2 (daN)	s
M305-08-50050	196	101	95	50	65	50
M305-08-50100	196	101	95	100	135	50
M305-08-50150	196	101	95	150	200	50
M305-08-50200	196	101	95	200	260	50
M305-08-80050	256	131	125	50	65	80
M305-08-80100	256	131	125	100	135	80
M305-08-80150	256	131	125	150	200	80
M305-08-80200	256	131	125	200	260	80
M305-08-100050	296	151	145	50	65	100
M305-08-100100	296	151	145	100	135	100
M305-08-100150	296	151	145	150	200	100
M305-08-100200	296	151	145	200	260	100

M305-09

Universal Lifter Unit

Ordering-Example:

Diferent Lengths On Request.

Material: 16MnCr5

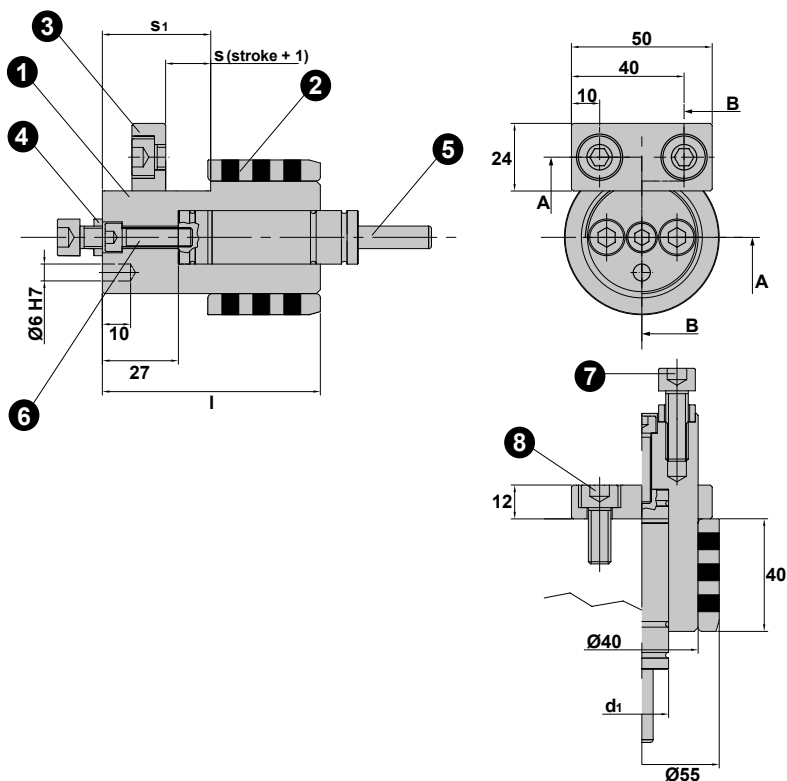
Hardened HRC 54 ÷ 56

Material: Bronze + Graphite

Material (Locating Ring): 115CrV3



- 1** Material : 16MnCr5
Hardened HRC 54 ÷ 56
- 2** Material (Bush Self-lubricating) :
Bronze + Graphite HB > 190
- 3** Retainer (2 172 472)
- 4** Material (Locating Ring) :
115CrV3
- 5** Gas Spring
- 6** M6x25 DIN 912
- 7** M8x25 DIN 912
- 8** M8x20 DIN 912



CODE	d1, +1 / +1,5	l, ±0,1	s	s1
M305-09-010090	19	64	9	25
M305-09-010200	25	64	9	25
M305-09-015090	19	68,5	13,5	29,5
M305-09-015200	25	68,5	13,5	29,5
M305-09-025090	19	77,5	22,5	38,5
M305-09-025200	25	77,5	22,5	38,5
M305-09-038090	19	89	34	50
M305-09-038200	25	89	34	50
M305-09-050090	19	100	45	63
M305-09-050200	25	100	45	63
M305-09-063090	19	113,5	58,5	74,5
M305-09-063200	25	113,5	58,5	74,5
M305-09-080090	19	130	75	91
M305-09-080200	25	130	75	91
M305-09-100090	19	150	95	111
M305-09-100200	25	150	95	111
M305-09-125090	19	175	120	136
M305-09-125200	25	175	120	136

M306-02

Pad Retainer Pins

Ordering-Example:

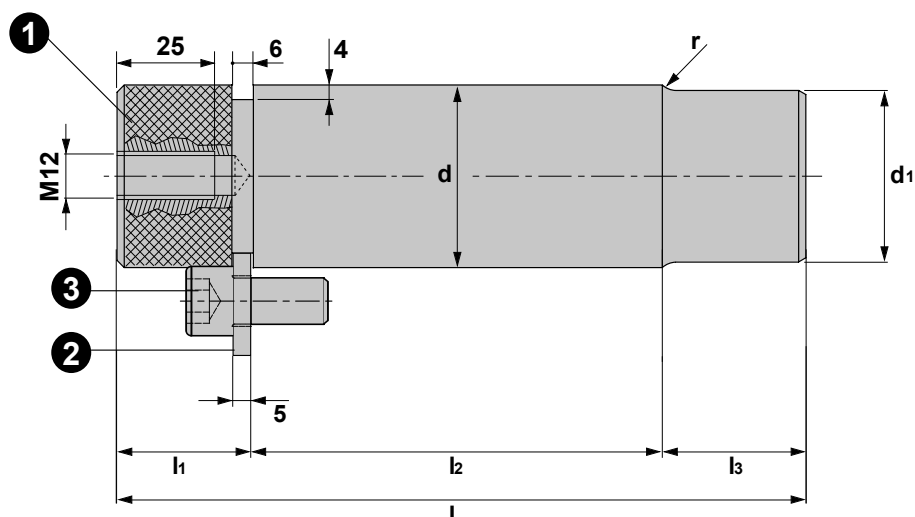
Diferent Lengths On Request.

Material: 42CrMo4

Material: CK45



- 1** Material : 42CrMo4
800 ÷ 1000 N/mm²
- 2** Material : CK45
Washer: 5xØ13,2xØ30
- 3** Screw: M12x20 DIN 912



CODE	d, e8	L	L1	L2	L3	d1, +0,05	r	Dynamic load(kN)
M306-02-032105	32	105	22	58	25	29	4	3
M306-02-032122	32	122	22	75	25	29	4	3
M306-02-040139	40	139	32	75	32	37	5	5
M306-02-040159	40	159	32	95	32	37	5	5
M306-02-050167	50	167	32	95	40	47	6	7,5
M306-02-050192	50	192	32	120	40	47	6	7,5
M306-02-063202	63	202	32	120	50	60	6	12,5
M306-02-063237	63	237	32	155	50	60	6	12,5

M306-03

Pad Retainer Pins

Ordering-Example:

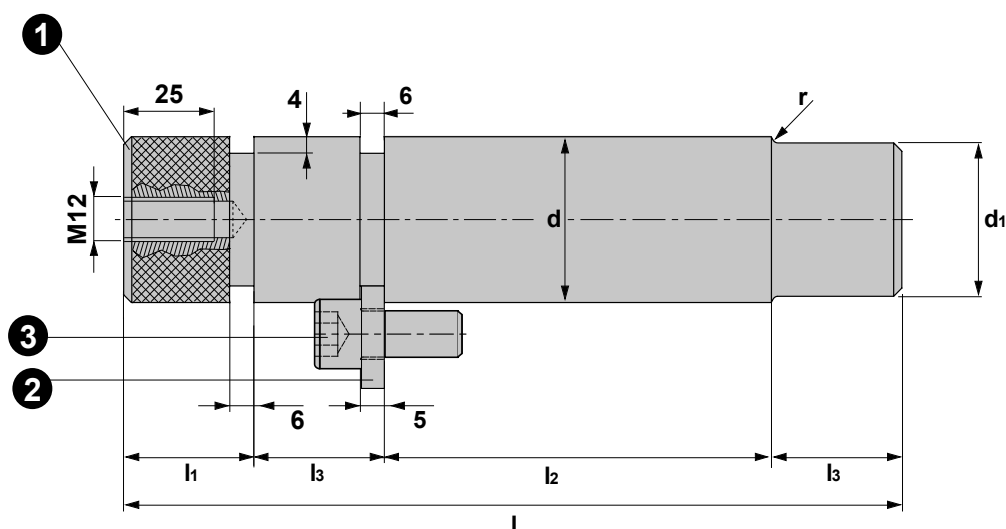
Diferent Lengths On Request.

Material: 42CrMo4

Material: CK45



- 1** Material : 42CrMo4
800 ÷ 1000 N/mm²
- 2** Material : CK45
Washer: 5xØ13,2xØ30
- 3** Screw: M12x20 DIN 912



CODE	d e8	l	l1	l2	l3	d1, +0,05	r	Dynamic load(kN)
M306-03-032130	32	130	22	58	25	29	4	3
M306-03-032147	32	147	22	75	25	29	4	3
M306-03-040171	40	171	32	75	32	37	5	5
M306-03-040191	40	191	32	95	32	37	5	5
M306-03-050207	50	207	32	95	40	47	6	7,5
M306-03-050232	50	232	32	120	40	47	6	7,5
M306-03-063252	63	252	32	120	50	60	6	12,5
M306-03-063287	63	287	32	155	50	60	6	12,5

M307-01

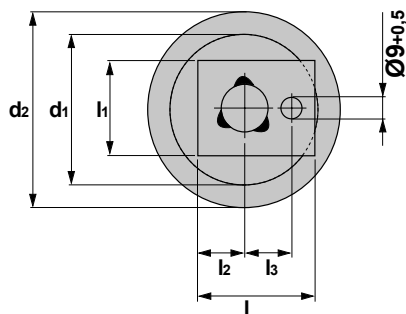
Retainer Bolts

Ordering-Example:
M= 20, A= 247, B= 110

Diferent Lengths On Request.
M307-01-20247110

Material: 36NiCrMo4
Material: CK45

Material: St37



1 Material : 36NiCrMo4

2, 3 Material: St37

4 Material: CK45

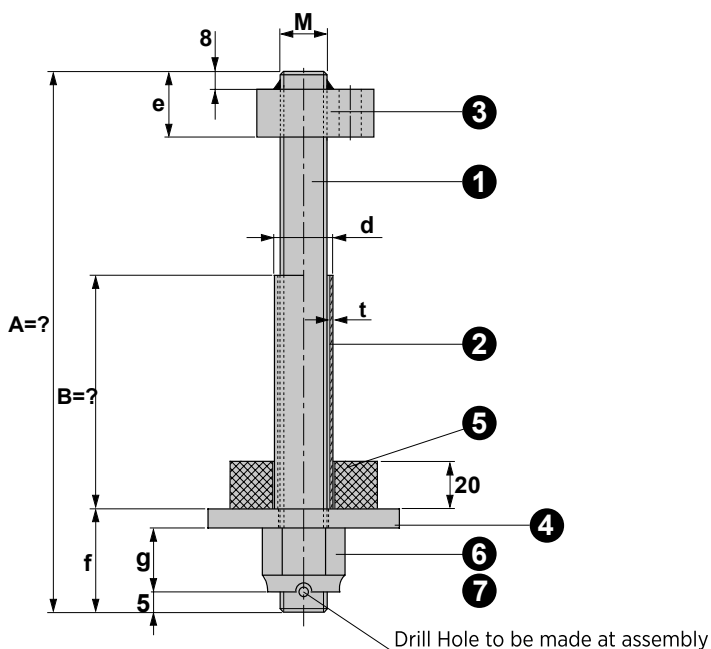
5 Elastomer 92SH

6 DIN 935 cl. 8.8

7 DIN 94

A and B are given by the customer.

*Respect the max. load



CODE	dxt	l	l1	l2	3, ±0,5	d1	d2	e	f	g	M	Max. Load(kg)
M307-01-16AAABBB	22x2	50	35	20	20	50	56	28	30	19	M16	250
M307-01-20AAABBB	25x2	50	40	20	20	63	82	28	35	22	M20	450
M307-01-24AAABBB	30x2,5	50	45	20	20	80	105	28	42	27	M24	750
M307-01-30AAABBB	38x3,5	63	50	28	36	100	130	33	50	33	M30	1250

M308-01

Flux Control

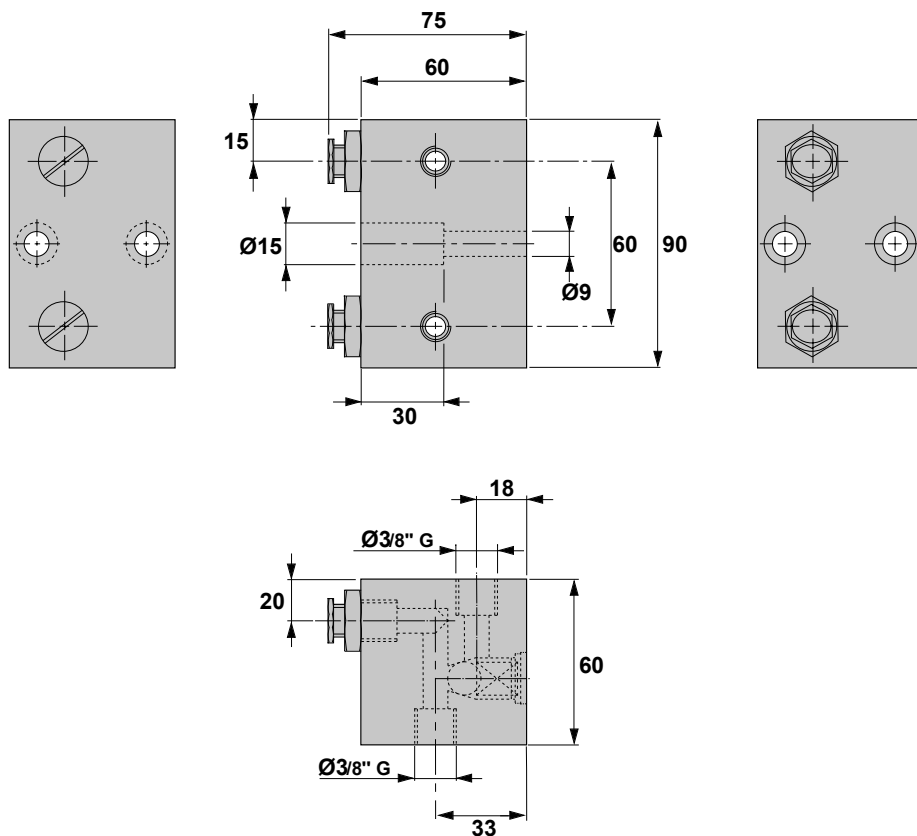
Ordering-Example:

Diferent Lengths On Request.

Material: CK45



1 Material : CK45



CODE

M308-01-090-060

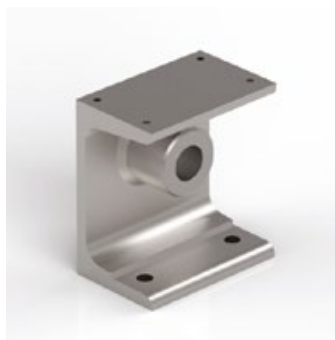
M308-07

Air Coupling Brackets

Ordering-Example:

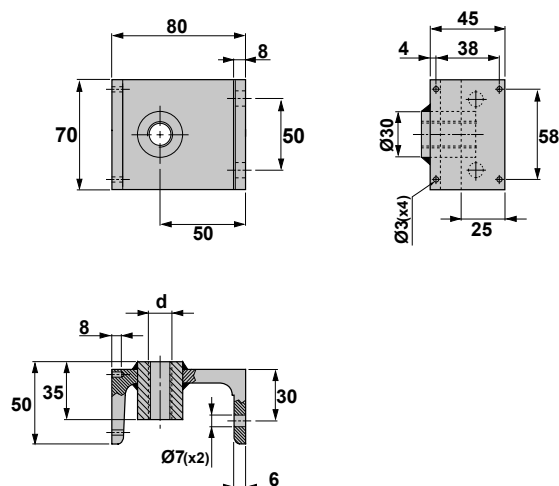
Diferent Lengths On Request.

Material: St 37

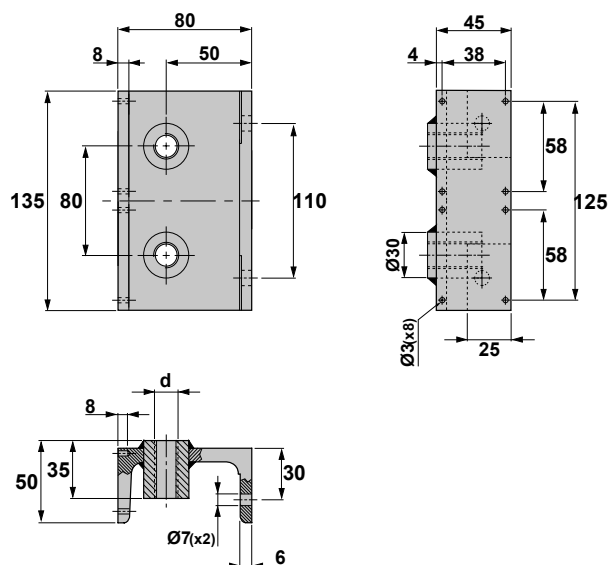


1 Material : St 37

Form - A



Form - B



CODE	Form	d
M308-07-080070	A	G 3/8"
M308-07-080135	B	G 1/4"

M309-02

Slide Stop Block

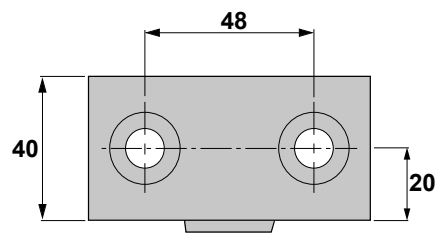
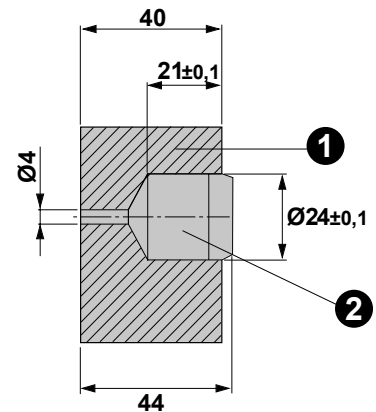
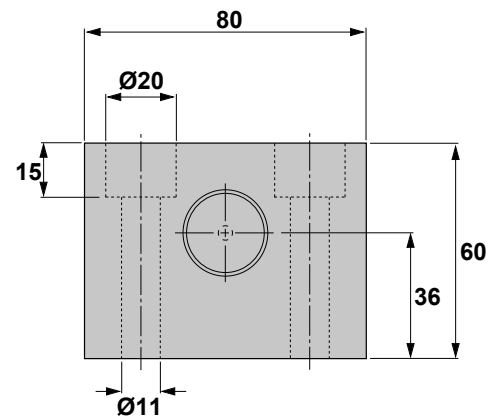
Ordering-Example:

Diferent Lengths On Request.

Material: CK45



- 1 Material : CK45
- 2 Elastomer 92 Shore



CODE	Fmax. (kN)	Max. Energy Absorbed (J)
M309-02-040080	3	4,8

M309-04

Slide Stop Block

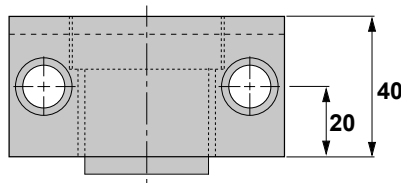
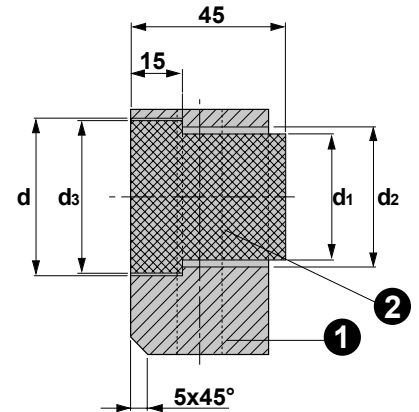
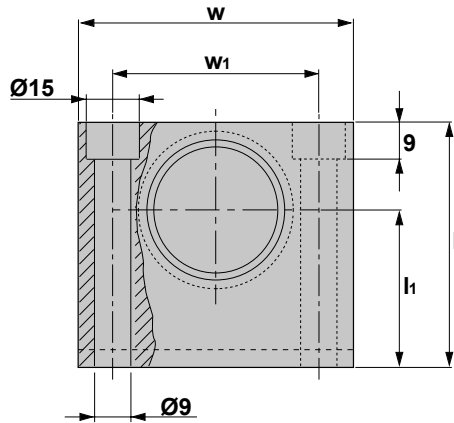
Ordering-Example:

Diferent Lengths On Request.

Material: CK45



- 1** Material : CK45
- 2** Elastomer 90 Shore



CODE	w	d	l	l1	w1	d1	d2	d3	Fmax. (kN)	Max. Energy Absorbed (J)
M309-04-040065	65	35	60	40	45	27	30	34	5,2	13
M309-04-040075	75	45	70	45	55	36	40	44	9,8	24,5

M309-05

Slide Stop Block

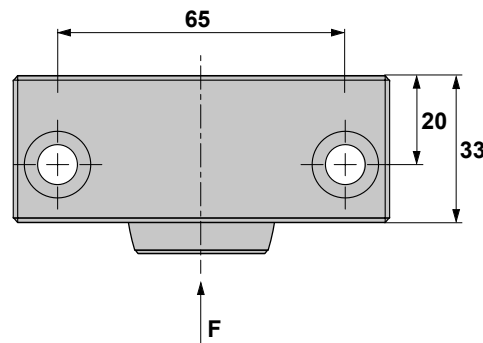
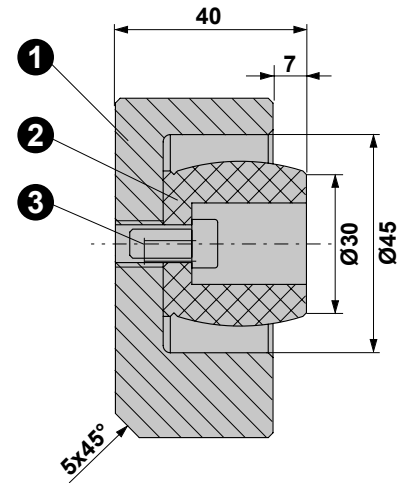
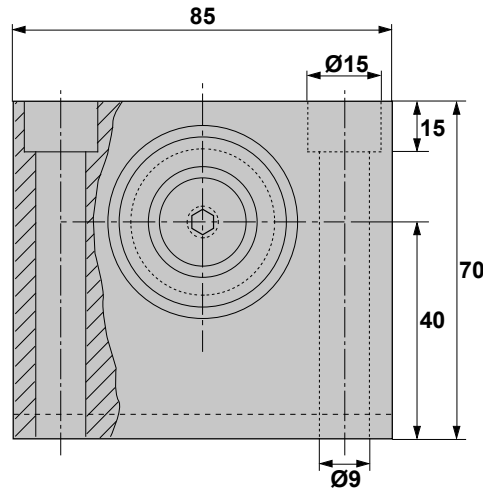
Ordering-Example:

Diferent Lengths On Request.

Material: CK45



- 1** Material : CK45
- 2** Shock Absorber
- 3** M6x12 DIN 912



CODE	Fmax. (kN)	Max. Energy Absorbed (J)	Max. Stroke (mm)
M309-05-033085	3,75	8	7

M309-06

Slide Stop Block

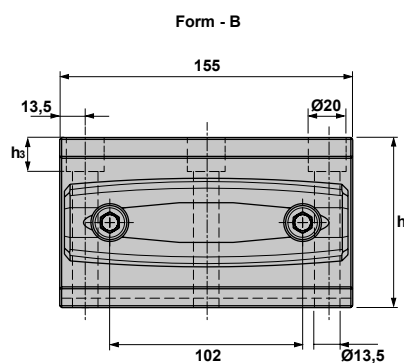
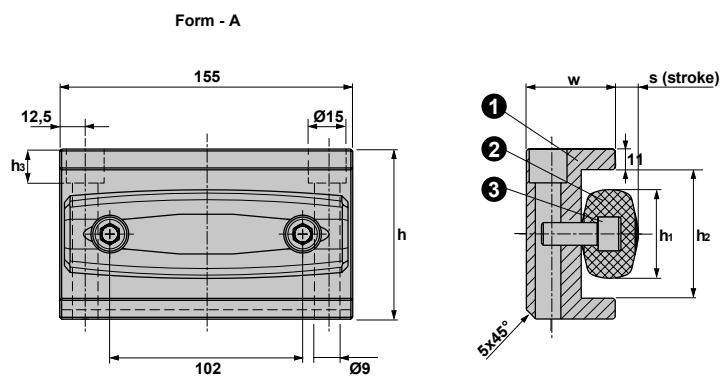
Ordering-Example:

Diferent Lengths On Request.

Material: CK45



- 1** Material : CK45
- 2** Shock Absorber
- 3** M6x12 DIN 912



CODE	Form	w	h	h1	h2	h3	Max. Energy/Hub (J/Hub)	Max. Stroke (mm)
M309-06-0467155	A	46,7	80	47	58	9	210	10,3
M309-06-047155	A	47	90	52	68	19	230	7
M309-06-0471551	B	47	90	47	68	18	210	14

M309-07

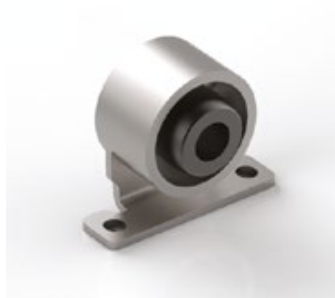
Slider Stop Damping System

Ordering-Example:

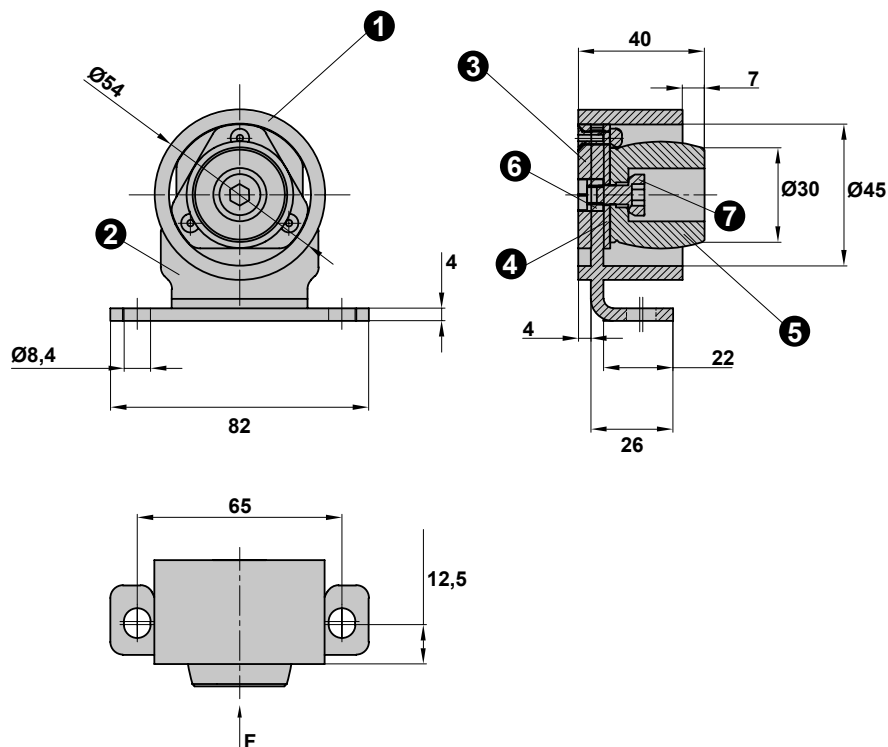
Diferent Lengths On Request.

Material: Screw ZKS-M6x10
Material: M6 DIN 934

Material: S235/DC01
Material: S355



- 1, 2, 3** Material : S355
4 Material : S235/DC01
5 Shock Absorber
6 Material : M6 DIN 934
7 Material : Screw ZKS-M6x10



CODE	Fmax. (Kn)	Max. Energy Absorbed (J)	Max. Stroke (mm)
M309-07-054033	3.75	8	7

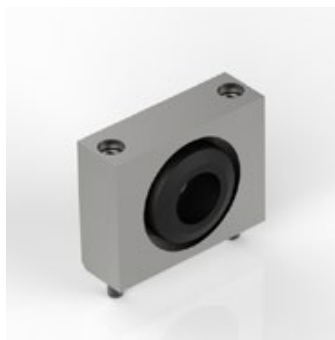
M309-08

Slide Stop Block

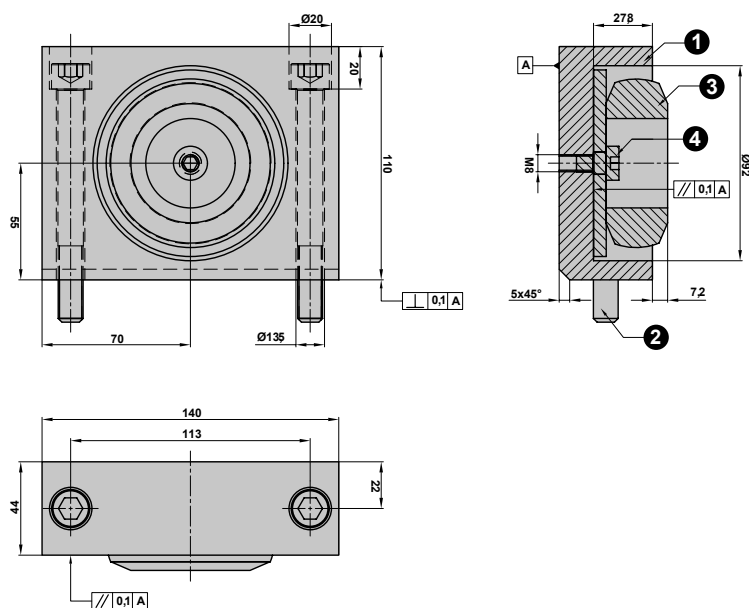
Ordering-Example:

Diferent Lengths On Request.

Material: S355J2C+C



- 1** Material : S355J2C+C
- 2** Screw
M12 x 110 DIN EN ISO 4762
- 3** Co-Polyester-Elastomer/
TecsPak SD80-9
Elastomer not Included
- 4** Screw M8x8
Screws not Included



CODE	Fmax. (kN)	Max. Energy Absorbed (J)	Max. Stroke (mm)
M309-08-044140	22	60	8

M310-01

Roller Stock Lifter

Ordering-Example:

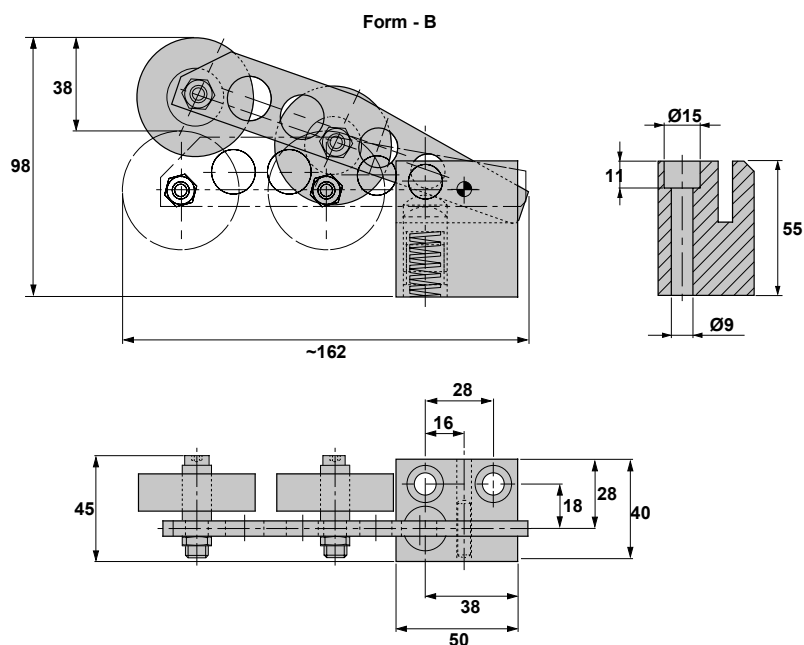
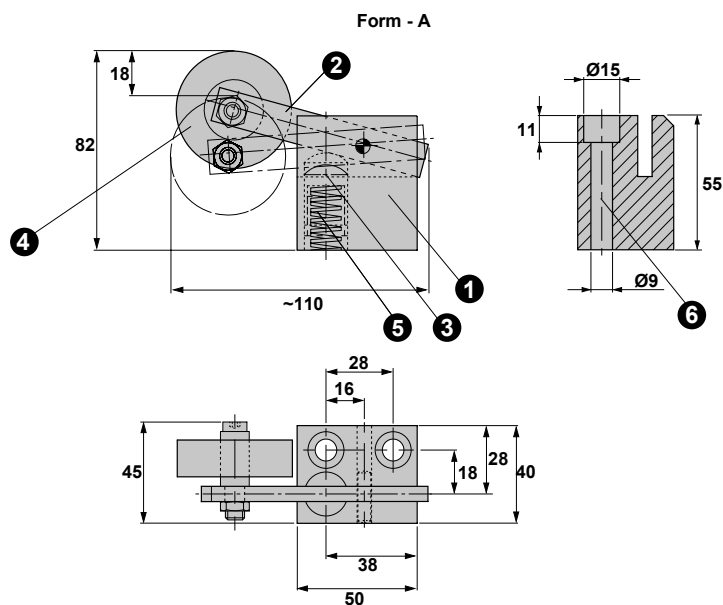
Diferent Lengths On Request.

Material: C15
Material: 42CrMo4

Material: S235JRG2K



- 1** Material : C15
- 2** Material : S235JRG2K
- 3** Material : 42CrMo4
- 4** Roller
- 5** Spring
- 6** Screws M8x60 DIN 912



CODE	Form
M310-01-001	A
M310-01-002	B

M310-01

Roller Stock Lifter

Ordering-Example:

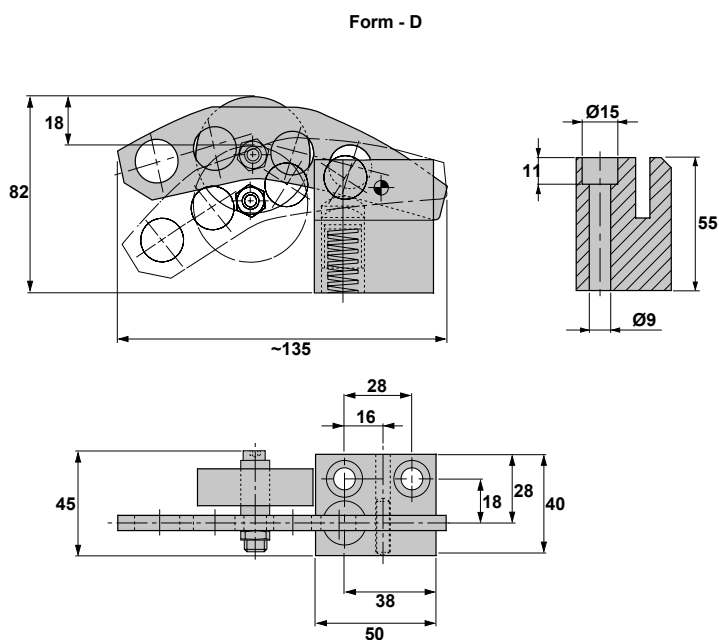
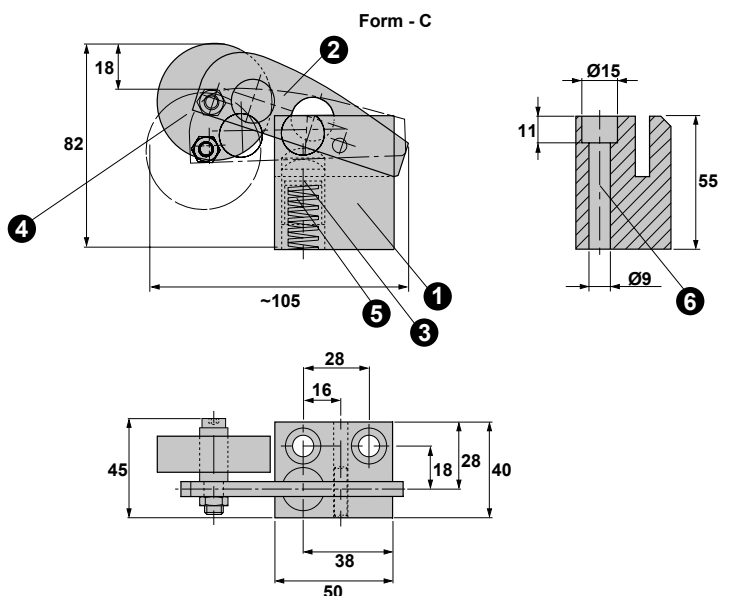
Diferent Lengths On Request.

Material: C15
Material: 42CrMo4

Material: S235JRG2K



- 1** Material : C15
- 2** Material : S235JRG2K
- 3** Material : 42CrMo4
- 4** Roller
- 5** Spring
- 6** Screws M8x60 DIN 912



CODE	Form
M310-01-003	C
M310-01-004	D

M310-01

Roller Stock Lifter

Ordering-Example:

Diferent Lengths On Request.

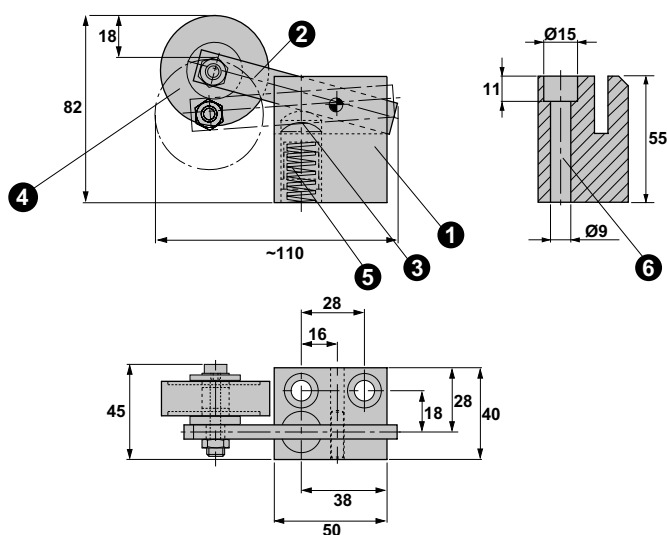
Material: C15
Material: 42CrMo4

Material: S235JRG2K

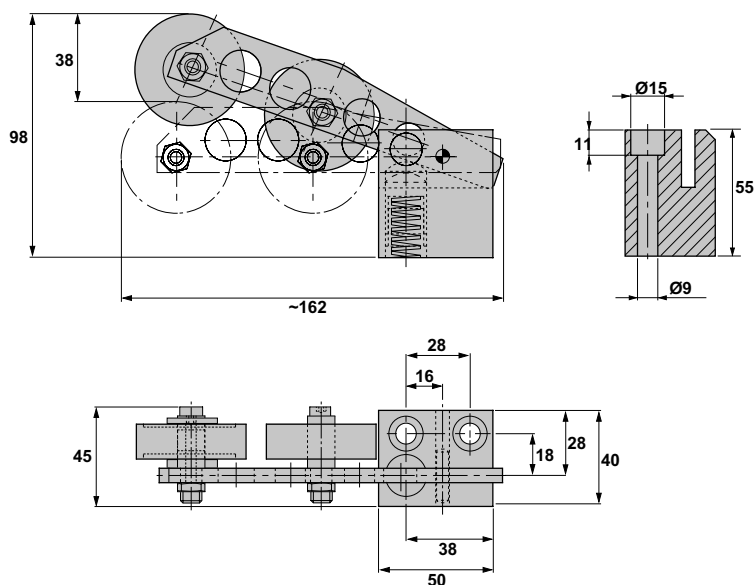


- 1** Material : C15
- 2** Material : S235JRG2K
- 3** Material : 42CrMo4
- 4** Roller
- 5** Spring
- 6** Screws M8x60 DIN 912

Form - A



Form - B



CODE	Form
M310-01-010	A
M310-01-011	B

M310-01

Roller Stock Lifter

Ordering-Example:

Diferent Lengths On Request.

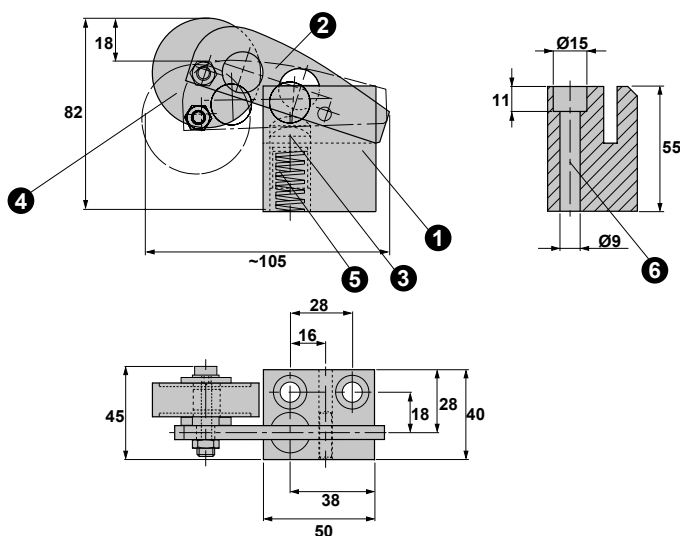
Material: C15
Material: 42CrMo4

Material: S235JRG2K

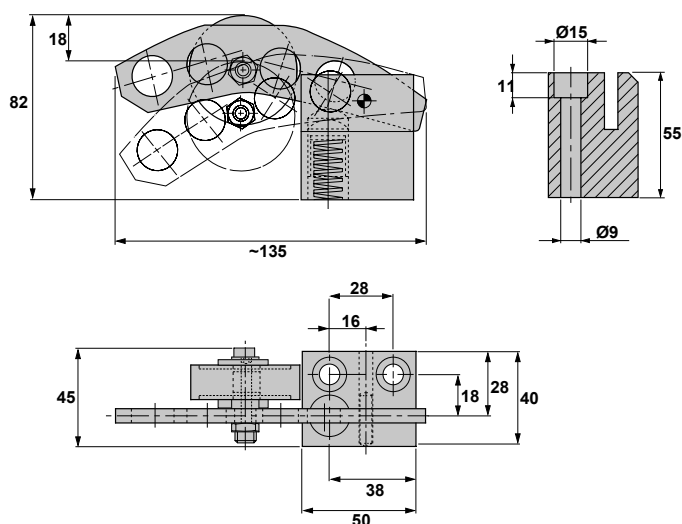


- 1** Material : C15
- 2** Material : S235JRG2K
- 3** Material : 42CrMo4
- 4** Roller
- 5** Spring
- 6** Screws M8x60 DIN 912

Form - C



Form - D



CODE	Form
M310-01-012	C
M310-01-013	D

M310-01

Roller Stock Lifter

Ordering-Example:

Diferent Lengths On Request.

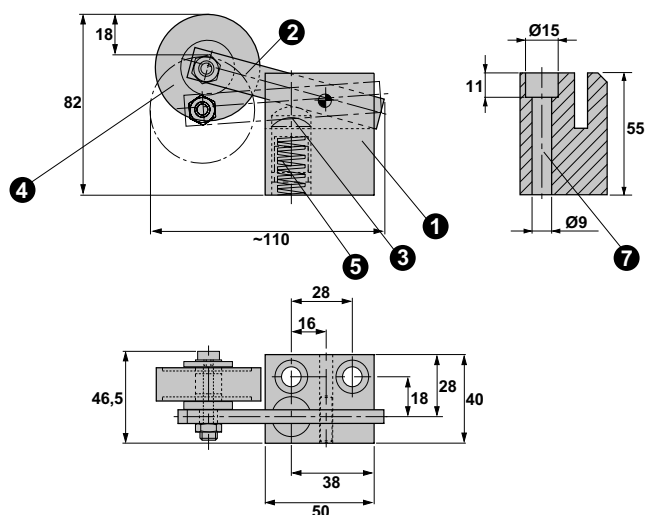
Material: C15
Material: Steel

Material: S235JRG2K
Material: 42CrMo4

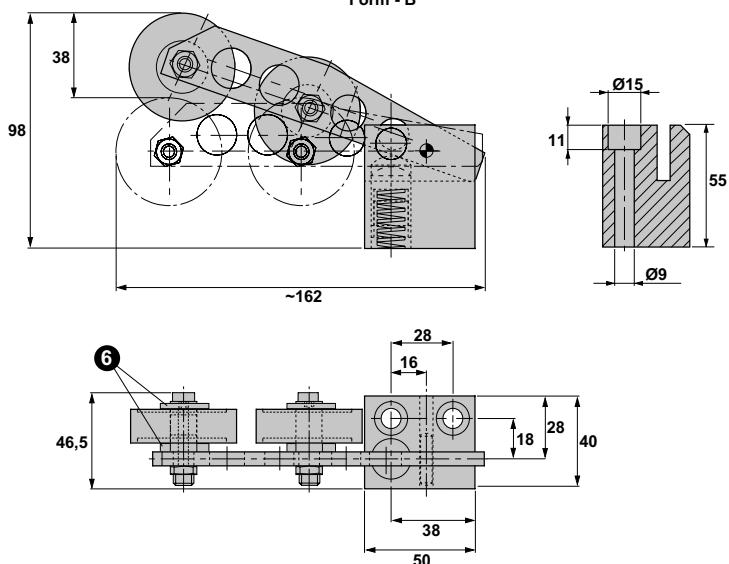


- 1** Material : C15
- 2** Material : S235JRG2K
- 3** Material : 42CrMo4
- 4** Roller
- 5** Spring
- 6** Material : Steel
- 7** Screws M8x60 DIN 912

Form - A



Form - B



CODE	Form
M310-01-020	A
M310-01-021	B

M310-01

Roller Stock Lifter

Ordering-Example:

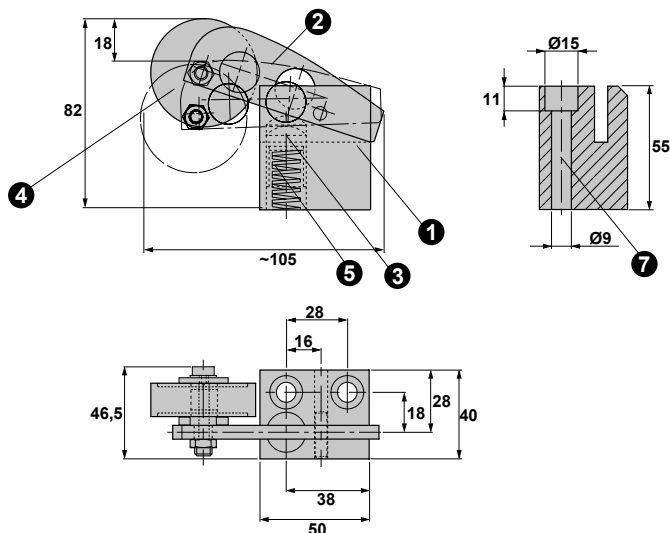
Material: C15
Material: Steel

Material: S235JRG2K
Material: 42CrMo4

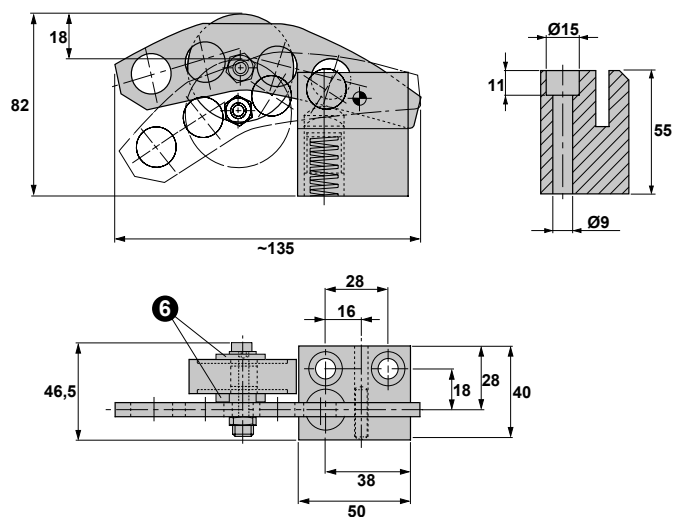


- 1** Material : C15
- 2** Material : S235JRG2K
- 3** Material : 42CrMo4
- 4** Roller
- 5** Spring
- 6** Material : Steel
- 7** Screws M8x60 DIN 912

Form - C



Form - D



CODE	Form
M310-01-022	C
M310-01-023	D

M310-03

Roller Group

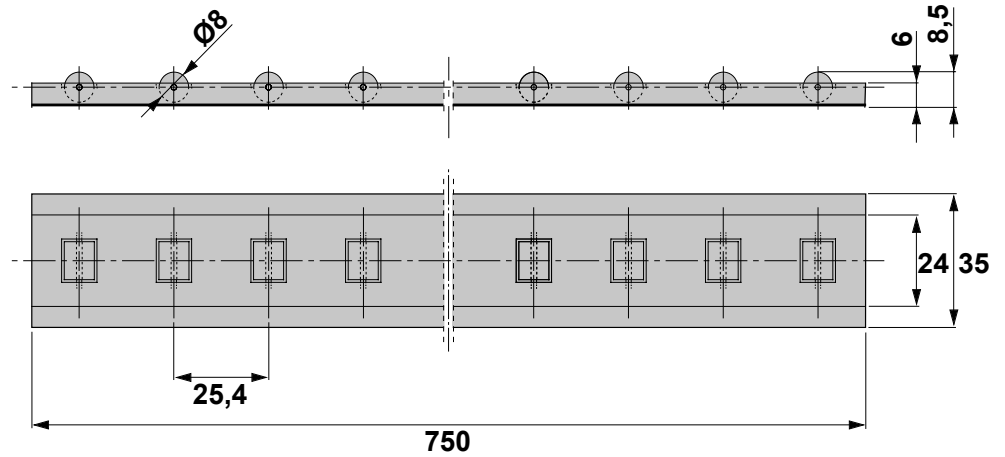
Ordering-Example:

Diferent Lengths On Request.

Material: Steel



1 Material : Steel



CODE

M310-03-35750

M310-04

Ball Carriers

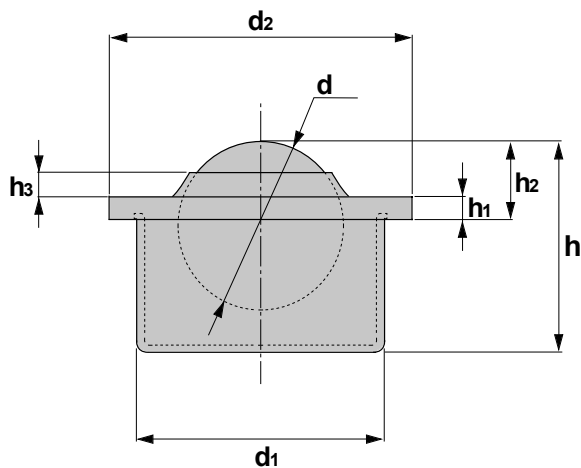
Ordering-Example:

Diferent Lengths On Request.

Material: Steel



1 Material : Steel



CODE	d	h	d1	d2	h1	h2	h3	Max. Load (daN)
M310-04-0015	15	21,5	24±0,065	31	2,8	9,5±0,2	3,5	50
M310-04-0030	30	37,5	45±0,080	55	4	13,8±0,3	4,3	250

M310-05

Steel Roller

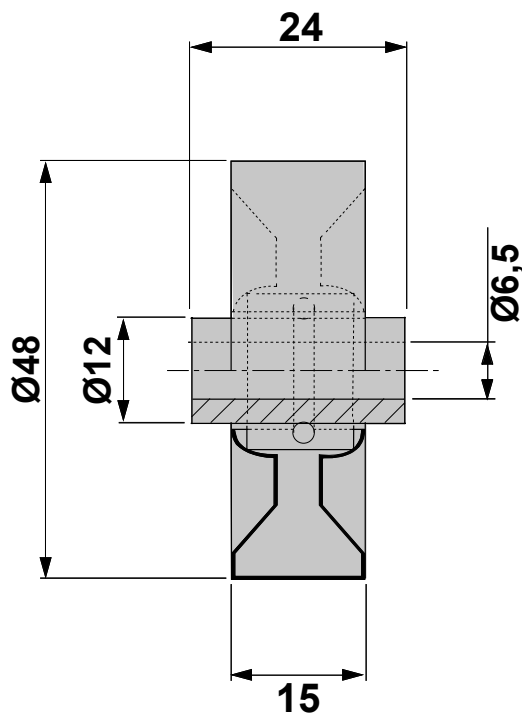
Ordering-Example:

Diferent Lengths On Request.

Material: Steel



1 Material : Steel



CODE	Max. Load (daN)
M310-05-001	25

M310-06

Plastic Roller

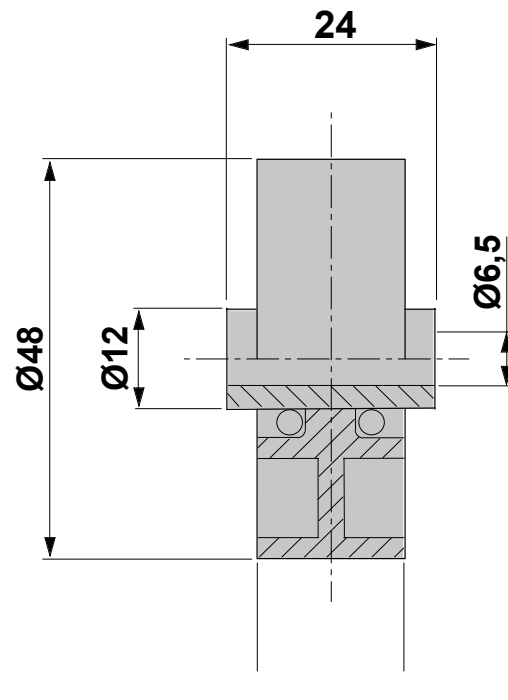
Ordering-Example:

Diferent Lengths On Request.

Material: Polypropylene



1 Material : Polypropylene



CODE	Max. Load (daN)
M310-06-001	20

M310-08

Roller

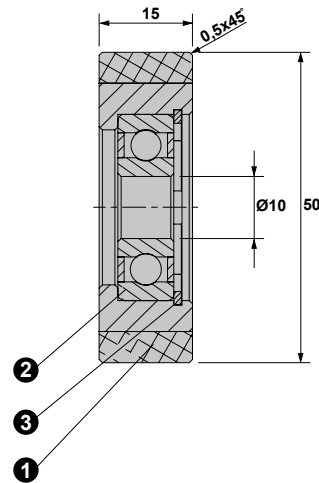
Ordering-Example:

Diferent Lengths On Request.

Material: Steel+Vulkollan



- 1** Material : Steel+Vulkollan
- 2** Roller Bearing 6200 2RS
- 3** I30 DIN 472



CODE	Max. Load (daN)
M310-08-001	70

M310-08

Roller Group

Ordering-Example:

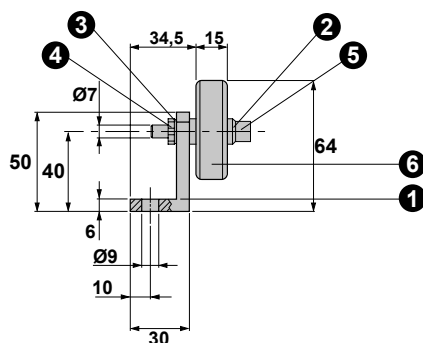
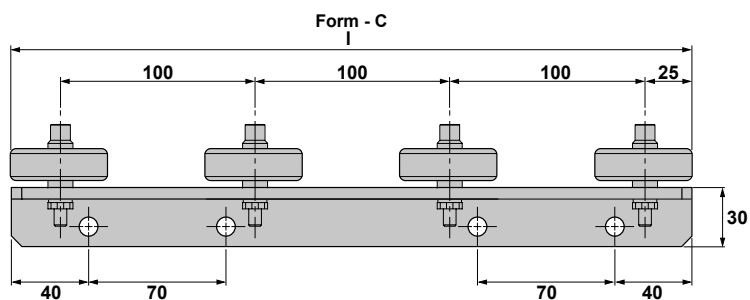
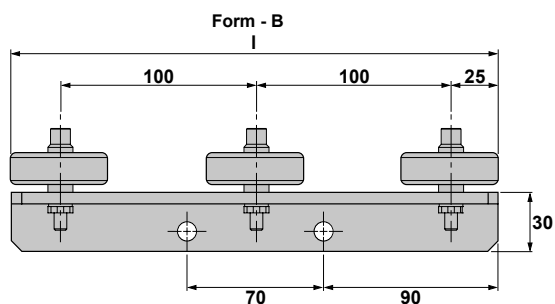
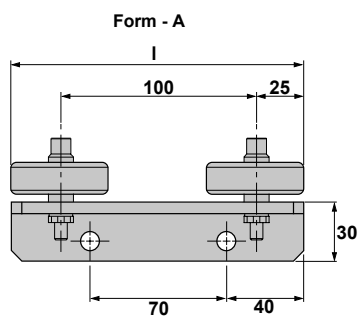
Diferent Lengths On Request.

Material: St 37

Material: Steel M310-05-001



- 1** Material : St 37
2, 3 Washers for M6
4 Nut for M6
5 Screw M6x40 DIN 912
6 Material : Steel - M310-05-001



CODE	Form	l	Max. Load (daN)
M310-08-064-150	A	150	50
M310-08-064-250	B	250	75
M310-08-064-350	C	350	100

M310-09

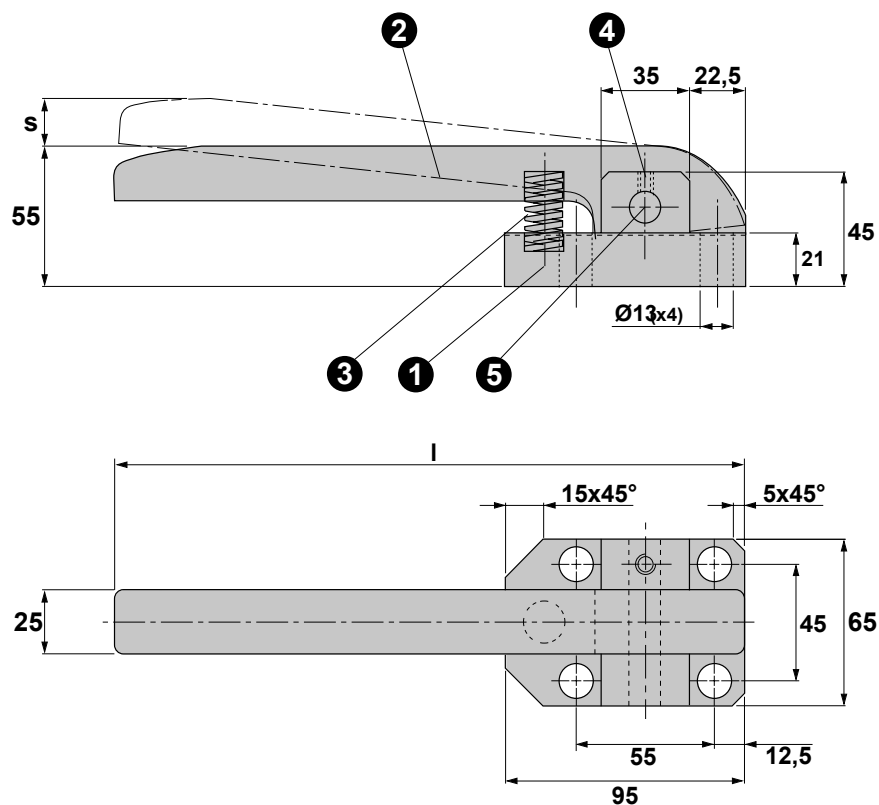
Coil Support

Ordering-Example:

Diferent Lengths On Request.

Material: CK45

Material: Bronze - HB>190



- 1** Material : CK45
- 2** Material : Bronze - HB>190
- 3** Spring
- 4** M6x8 DIN 913
- 5** Ø12x60 DIN 6325

CODE	I	s	Spring	Spring Initial Force (N)	Spring Final Force (N)
M310-09-01-001	250	18	TV016044	79	123
M310-09-01-002	250	18	B16044	270	420
M310-09-01-003	300	30	B16044	240	420

M310-10

Roller Drive Unit

Ordering-Example:

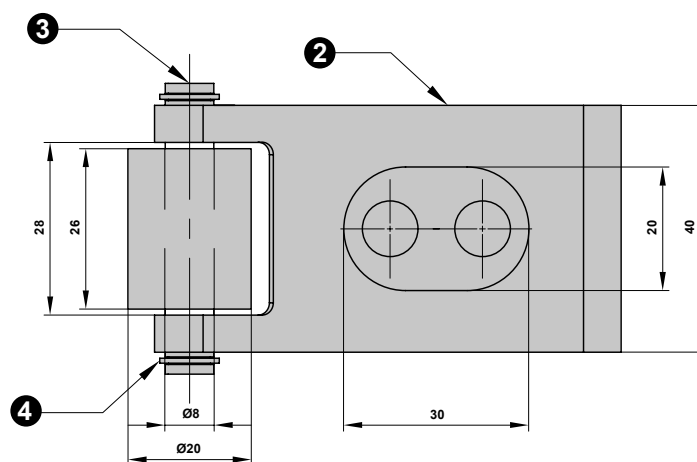
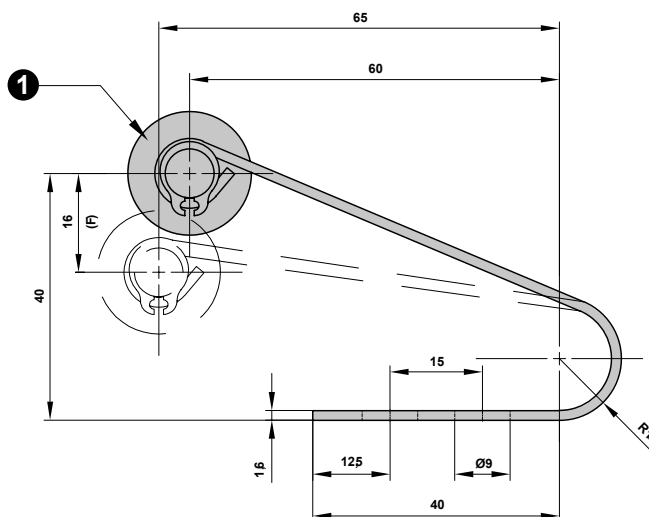
Diferent Lengths On Request.

Material: Steel or Resin (POM)

Material: Steel



- 1** Steel or Resin (POM)
2, 3 Steel
4 G Type Retaining Ring (G-8)



CODE	F max	Type
M310-10-016001	16	Steel
M310-10-016002	16	Resin

M311-01

Pin for Elastomer Springs

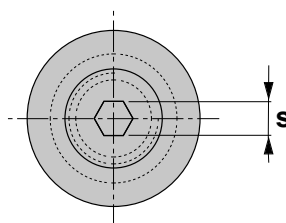
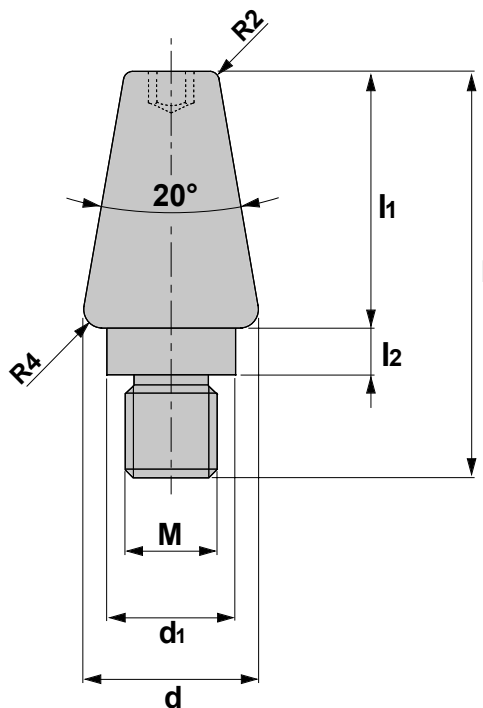
Ordering-Example:

Diferent Lengths On Request.

Material: CK45



1 Material : CK45



CODE	d	l	l1	l2	d1	M	s	Elastomer Ø
M311-01-012056	28	56	30	8	19	M12	6	63
M311-01-016074	32	74	40	10	22	M16	8	80-100
M311-01-020100	38	100	55	15	28	M20	10	125-140

M311-05

Pin for Elastomer Springs

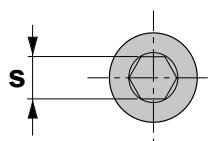
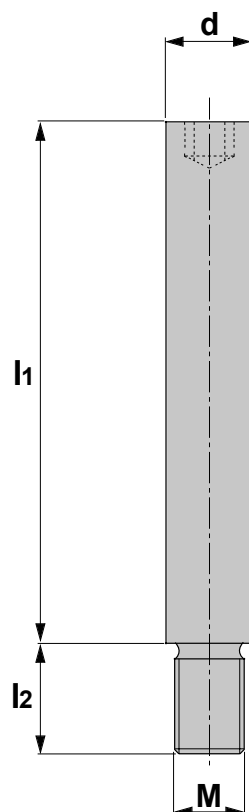
Ordering-Example:
d= 10, l1= 50

Diferent Lengths On Request.
M311-05-10050

Material: CK45



1 Material : CK45



d	l1											l2	M	s
6	20	25	32	40	-	-	-	-	-	-	-	6	M4	3
8	20	25	32	40	50	-	-	-	-	-	-	9	M6	4
10	20	25	32	40	50	63	-	-	-	-	-	15	M8	5
13	-	-	32	40	50	63	80	95	-	-	-	15	M10	6
16	-	25	32	40	50	63	80	95	118	140	180	18	M12	8
20	-	-	32	40	50	63	80	95	118	140	180	25	M16	10
25	-	-	32	40	50	63	80	95	118	140	180	30	M20	14

M312-03

Retainer Bolt Sets

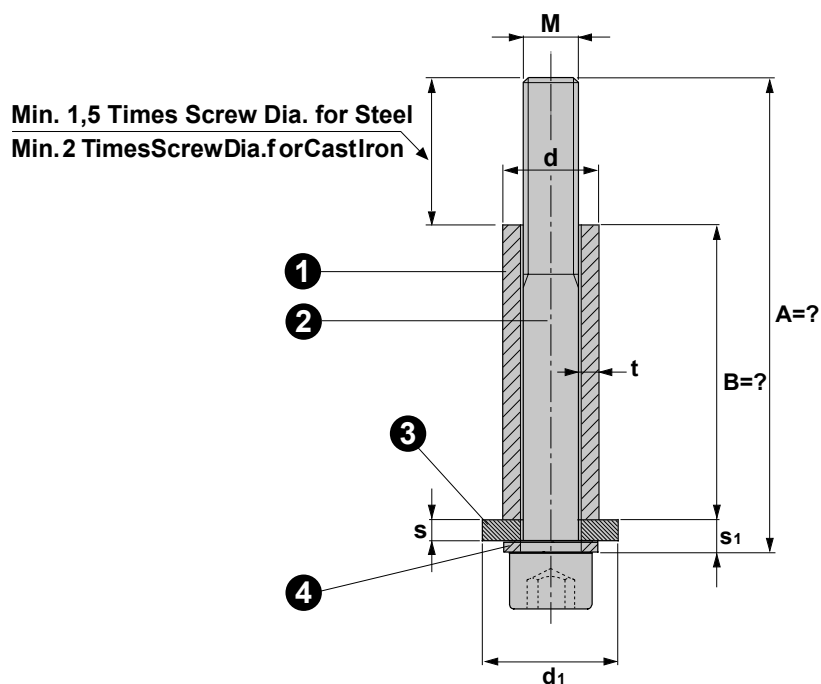
Ordering-Example:
M= 12, A= 110, B= 76

Diferent Lengths On Request.
M312-03-12110076

Material: St37
Material: CK45



- 1** Material : St37
 - 2** DIN 912 cl. 12.9
 - 3** Material: CK45
 - 4** DIN 127
- A and B are given by the customer.



CODE	dxt	d1	M	s	s1	Max. Load (kg)
M312-03-10AAABBB	16x2,5	25	M10	4	5,6	100
M312-03-12AAABBB	20x3,5	30	M12	6	7,7	150
M312-03-16AAABBB	28x5,5	40	M16	6	8,1	250

M312-08

Retainer Bolt Sets

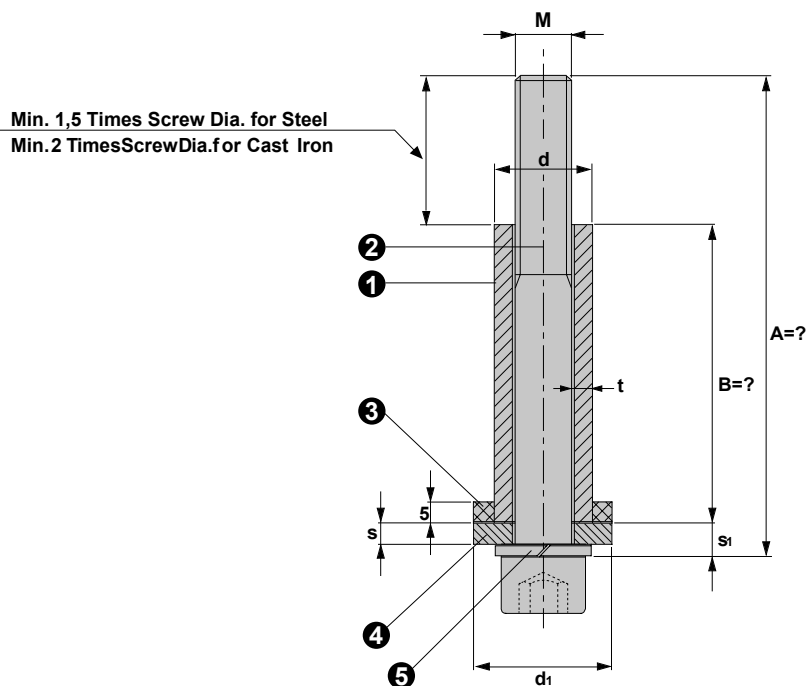
Ordering-Example:
M= 12, A= 110, B= 76

Diferent Lengths On Request.
M312-08-12110076

Material: St37, CK45
Material: Elastomer 92SH



- 1** Material : St37
 - 2** DIN 912 cl. 12.9
 - 3** Material: Elastomer 92SH
 - 4** Material : CK45
 - 5** DIN 127
- A and B are given by the customer.



CODE	dxt	d1	M	s	s1	Max. Load (kg)
M312-08-10AAABBB	16x2,5	32	M10	4	6,5	100
M312-08-12AAABBB	20x3,5	36	M12	6	8,5	150
M312-08-16AAABBB	28x5,5	45	M16	6	9,5	250

M313-01

Spacer Tubes

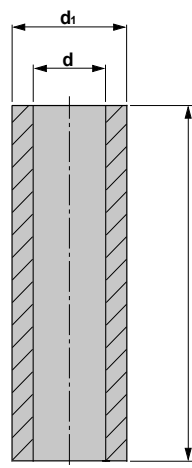
Ordering-Example:
d1= 20, l= 80

Diferent Lengths On Request.
M313-01-020080

Material: St35.4



Material : St35.4
Differnt lengths on request.



d	6,4	9	11	13	17	22	26	32
d1	10	13	16	20	25	30	36	42
Screw	M6	M8	M10	M12	M16	M20	M24	M30
±0,1								
27	•							
30		•						
33	•		•	•				
38	•		•	•				
40		•	•					
44	•		•	•				
48	•		•	•	•			
50		•	•	•	•	•		
61	•		•	•	•			
63		•	•	•	•	•		
70					•	•		
72	•		•	•	•	•	•	
80	•	•	•	•	•	•	•	
90			•	•	•	•	•	
95					•			
100		•	•	•	•	•	•	
105					•			
115					•			
125			•	•	•	•	•	
135					•			
150			•	•	•	•	•	•
155					•			
175					•	•	•	
195					•			
200			•	•	•	•	•	•
215					•			
225					•	•	•	
235					•			
250					•	•	•	
255					•			

M313-02

Spacer Tubes

Ordering-Example:
d1= 20, l= 80

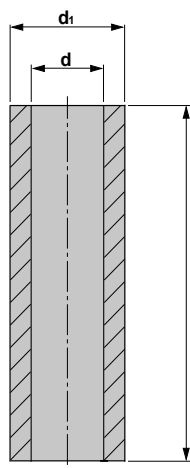
Diferent Lengths On Request.
M313-02-020080

Material: St35.4

Hardened: HRC 56 ÷ 60



Material : St35.4
Surface hardened. HRC 56 ÷ 60
Diferent lengths on request.



d	6,4	9	11	13	17	22	26	32
d1	10	13	16	20	25	30	36	42
Screw	M6	M8	M10	M12	M16	M20	M24	M30
±0,1								
27	•							
30		•	•					
33	•		•	•				
38	•		•	•				
40		•	•					
44	•		•	•				
48	•		•	•	•			
50		•	•	•	•	•		
61	•		•	•	•			
63		•	•	•	•	•		
70					•	•		
72	•		•	•	•	•	•	
80	•	•	•	•	•	•	•	
90			•	•	•	•	•	
95					•			
100		•	•	•	•	•	•	
105					•			
115					•			
125			•	•	•	•	•	
135					•			
150			•	•	•	•	•	•
155					•			
175					•	•	•	
195					•			
200			•	•	•	•	•	•
215					•			
225					•	•	•	
235					•			
250					•	•	•	
255					•			

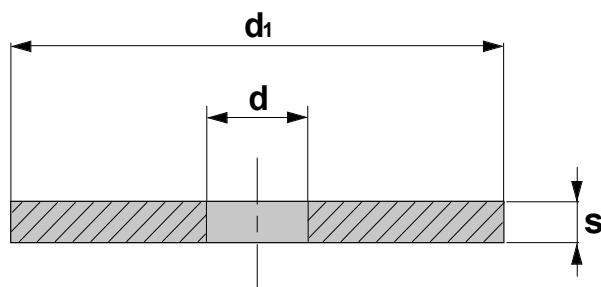
M313-04

Washer for Elastomer Spring

Ordering-Example:

Diferent Lengths On Request.

Material: CK45



Material : CK45

CODE	d	d1	s	Elastomer Ø
M313-04-020004	6,5	20	4	16
M313-04-025004	8,5	25	4	20
M313-04-030005	10,5	30	5	25
M313-04-040005	13,5	40	5	32
M313-04-050005	13,5	50	5	40
M313-04-060006	16,5	60	6	50
M313-04-080006	16,5	80	6	63
M313-04-100008	20,5	100	8	80
M313-04-120008	20,5	120	8	100
M313-04-150008	26	150	8	125

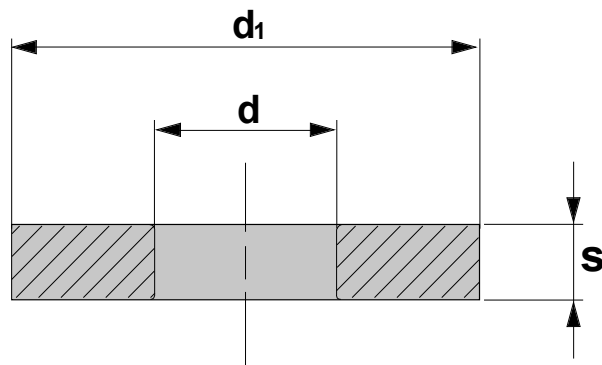
M313-05

Washer

Ordering-Example:

Diferent Lengths On Request.

Material: CK45



Material : CK45

CODE	d	d1	s
M313-05-001	8,5	20	4
M313-05-002	10,5	25	5
M313-05-003	13,5	25	5
M313-05-004	13,2	30	5
M313-05-005	13,5	30	5
M313-05-006	12,5	32	5
M313-05-007	12,5	32	6
M313-05-008	13	32	5
M313-05-009	13,5	32	6
M313-05-010	10,5	36	5
M313-05-011	13,5	36	5
M313-05-012	16,5	36	5
M313-05-013	20,5	36	5
M313-05-014	17	38	6

CODE	d	d1	s
M313-05-016	20,5	45	5
M313-05-017	21	45	8
M313-05-018	10,5	55	5
M313-05-019	13,5	55	5
M313-05-020	20,5	55	5
M313-05-021	25	55	10
M313-05-022	25,5	55	5
M313-05-023	30,5	55	5
M313-05-024	12,5	60	5
M313-05-025	16,5	60	5
M313-05-026	12,5	75	5
M313-05-027	16,5	75	5
M313-05-028	16,5	90	5
M313-05-029	21	90	5
M313-05-030	21	120	5

M313-06

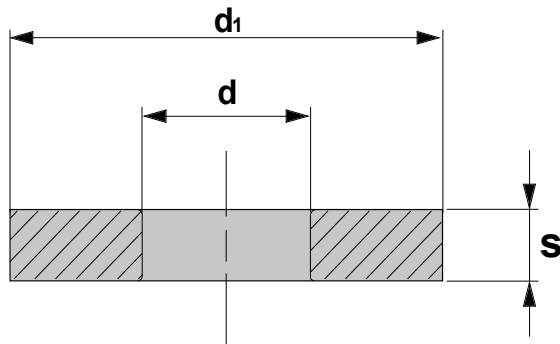
Washer

Ordering-Example:

Diferent Lengths On Request.

Material: CK45

Hardened: HRC 45 ÷ 50



Material : CK45
Hardened HRC 45 ÷ 50

CODE	d	d1	s
M313-06-001	6,4	17	3
M313-06-002	8,4	23	4
M313-06-003	10,5	26	4
M313-06-004	13	30	5
M313-06-005	17	35	4
M313-06-006	17	35	5
M313-06-007	17	35	6
M313-06-008	21	42	8
M313-06-009	21	46	6
M313-06-010	25	46	10
M313-06-011	25	55	10

M316-01

Coupling Plates

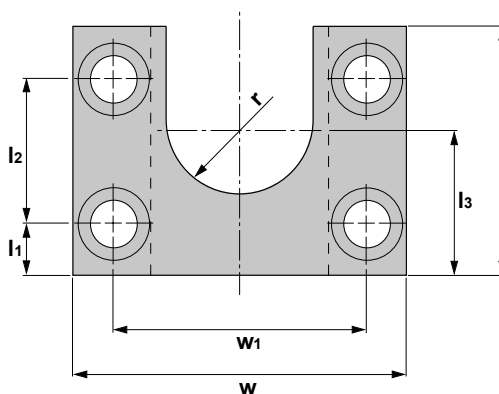
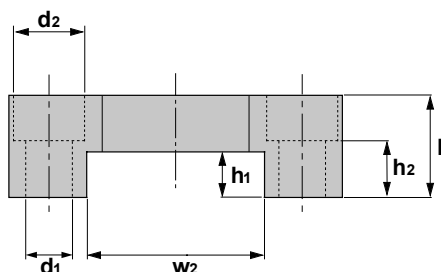
Ordering-Example:

Diferent Lengths On Request.

Material: CK45



Material : CK45



CODE	w	h	l	l1	l2	l3	w1	w2	h1	h2	d1	d2	r	Screw
M316-01-001	80	25	50	11,5	27	30	57	38	11	15	11	17	14	M10
M316-01-002	100	32	55	12,5	30	35	75	50	15	20	13	20	20	M12
M316-01-003	120	40	65	16	33	45	88	60	20	24	17	26	25	M16
M316-01-004	150	45	100	18	64	64	114	80	20	19	21	33	33	M20

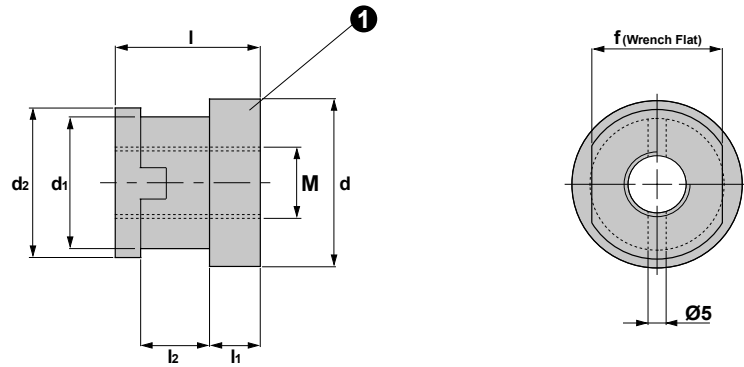
M316-02

Coupling Nuts

Ordering-Example:

Diferent Lengths On Request.

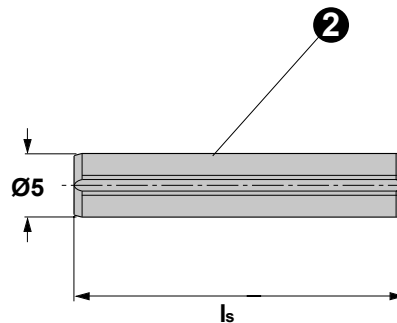
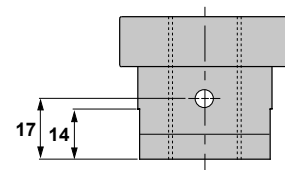
Material: CK45



1 Material : CK45

2 DIN EN ISO 8752

*Slotted Pin - will be supplied with coupling nut.



CODE	d	l	l1	l2	ls	d1	d2	f	M	Air Cyl. Bore Size Ø
M316-02-001	35	30	10	16	-	25	30	24	M10x1,25	32
M316-02-002	35	30	10	16	24	25	30	24	M12x1,25	40
M316-02-003	47	40	14	19	36	37	42	36	M16x1,5	50, 63
M316-02-004	47	40	14	19	36	37	42	36	M20x1,5	80, 100
M316-02-005	47	40	14	19	36	37	42	36	M27x2,0	125
M316-02-006	57	50	19	24	45	47	52	46	M36x2,0	160, 200
M316-02-007	76	76	19	50	55	59	64	60	M42x2,0	250

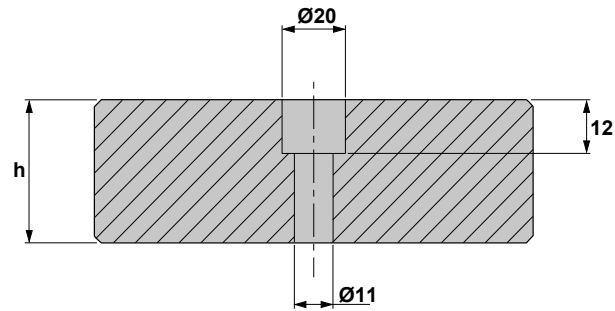
M317-04

Key

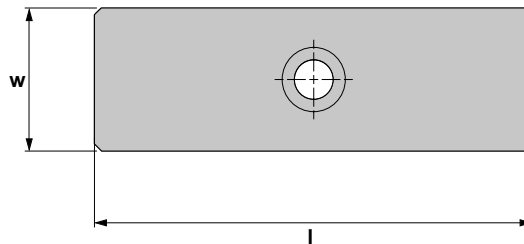
Ordering-Example:

Diferent Lengths On Request.

Material: CK45



Material : CK45



CODE	w, h11	h	l
M317-04-2525080	25	25	80
M317-04-2525125	25	25	125
M317-04-3030080	30	30	80
M317-04-3030125	30	30	125

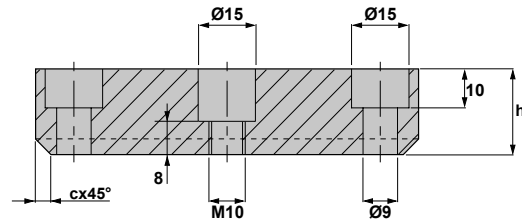
M317-05

Key

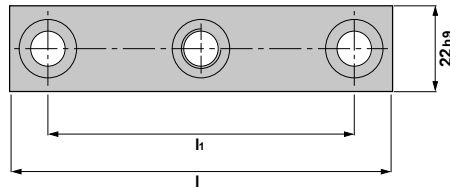
Ordering-Example:

Diferent Lengths On Request.

Material: CK45



Material : CK45



CODE	h	l	l1	c
M317-05-014050	14	50	32	-
M317-05-014080	14	80	50	-
M317-05-014100	14	100	80	-
M317-05-014125	14	125	100	-
M317-05-022050	22	50	32	4
M317-05-022080	22	80	50	4
M317-05-022100	22	100	80	4
M317-05-022125	22	125	100	4
M317-05-040050	40	50	32	4
M317-05-040080	40	80	50	4
M317-05-040100	40	100	80	4
M317-05-040125	40	125	100	4

M317-07

Key

Ordering-Example:

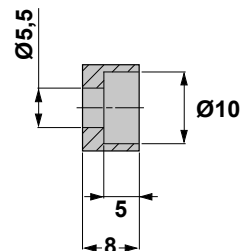
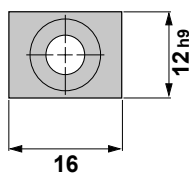
Diferent Lengths On Request.

Material: CK45

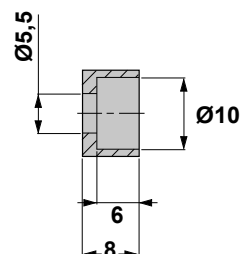
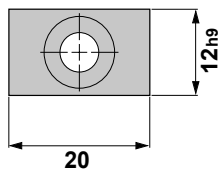


Material : CK45

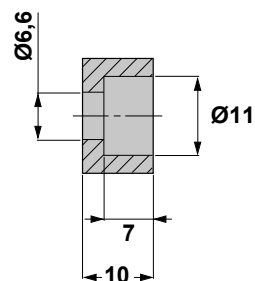
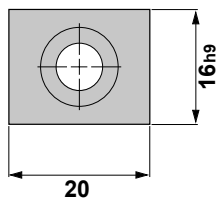
Form - A



Form - B



Form - C



CODE	Form
M317-07-012016	A
M317-07-012020	B
M317-07-016020	C

M317-08

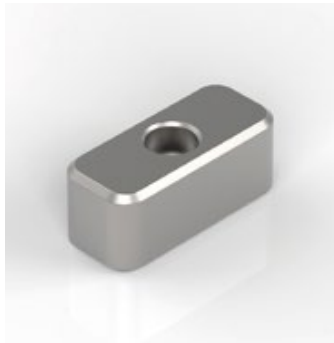
Key

Ordering-Example:

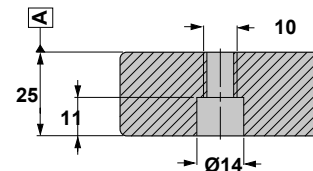
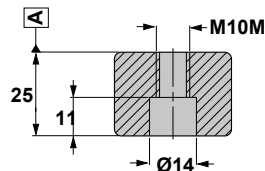
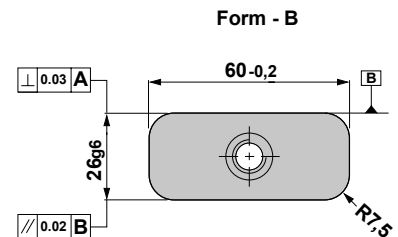
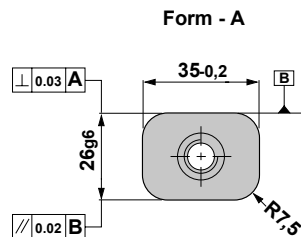
Diferent Lengths On Request.

Material: 90MnCrV8

Hardened: HRC 58 ÷ 60



Material : 90MnCrV8
Hardened HRC 58 ÷ 60



CODE	Form
M317-08-2635	A
M317-08-2660	B

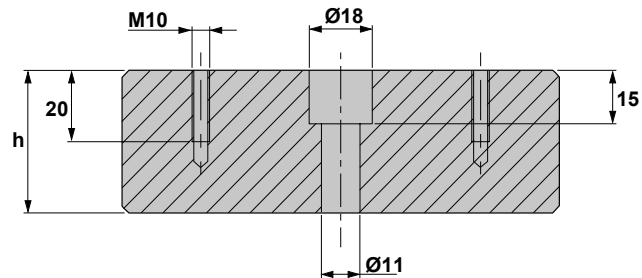
M317-10

Key

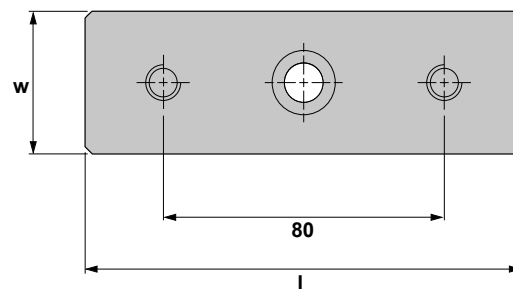
Ordering-Example:

Diferent Lengths On Request.

Material: CK45



Material : CK45



CODE	w , h9	h	l
M317-10-42125	42	40	125
M317-10-50135	50	48	135
M317-10-50220	50	48	220

M317-11

Key

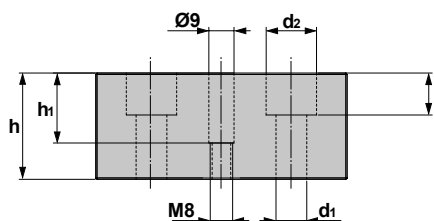
Ordering-Example:

Diferent Lengths On Request.

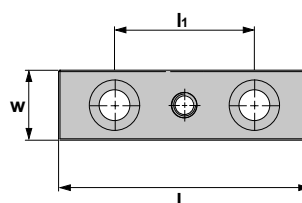
Material: CK45



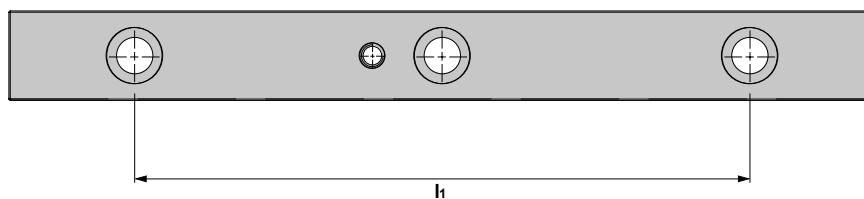
Material : CK45



Form - A



Form - B



CODE	Form	w, h7	h	l	l1	h1	d1	d2	t
M317-11-2538090	A	25	38	90	50	25	11	18	15
M317-11-2538120	A	25	38	120	80	25	11	18	15
M317-11-3248150	A	32	48	150	90	35	13	20	25
M317-11-3248210	A	32	48	210	130	35	13	20	25
M317-11-3258260	A	32	58	260	150	42	13	20	25
M317-11-3258310	B	32	58	310	220	42	13	20	25
M317-11-3258350	B	32	58	350	250	42	13	20	25

M317-12

Locating Block

Ordering-Example:

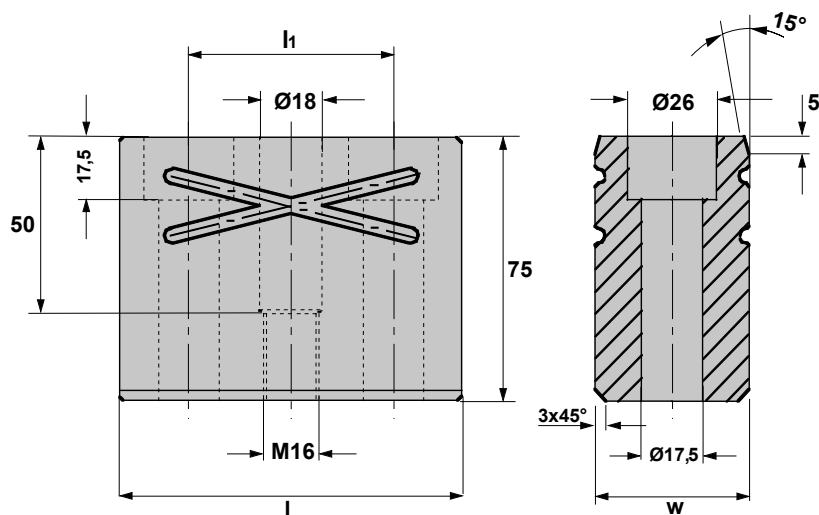
Diferent Lengths On Request.

Material: 16MnCr5

Hardened: HRC 60 ÷ 62



Material : 16MnCr5
Hardened HRC 60 ÷ 62



CODE	w, h6	l	l1
M317-12-045100	45	100	60
M317-12-045125	45	125	85
M317-12-045160	45	160	120
M317-12-045200	45	200	160

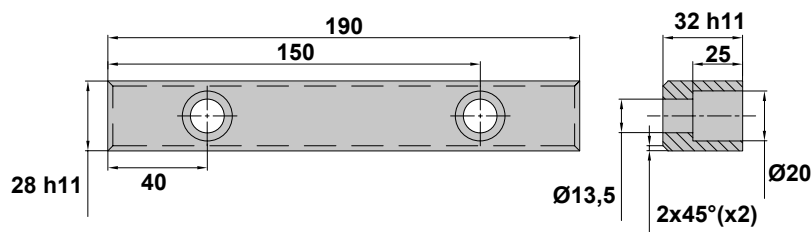
M317-16

Key

Ordering-Example:

Diferent Lengths On Request.

Material: 1.0503 (C45+C)



Material : 1.0503 (C45+C)

CODE

M317-16-028032

M317-17

Key

Ordering-Example:

Diferent Lengths On Request.

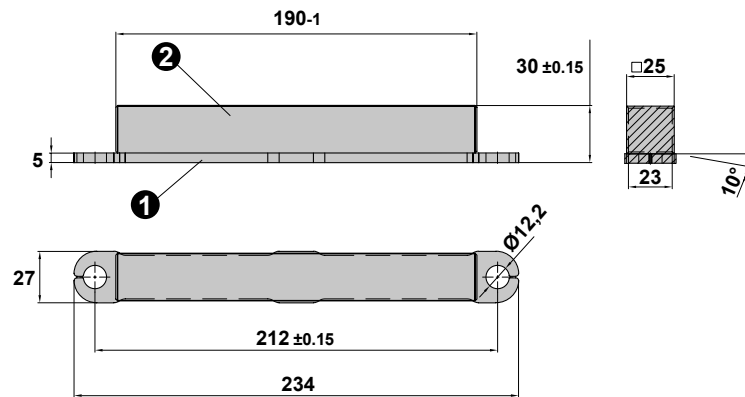
Material: S235 JRC+C

Material: S355MC (t=5 mm)



1 Material : S355MC (t=5 mm)

2 Material : S235 JRC+C



CODE

M317-17-025030

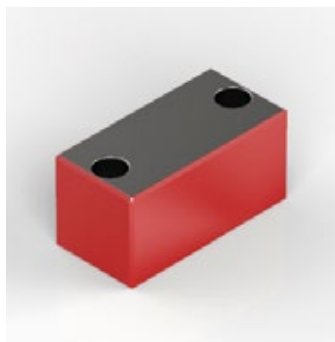
M318-03

Balance Blocks

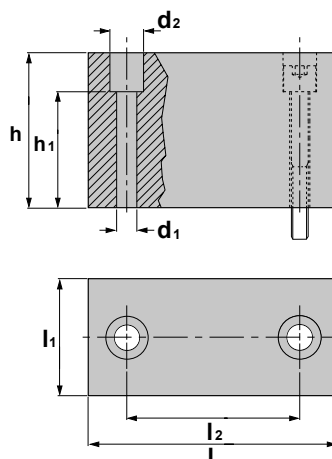
Ordering-Example:
l= 150, l1= 80, h= 40

Diferent Lengths On Request.
M318-03-15008004000

Material: CK45



Material : CK45
Screws not included.



l x l1	60 x 40			80 x 40			100 x 40			100 x 50			120 x 60			150 x 80		160 x 100	
d1	9			11			14			14			14			18		18	
d2	15			18			20			20			20			26		26	
Max. Load (t)	50			65			85			110			160			270		380	
l2	40			56			71			76			93			120		130	
h1	10	28	48	8	25	45	6	22	42	6	22	42	6	22	42	18	38	18	38
h±0,05																			
20	.			.															
20,3	.			.															
20,5	.			.															
23	.			.															
25	.			.			.												
28	.			.			.												
30	.			.			.			.									
30,3	.			.			.			.									
30,5	.			.			.			.									
33	.			.			.			.									
35	.			.			.			.									
38	.			.			.			.									
40	.			.			.			.			.			.		.	
40,3		.			.			.			.			.		.		.	
40,5		.			.			.			.			.		.		.	
41		.			.			.			.			.		.		.	
43		.			.			.			.			.		.		.	
45		.			.			.			.			.		.		.	
48		.			.			.			.			.		.		.	
50		.			.			.			.			.		.		.	
50,3		.			.			.			.			.		.		.	
50,5		.			.			.			.			.		.		.	
51		.			.			.			.			.		.		.	
55		.			.			.			.			.		.		.	
60		.			.			.			.			.		.		.	
60,5			.			.			.			.			.		.		.
61								.			.			.		.		.	.

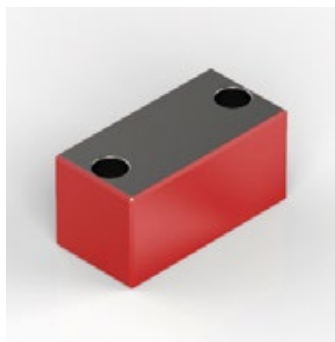
M318-03

Balance Blocks

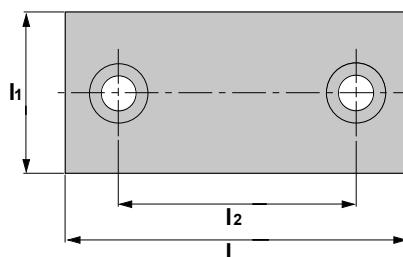
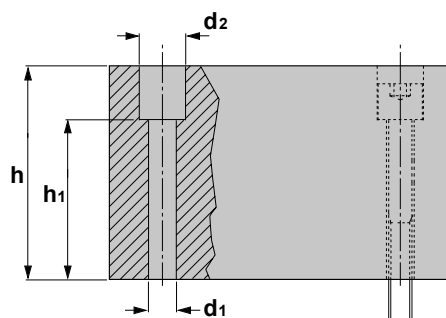
Ordering-Example:
l= 150, l1= 80, h= 85

Diferent Lengths On Request.
M318-03-15008008500

Material: CK45



Material : CK45
Screws not included.



CODE	l	l1	l2	d1	d2	Screw	Max. Load (t)
M318-03-??????????	60	40	40	9	15	M8	50
M318-03-??????????	80	40	56	11	18	M10	65
M318-03-??????????	100	40	71	14	20	M12	85
M318-03-??????????	100	50	76	14	20	M12	110
M318-03-??????????	120	60	93	14	20	M12	160
M318-03-??????????	150	80	120	18	26	M16	270
M318-03-??????????	160	100	130	18	26	M16	380

	M8	M10	M12	M16
h, ±0,05	h1	h1	h1	h1
≥ 20 - 40	10	8	6	-
> 40 - 60	28	25	22	18
> 60 - 80	48	45	42	38
> 80 - 100	68	65	62	58
> 100 - 120	68	85	82	78
> 120 - 140	68	105	102	98
> 140 - 160	68	105	102	118

M318-05

Balance Blocks

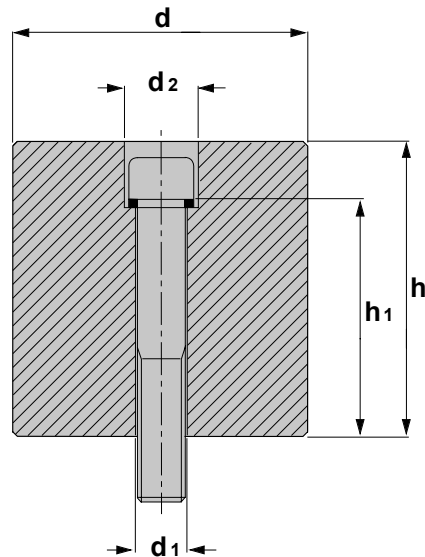
Ordering-Example:
d= 80, h= 45

Diferent Lengths On Request.
M318-05-08004500

Material: CK45



Material : CK45
Screws not included.



d	60			80		100		120		150	
d1	14			18		18		22		22	
d2	20			26		26		33		33	
Max. Load (t)	55			100		170		250		400	
h1	12	22	42	20	36	20	36	15	30	15	30
h±0,05											
25	.			.							
28	.			.							
30	.			.							
30,3	.			.							
30,5	.			.							
33	.			.							
35	.			.							
38	.			.							
40		.		.		.					
40,3		.		.		.					
40,5		.		.		.					
41		.		.		.					
43		.		.		.					
45		.		.		.					
48		.		.		.					
50		.		.		.		.		.	
50,3		.		.		.		.		.	
50,5		.		.		.		.		.	
51		.		.		.		.		.	
55		.		.		.		.		.	
60		.		.		.		.		.	
60,3			.		.		.		.		.
60,5			.		.		.		.		.
61			.		.		.		.		.

M318-05

Balance Blocks

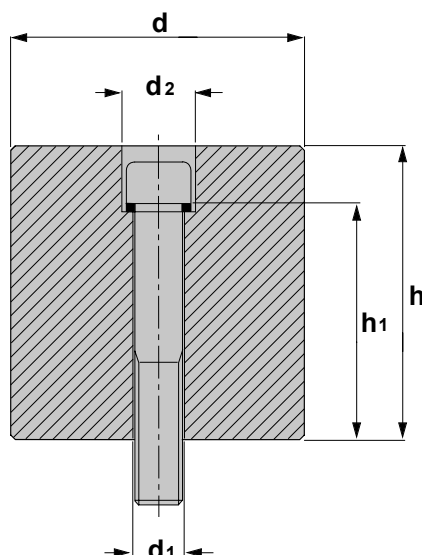
Ordering-Example:
d= 80, h= 105

Diferent Lengths On Request.
M318-05-08010500

Material: CK45



Material : CK45
Screws not included.



CODE	d	d1	d2	Screw	Max. Load (t)
M318-05-????????	60	14	20	M12	50
M318-05-????????	80	18	26	M16	65
M318-05-????????	100	18	26	M16	85
M318-05-????????	120	22	33	M20	110
M318-05-????????	150	22	33	M20	160

	M12	M16	M20
d	60	80 100	120 150
h, ±0,05	h1	h1	
≥ 25 < 40	12	-	-
≥ 40 - 60	22	20	15
> 60 - 80	42	36	30
> 80 - 100	62	56	50
> 100 - 120	82	76	70
> 120 - 140	102	96	90
> 140 - 160	122	116	110

M318-06

Balance Blocks

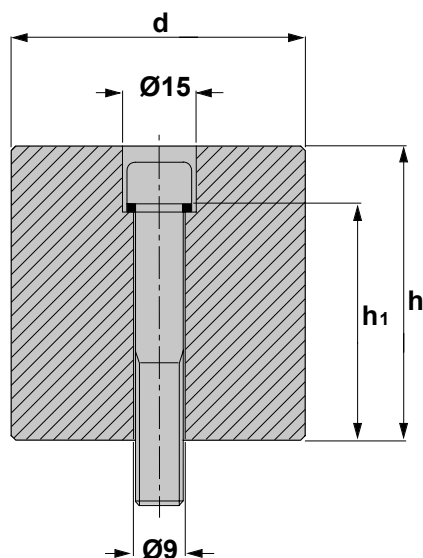
Ordering-Example:
d= 50, h= 45

Diferent Lengths On Request.
M318-06-05004500

Material: CK45



Material : CK45
Screws not included.



d	25		30		40		50	
Max. Load (t)	3,5		8		20		35	
h1	10	28	10	28	10	28	10	28
h±0,05								
20	•		•		•		•	
20,3	•		•		•		•	
20,5	•		•		•		•	
23	•		•		•		•	
25	•		•		•		•	
28	•		•		•		•	
30	•		•		•		•	
30,3	•		•		•		•	
30,5	•		•		•		•	
33	•		•		•		•	
35	•		•		•		•	
38	•		•		•		•	
40	•		•		•		•	
40,3		•		•		•		•
40,5		•		•		•		•
41				•		•		•
43				•		•		•
45				•		•		•
48				•		•		•
50				•		•		•
50,3				•		•		•
50,5				•		•		•
51						•		•
55						•		•
60						•		•
60,3						•		•
60,5						•		•

M318-06

Balance Blocks

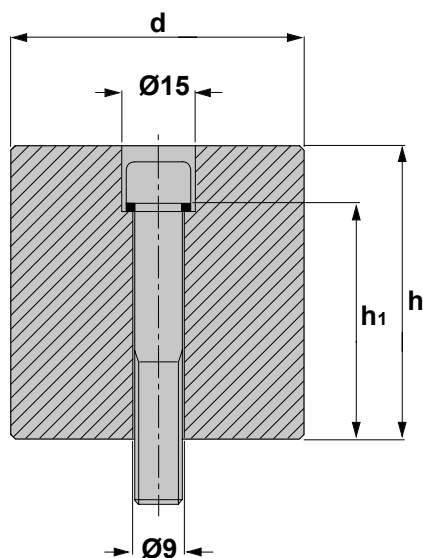
Ordering-Example:
d= 50, h= 45

Diferent Lengths On Request.
M318-06-05004500

Material: CK45



Material : CK45
Screws not included.



CODE	d	Screw	Max. Load (t)
M318-06-????????	25	M8	3,5
M318-06-????????	30	M8	8
M318-06-????????	40	M8	20
M318-06-????????	50	M8	35

h, ±0,05	h1
≥ 20 - 40	10
> 40 - 60	28

M318-07

Cylindrical Stop Block

Ordering-Example:

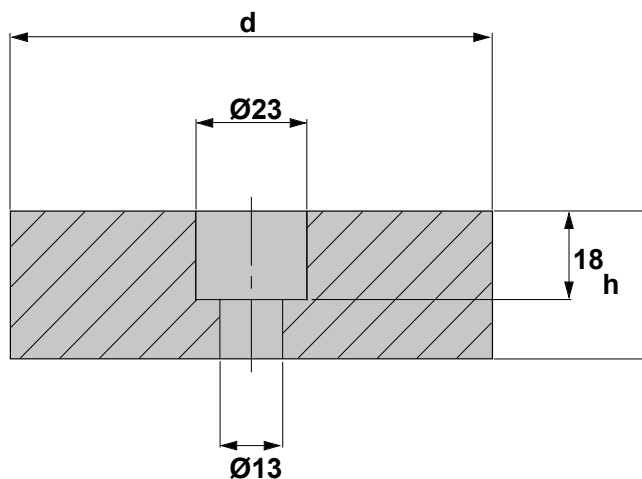
Diferent Lengths On Request.

Material: 42CrMo4

Hardened: HRC 46 ÷ 48



Material : 42CrMo4
Hardened: HRC 46 ÷ 48



CODE	d	h
M318-07-080025	80	25
M318-07-080030	80	30
M318-07-100025	100	25
M318-07-100030	100	30
M318-07-120025	120	25
M318-07-120030	120	30

M318-08

Shim

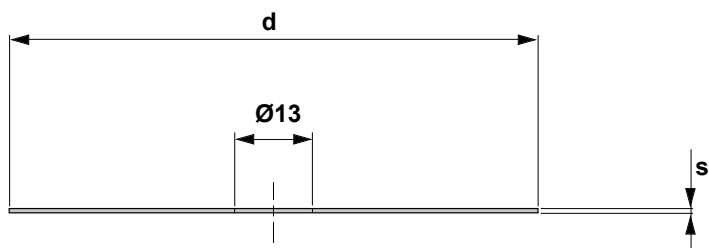
Ordering-Example:

Diferent Lengths On Request.

Material: Steel or Brass



Material : Steel or Brass



CODE	d	s	Material
M318-08-080001	80	0,1	Brass
M318-08-080005	80	0,5	Steel
M318-08-100001	100	0,1	Brass
M318-08-100005	100	0,5	Steel
M318-08-120001	120	0,1	Brass
M318-08-120005	120	0,5	Steel

M318-09

Pressure Plate

Ordering-Example:

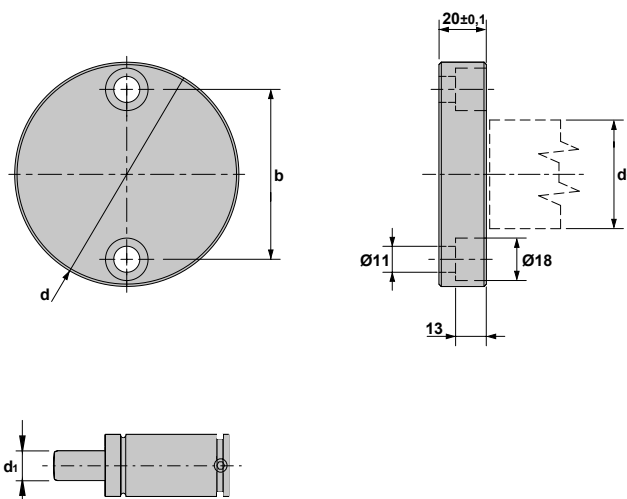
Diferent Lengths On Request.

Material: 16MnCr5

Hardened: HRC 58 ÷ 60



Material : 16MnCr5
Hardened: HRC 58 ÷ 60



CODE	d	d1	b
M318-09-065020	65	≤25	42
M318-09-095020	95	≤50	72

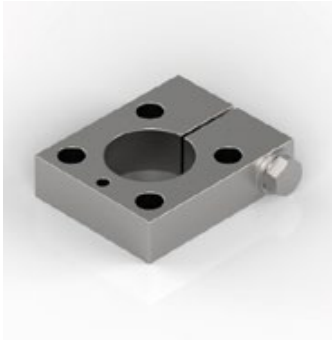
M319-01

Coupling Clamps

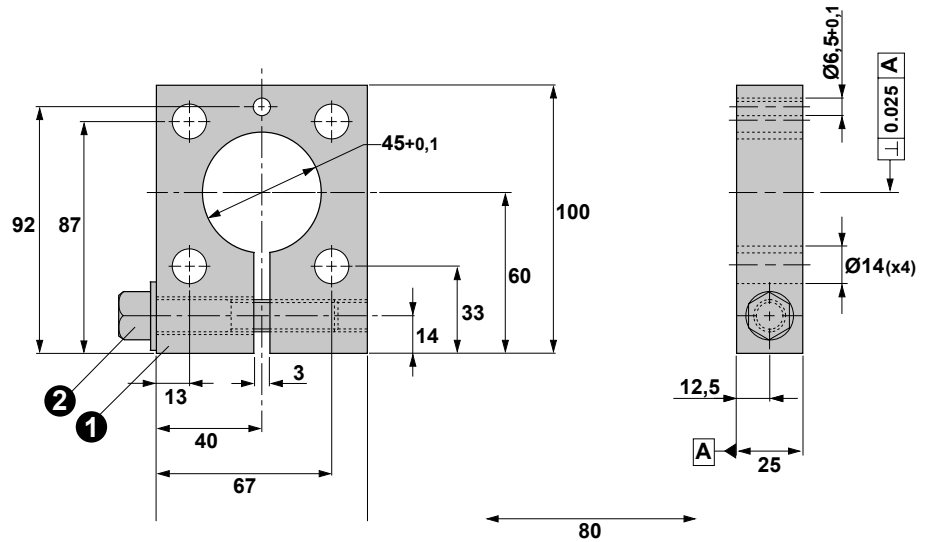
Ordering-Example:

Diferent Lengths On Request.

Material: CK45



Material : CK45
Hardened: M12x70 DIN 931 (8.8)



CODE

M319-01-100080

M319-01

Sleeve

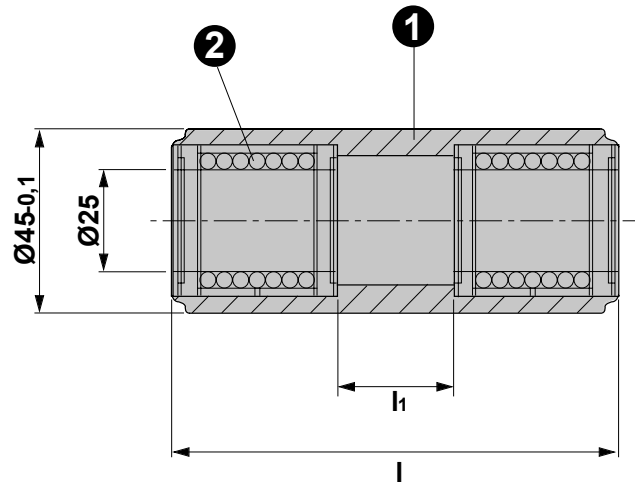
Ordering-Example:

Diferent Lengths On Request.

Material: CK45



Material : CK45
STAR 0658-225-40



CODE	l	l1
M319-01-045112	112	40
M319-01-045200	200	120

M319-02

Spacer Plates, Toothed with Adjusting Plate

Ordering-Example:

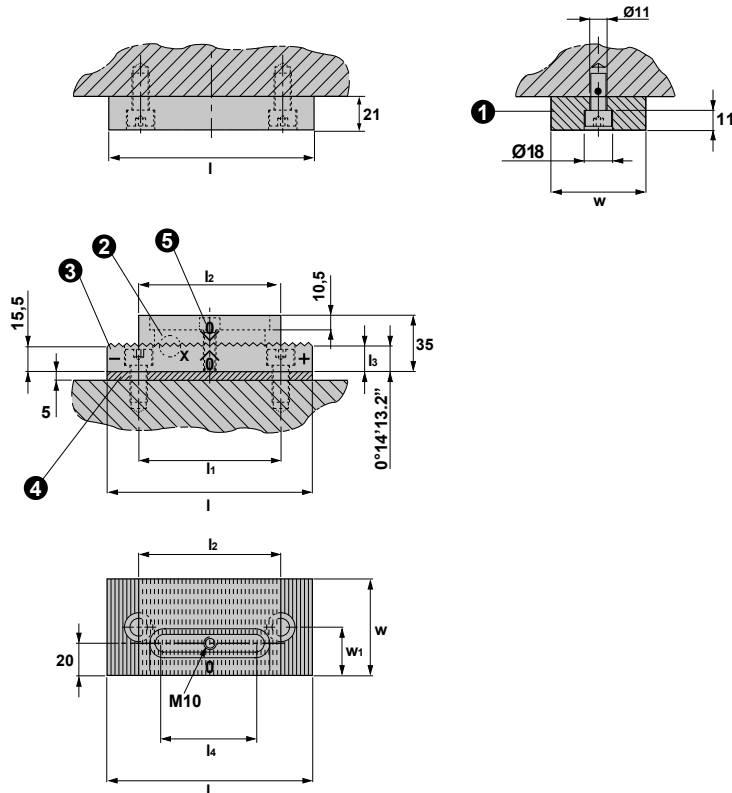
Diferent Lengths On Request.

Material: 90MnCrV8
Material: X155CrVMo12

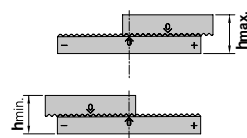
Hardened: HRC 58 ÷ 60



- 1, 2** Material : 90MnCrV8
3 Hardened: HRC 58 ÷ 60
Screws not included.
3 Material : X155CrVMo12
4 M10x20 DIN 912



Basis : 0,02 mm per tooth



- Basic setting in the middle (grinding-in)
+ Adjustment to the right - plus
- Adjustment to the left - minus

Adjustment Range

- 12 increments each of 0,02 mm means an adjusting range of 0,24 mm with a minimum support area of 60 x 80 mm

- 14 increments each of 0,02 mm means an adjusting range of 0,28 mm with a minimum support area of 100 x 80 mm

CODE	w	l	l1	l2	l3	l4	w1	hmin.	hmax.
M319-02-060130	60	130	90	90	16,04	61	30	34,88	35,12
M319-02-080160	80	120	120	110	16,16	71	40	34,88	35,14

M320-03

Cam Pad Guide Wear Plates

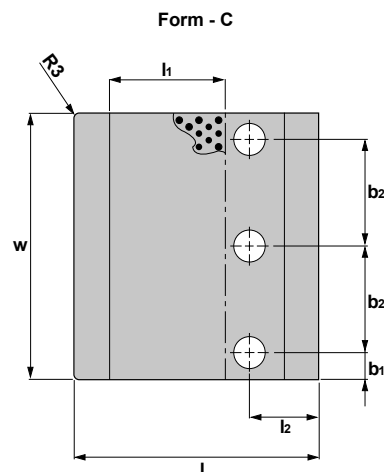
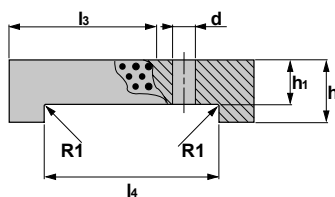
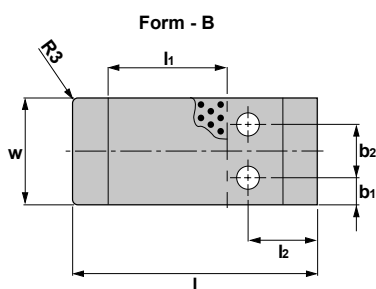
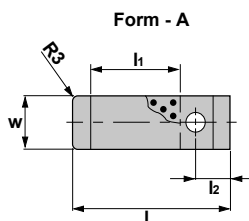
Ordering-Example:

Diferent Lengths On Request.

Material: Bronze with Non-liquid Lubricant HB >190



Material : Bronze with
Non-liquid Lubricant HB >190



CODE	Form	w, h7	h	l	l1	l2	l3	l4	d	h1	b1	b2, ±0,2
M320-03-030070	A	30	17	70	30	20	40	50	11	12	-	-
M320-03-030090	A	30	17	90	50	20	60	70	11	12	-	-
M320-03-045070	B	45	25	70	30	20	40	50	11	15	11,5	22
M320-03-045090	B	45	25	90	50	20	60	70	11	15	11,5	22
M320-03-060120	B	60	35	120	40	40	60	80	13	25	15	30
M320-03-060140	B	60	35	140	60	40	80	100	13	25	15	30
M320-03-060160	B	60	35	160	80	40	100	120	13	25	15	30
M320-03-100120	B	100	35	120	40	40	60	80	18	25	15	70
M320-03-100140	B	100	35	140	60	40	80	100	18	25	15	70
M320-03-100160	B	100	35	160	80	40	100	120	18	25	15	70
M320-03-150120	C	150	35	120	40	40	60	80	18	25	15	60
M320-03-150140	C	150	35	140	60	40	80	100	18	25	15	60
M320-03-150160	C	150	35	160	80	40	100	120	18	25	15	60
M320-03-150180	C	150	35	180	100	40	120	140	18	25	15	60

M320-07

Positive Return Plates, Steel

Ordering-Example:
w= 35, l= 110

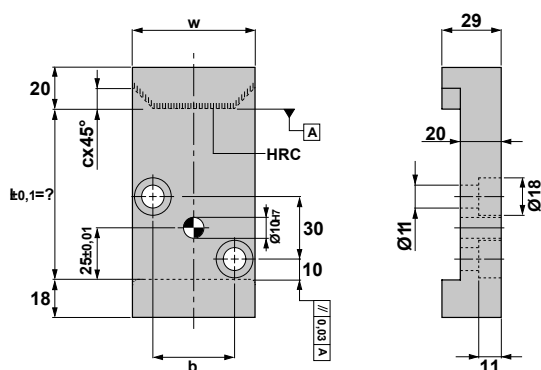
Diferent Lengths On Request.
M320-07-035110

Material: CK45

Hardened: HRC 52 ÷ 54



Material : CK45
Hardened: HRC 52 ÷ 54
Length (l) is given by the customer.



CODE	w, -1	b	c
M320-07-035-l	35	15	7
M320-07-060-l	60	40	10

M321-01

Spacing Bar

Ordering-Example:

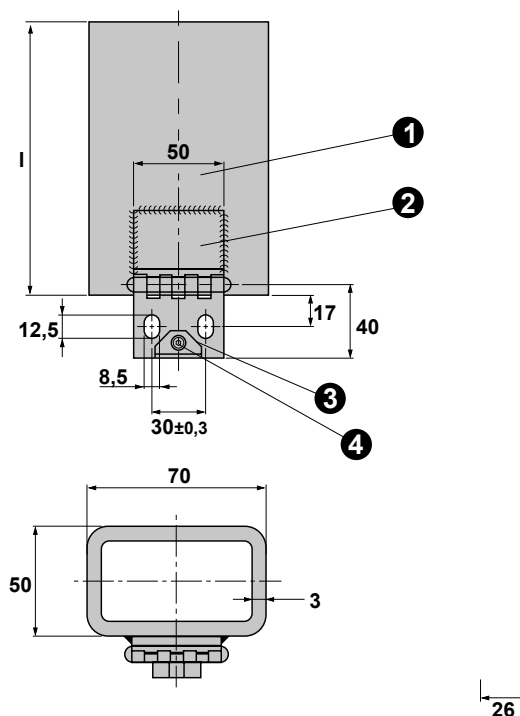
Diferent Lengths On Request.

Material: St 37

Material: Elastomer 68 Shore



- 1** Material : St 37
- 2** Hinge
- 3** Material : Elastomer 68 Shore
- 4** Screw M4x8 DIN 912



CODE	I	Max. Load (kN)
M321-01-070065	65	125
M321-01-070070	70	125
M321-01-070075	75	125
M321-01-070080	80	125
M321-01-070085	85	125
M321-01-070090	90	125
M321-01-070095	95	125
M321-01-070100	100	125
M321-01-070105	105	125
M321-01-070110	110	125
M321-01-070115	115	125
M321-01-070120	120	125
M321-01-070125	125	125
M321-01-070130	130	125
M321-01-070135	135	125
M321-01-070140	140	125
M321-01-070145	145	125
M321-01-070150	150	125
M321-01-070155	155	125
M321-01-070160	160	125
M321-01-070165	165	125
M321-01-070170	170	125
M321-01-070175	175	125
M321-01-070180	180	125
M321-01-070185	185	125

CODE	I	Max. Load (kN)
M321-01-070190	190	125
M321-01-070195	195	125
M321-01-070200	200	125
M321-01-070205	205	125
M321-01-070210	210	125
M321-01-070215	215	125
M321-01-070220	220	125
M321-01-070225	225	125
M321-01-070230	230	125
M321-01-070235	235	125
M321-01-070240	240	125
M321-01-070245	245	125
M321-01-070250	250	125
M321-01-070260	260	125
M321-01-070270	270	125
M321-01-070280	280	125
M321-01-070290	290	125
M321-01-070300	300	125
M321-01-070310	310	125
M321-01-070320	320	125
M321-01-070330	330	125
M321-01-070340	340	125
M321-01-070350	350	125

M321-01

Spacing Bar

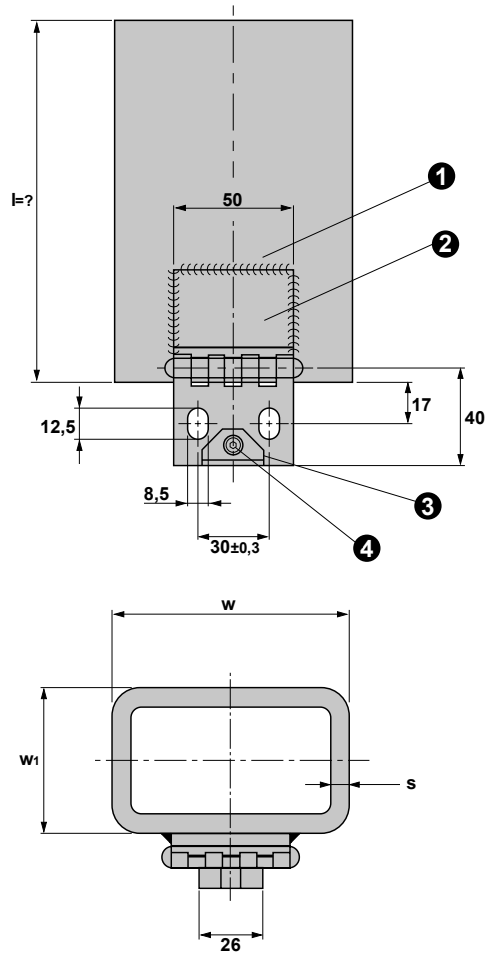
Ordering-Example:
w= 100, l= 200

Diferent Lengths On Request.
M321-01-100200

Material: St 37
Material: Elastomer 68 Shore



- 1** Material : St 37
 - 2** Hinge
 - 3** Material : Elastomer 68 Shore
 - 4** Screw M4x8 DIN 912
- Length (l) is given by the customer;
Max. Length: 365 mm



CODE	w	w1	s	Max. Load (kN)
M321-01-070-l	70	50	3	125
M321-01-100-l	100	60	8	250

M321-02

Pipe with Assembly

Ordering-Example:

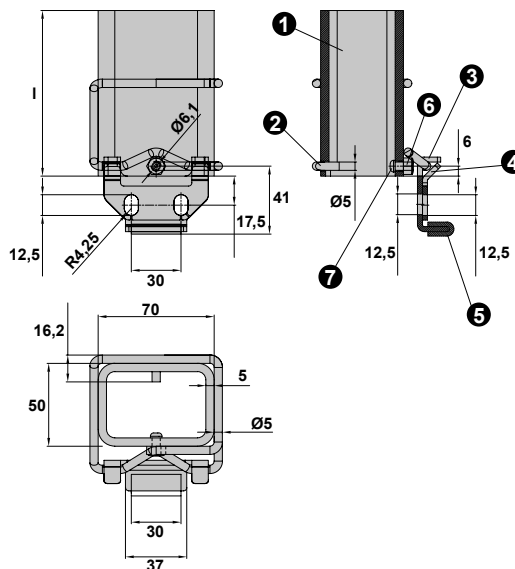
Diferent Lengths On Request.

Material: M6 DIN 934
Material: Rivet Ø5x14 DIN 7337

Material: S235JR, 1.4310
Material: S235/DC01, Soft-PVC



- 1** Material : S235JR
- 2** Material : 1.4310
- 3, 4** Material : S235/DC01
- 5** Material : Soft-PVC
- 6** Material : M6 DIN 934
- 7** Material : Rivet Ø5x14 DIN 7337



CODE	±0,05	Max. Load (kN)
M321-02-070065	65	235
M321-02-070070	70	235
M321-02-070075	75	235
M321-02-070080	80	235
M321-02-070085	85	235
M321-02-070090	90	235
M321-02-070095	95	235
M321-02-070100	100	235
M321-02-070105	105	235
M321-02-070110	110	235
M321-02-070115	115	235
M321-02-070120	120	235
M321-02-070125	125	235
M321-02-070130	130	235
M321-02-070135	135	235
M321-02-070140	140	235
M321-02-070145	145	235
M321-02-070150	150	235
M321-02-070155	155	235
M321-02-070160	160	235
M321-02-070165	165	235
M321-02-070170	170	235
M321-02-070175	175	235
M321-02-070180	180	235

CODE	±0,05	Max. Load (kN)
M321-02-070185	185	235
M321-02-070190	190	235
M321-02-070195	195	235
M321-02-070200	200	235
M321-02-070205	205	235
M321-02-070210	210	235
M321-02-070215	215	235
M321-02-070220	220	235
M321-02-070225	225	235
M321-02-070230	230	235
M321-02-070235	235	235
M321-02-070240	240	235
M321-02-070245	245	235
M321-02-070250	250	235
M321-02-070260	260	235
M321-02-070270	270	235
M321-02-070280	280	235
M321-02-070290	290	235
M321-02-070300	300	235
M321-02-070310	310	235
M321-02-070320	320	235
M321-02-070330	330	235
M321-02-070340	340	235
M321-02-070350	350	235

M321-03

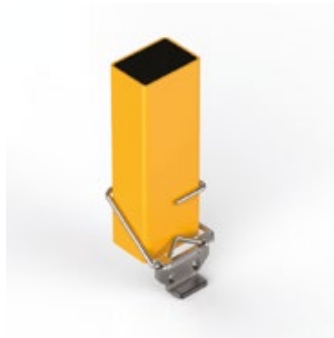
Pipe with Assembly

Ordering-Example:

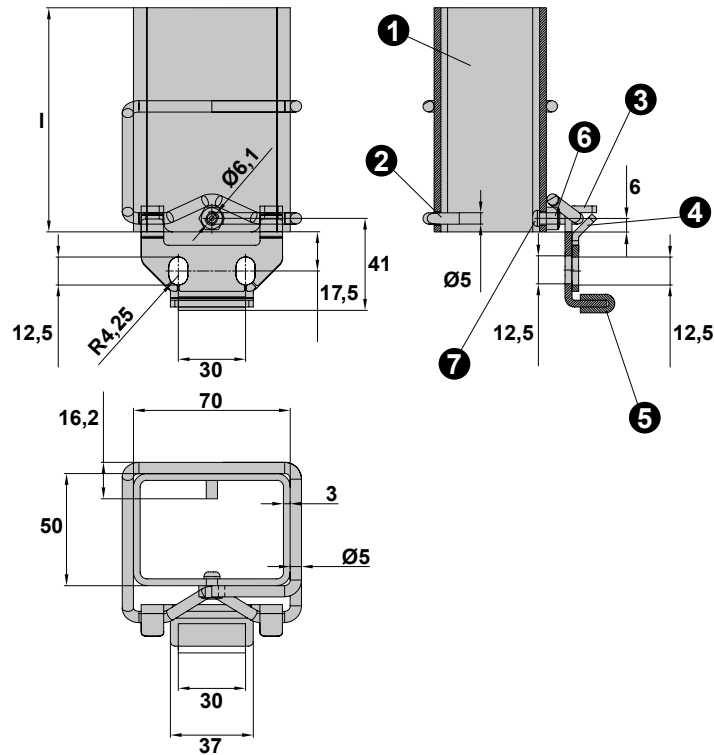
Diferent Lengths On Request.

Material: M6 DIN 934
Material: Rivet Ø5x12 DIN 7337

Material: S235JR, 1.4310
Material: S235/DC01, Soft-PVC



- 1** Material : S235JR
- 2** Material : 1.4310
- 3, 4** Material : S235/DC01
- 5** Material : Soft-PVC
- 6** Material : M6 DIN 934
- 7** Material : Rivet Ø5x14 DIN 7337



CODE	±0,05	Max. Load (kN)
M321-03-080065	65	125
M321-03-080070	70	125
M321-03-080075	75	125
M321-03-080080	80	125
M321-03-080085	85	125
M321-03-080090	90	125
M321-03-080095	95	125
M321-03-080100	100	125
M321-03-080105	105	125
M321-03-080110	110	125
M321-03-080115	115	125
M321-03-080120	120	125
M321-03-080125	125	125
M321-03-080130	130	125
M321-03-080135	135	125
M321-03-080140	140	125
M321-03-080145	145	125
M321-03-080150	150	125
M321-03-080155	155	125
M321-03-080160	160	125
M321-03-080165	165	125
M321-03-080170	170	125
M321-03-080175	175	125
M321-03-080180	180	125

CODE	±0,05	Max. Load (kN)
M321-03-080185	185	125
M321-03-080190	190	125
M321-03-080195	195	125
M321-03-080200	200	125
M321-03-080205	205	125
M321-03-080210	210	125
M321-03-080215	215	125
M321-03-080220	220	125
M321-03-080225	225	125
M321-03-080230	230	125
M321-03-080235	235	125
M321-03-080240	240	125
M321-03-080245	245	125
M321-03-080250	250	125
M321-03-080260	260	125
M321-03-080270	270	125
M321-03-080280	280	125
M321-03-080290	290	125
M321-03-080300	300	125
M321-03-080310	310	125
M321-03-080320	320	125
M321-03-080330	330	125
M321-03-080340	340	125
M321-03-080350	350	125

M321-04

Laser Cutting Part

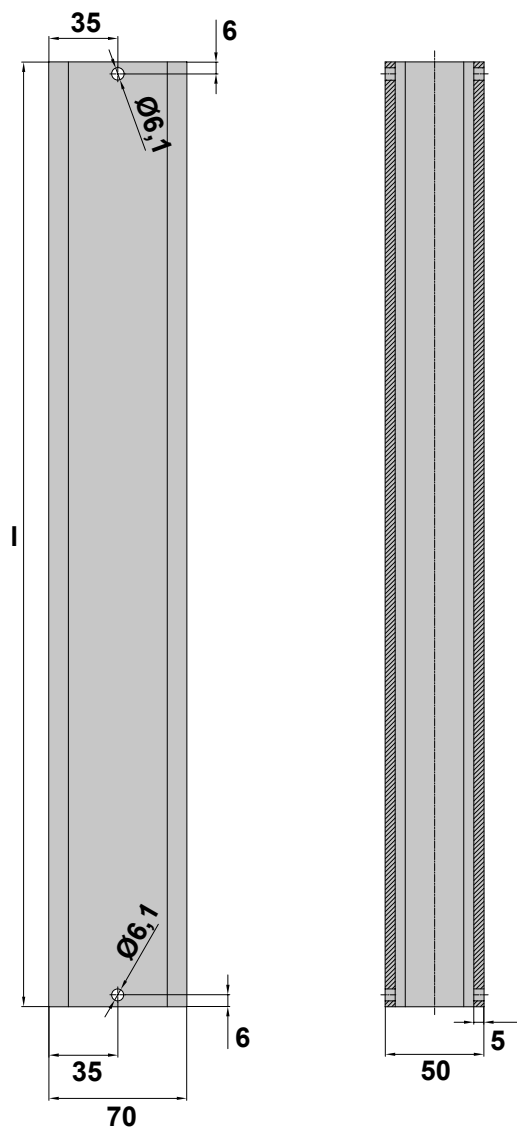
Ordering-Example:

Diferent Lengths On Request.

Material: S235JR



Material: S235JR



CODE	$\pm 0,05$
M321-04-071	480

M321-04

Laser Cutting Part

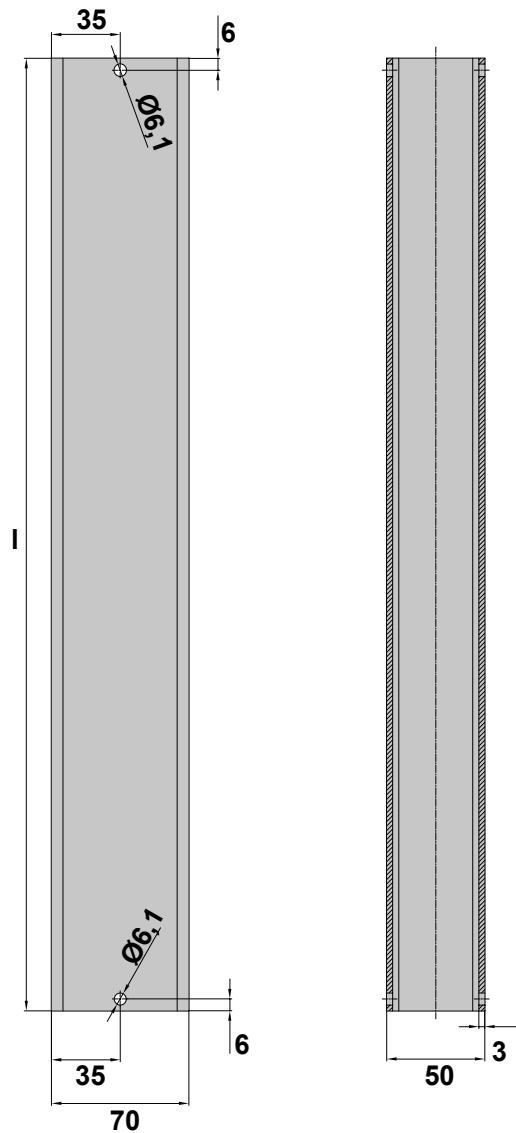
Ordering-Example:

Diferent Lengths On Request.

Material: S235JR



Material: S235JR



CODE	l±0,05
M321-04-081	480

M321-05

Pipe Box Set 5 mm

Ordering-Example:

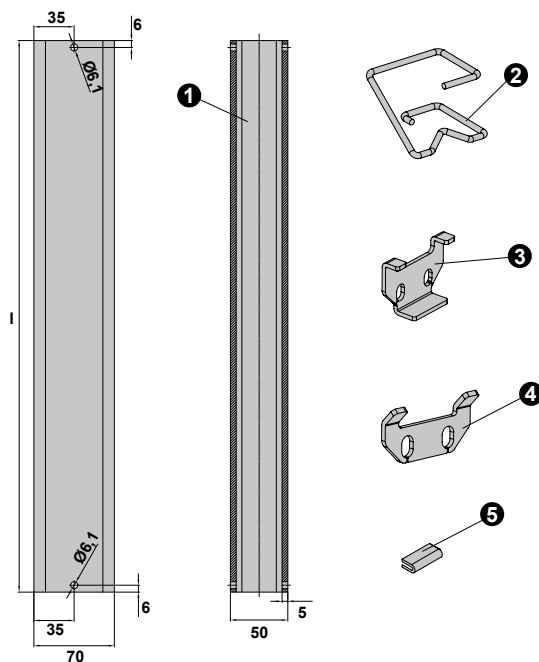
Diferent Lengths On Request.

Material: Soft-PVC
Material: S235JR, 1.4310

Material: S235/DC01



- 1** Material: S235JR
- 2** Material: 1.4310
- 3, 4** Material : S235/DC01
- 5** Material: Soft-PVC



CODE		
	M321-05-75 Set	
1	M321-04-071	50 adet / pcs
2	M321-02/15	100 adet / pcs
3	M321-02/16	100 adet / pcs
4	M321-02/17	100 adet / pcs
5	M321-02/18	4 metre / meter

M321-05

Pipe Box Set 3 mm

Ordering-Example:

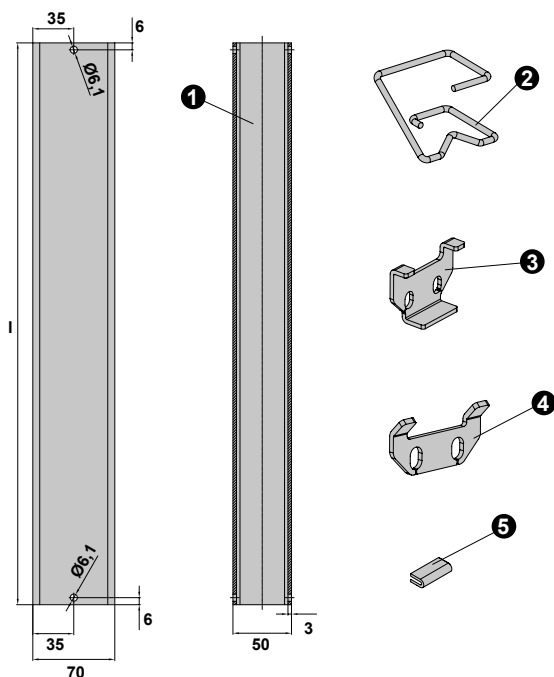
Diferent Lengths On Request.

Material: S235/DC01, Soft-PVC

Material: S235JR, 1.4310



- 1** Material: S235JR
- 2** Material: 1.4310
- 3, 4** Material: S235/DC01
- 5** Material: Soft-PVC



CODE		
	M321-05-85 Set	
1	M321-04-081	50 adet / pcs
2	M321-02/15	100 adet / pcs
3	M321-02/16	100 adet / pcs
4	M321-02/17	100 adet / pcs
5	M321-02/18	4 metre / meter

M322-01

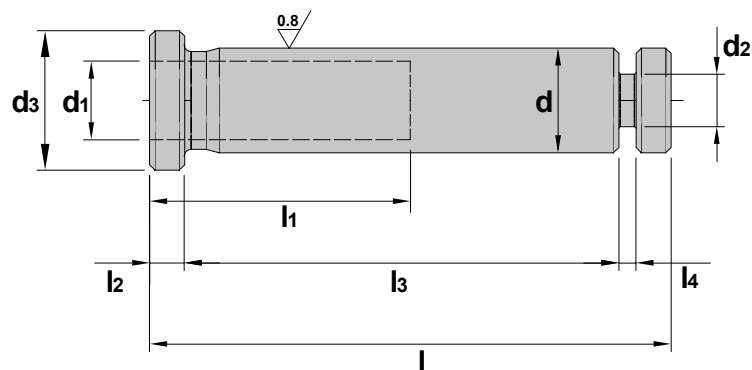
Strip Guiding Pin with Collar, Spring-loaded

Ordering-Example:

Diferent Lengths On Request.

Material: 16MnCr5

Hardened: HRC 60



Material: 16MnCr5
Hardened: HRC 60

CODE	d, h6	l, -0,5	l1	l2	l3, ±0,1	l4	d1	d2, -0,05/-0,1	d3, -0,2/-0,5
M322-01-0060295	6	29,5	-	2	25	0,5	-	3	8
M322-01-006030	6	30	-	2	25	1	-	3	8
M322-01-0060365	6	36,5	-	2	32	0,5	-	3	8
M322-01-006037	6	37	-	2	32	1	-	3	8
M322-01-008031	8	31	-	3	25	1	-	5	10
M322-01-008032	8	32	-	3	25	2	-	5	10
M322-01-008038	8	38	-	3	32	1	-	5	10
M322-01-008039	8	39	-	3	32	2	-	5	10
M322-01-008046	8	46	-	3	40	1	-	5	10
M322-01-008047	8	47	-	3	40	2	-	5	10
M322-01-010033	10	33	18	3	25	2	6,5	6	12,5
M322-01-010034	10	34	18	3	25	3	6,5	6	12,5
M322-01-010040	10	40	24	3	32	2	6,5	6	12,5
M322-01-010041	10	41	24	3	32	3	6,5	6	12,5
M322-01-010048	10	48	30	3	40	2	6,5	6	12,5
M322-01-010049	10	49	30	3	40	3	6,5	6	12,5
M322-01-012033	12	33	18	3	25	2	8,5	7	16
M322-01-012034	12	34	18	3	25	3	8,5	7	16
M322-01-012040	12	40	24	3	32	2	8,5	7	16
M322-01-012041	12	41	24	3	32	3	8,5	7	16
M322-01-012048	12	48	30	3	40	2	8,5	7	16
M322-01-012049	12	49	30	3	40	3	8,5	7	16
M322-01-016042	16	42	24	3	32	3	10,5	7	20
M322-01-016044	16	44	24	3	32	5	10,5	8	20
M322-01-016050	16	50	30	3	40	3	10,5	8	20
M322-01-016052	16	52	30	3	40	5	10,5	8	20
M322-01-016060	16	60	40	3	50	3	10,5	8	20
M322-01-016062	16	62	40	3	50	5	10,5	8	20
M322-01-020052	20	52	30	5	40	3	12,5	12	25
M322-01-020054	20	54	30	5	40	5	12,5	12	25
M322-01-020062	20	62	40	5	50	3	12,5	12	25
M322-01-020064	20	64	40	5	50	5	12,5	12	25
M322-01-020075	20	75	50	5	63	3	12,5	12	25
M322-01-020077	20	77	50	5	63	5	12,5	12	25

M322-01

Strip Guiding Pin with Collar,
Spring-loaded

Ordering-Example:

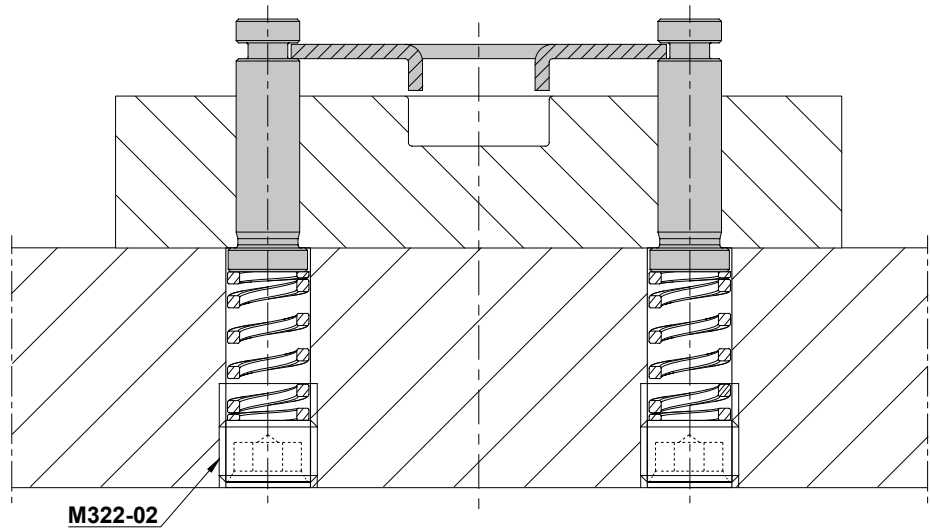
Diferent Lengths On Request.

Material: 16MnCr5

Hardened: HRC 60



Material: 16MnCr5
Hardened: HRC 60



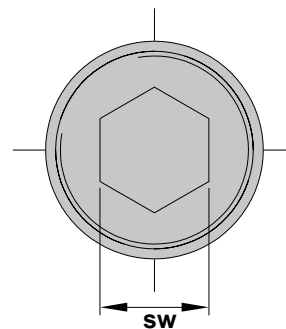
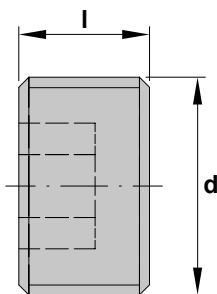
M322-02

Screw Plug

Ordering-Example:

Diferent Lengths On Request.

Material: Steel 12.9



Material: Steel 12.9

CODE	d	l	sw
M322-02-12010	M12x1,5	10	6
M322-02-14010	M14x1,5	10	6
M322-02-16010	M16x1,5	10	8
M322-02-18010	M18x1,5	10	10
M322-02-20012	M20x1,5	12	10
M322-02-22012	M22x1,5	12	12
M322-02-24012	M24x1,5	12	14
M322-02-27012	M27x1,5	12	14
M322-02-36012	M36x1,5	12	17

M323-01

Pilot Unit

Ordering-Example:

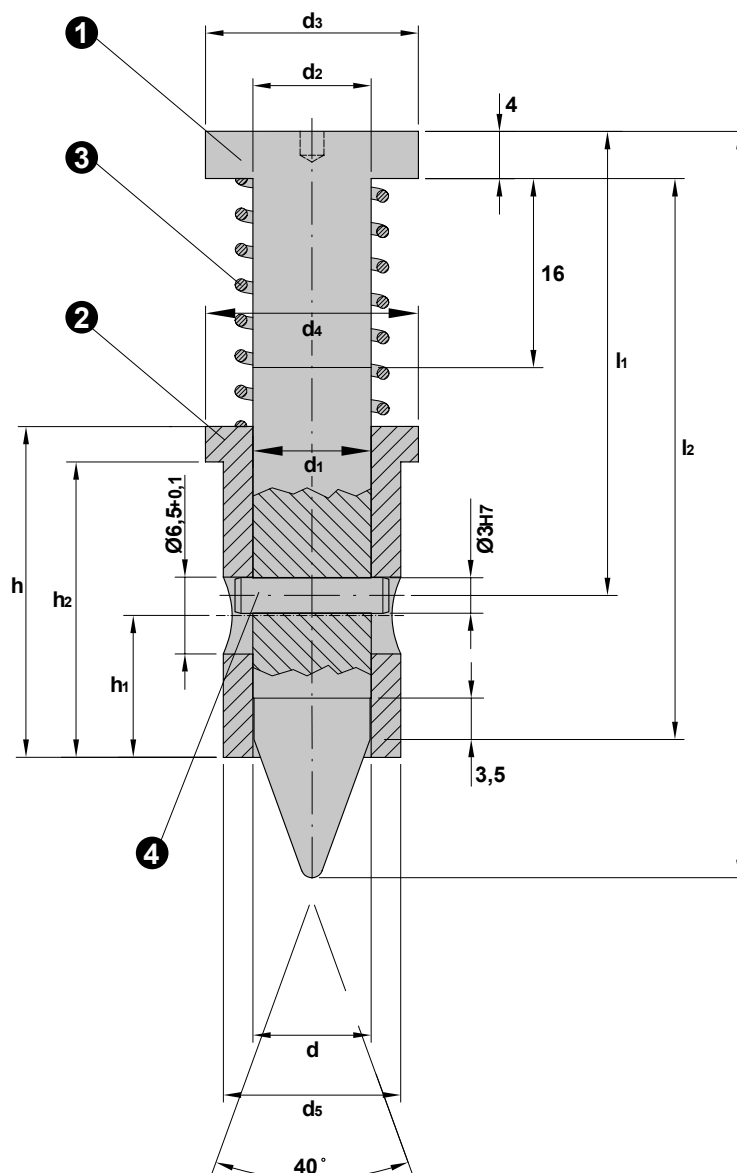
Diferent Lengths On Request.

Punch 1.2550
Bush 1.3505

Hardened: 50 ± 2 HRC
Hardened: 58 ± 2 HRC



- 1** Punch 1.2550
Hardness 50 ± 2 HRC
- 2** Bush 1.3505
Hardness 58 ± 2 HRC
- 3** Coil Spring
- 4** $\varnothing 3 \times 14$ DIN 6325



CODE	d, +0,05	l	l1	l2	d1, H7, f7	d2	d3	d4	d5, f7	h	h1	h2, +0,1	Spring force preloaded (daN)	Spring force pressed (daN)
M323-01-0980632	9,8	63,2	39,3	47,5	10	10	18	18	15	28	12	25	4,9	6,2
M323-01-1580725	15,8	72,5	46,3	54,5	16	16	24	30	26	28	12	25	4,8	5,6

S510-02

Shock Absorber for Pad Retainer Pins

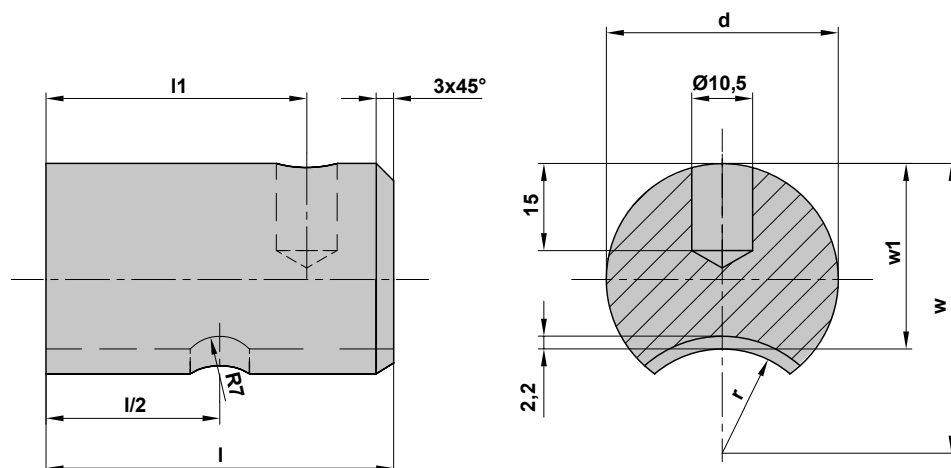
Ordering-Example:

Diferent Lengths On Request.

Material: Elastomer 92 Sh



Material: Elastomer 92 Sh



CODE	d, $\pm 0,25$	w	l	l_1	w_1	r
S510-02-040060	40	50	60	45	32	18
S510-02-050080	50	63	80	60	40	23
S510-02-063080	63	86	80	60	51	35

S511-01

Elastomer Cap

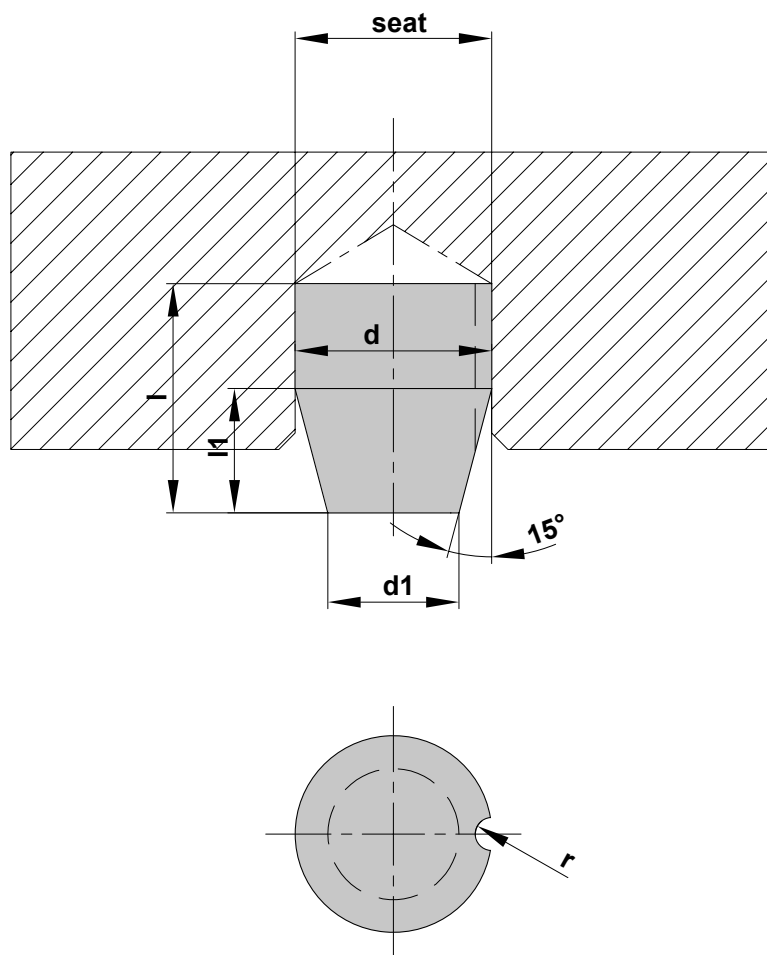
Ordering-Example:

Diferent Lengths On Request.

Material: Elastomer 92 Shore



Material: Elastomer 92 Shore



CODE	d, +0,3 / +0,5	l	l1	d1	r	seat, ±0,1	F max. (N)
S511-01-006	6	10	4,5	3,6	-	6	100
S511-01-010	10	15,5	7,5	6	0,5	10	450
S511-01-016	16	25	12	9,5	1,5	16	1500
S511-01-024	24	25	10	18	2	24	3000
S511-01-030	30	35	19	20	2,5	30	3000
S511-01-032	32	32	14	24	3	32	12000
S511-01-039	39,5	40	16	30	3	39,5	25000

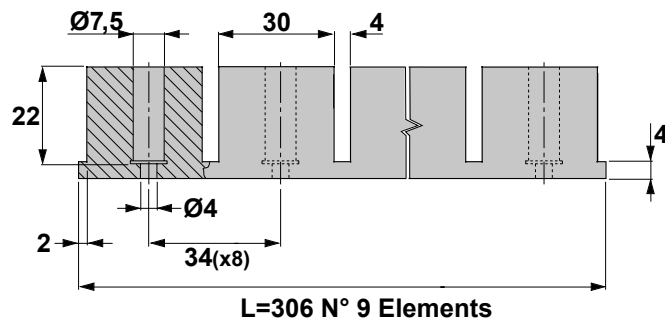
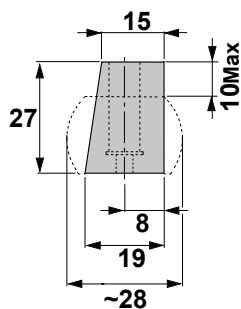
S515-03

Stripper for Blanking Dies

Ordering-Example:

Diferent Lengths On Request.

Material: Elastomer 70 Shore



Material: Elastomer 70 Shore

CODE

S515-03-0017

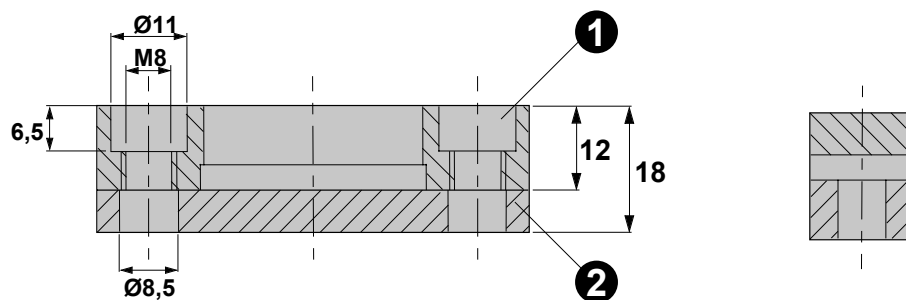
Z401-01

Stamp Retainer

Ordering-Example:

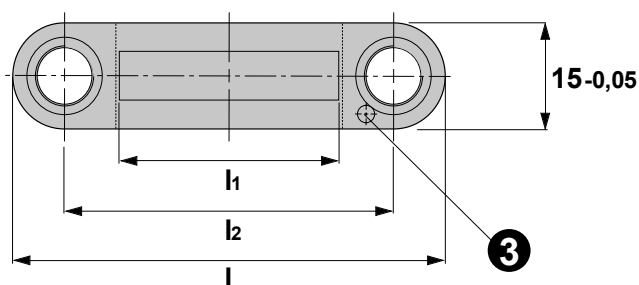
Diferent Lengths On Request.

Material: CK45



1, 2 Material: CK45

3 ELASTIC PIN Ø2.5x14
DIN 1481



CODE	l, -0,05	l1, +0,1	l2	Number of Stamps
Z401-01-045	45	12	30	6
Z401-01-047	47	16	32	8
Z401-01-055	55	24	40	12
Z401-01-063	63	32	48	16
Z401-01-071	71	40	56	20

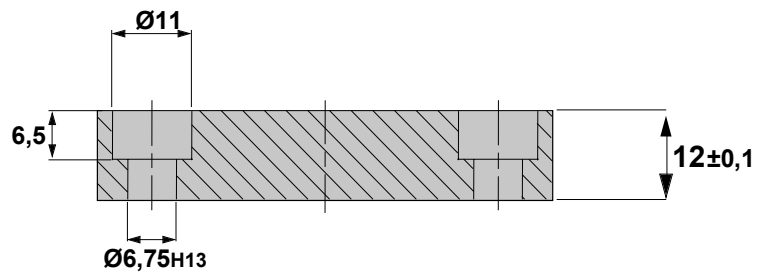
Z401-02

Backing Plate

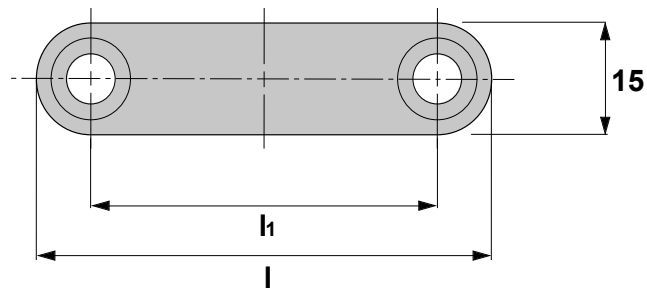
Ordering-Example:

Diferent Lengths On Request.

Material: CK45



Material: CK45



CODE	l	l1
Z401-02-045	45	30
Z401-02-047	47	32
Z401-02-056	55	40
Z401-02-063	63	48
Z401-02-071	71	56

Z401-06

Stamp

Ordering-Example:

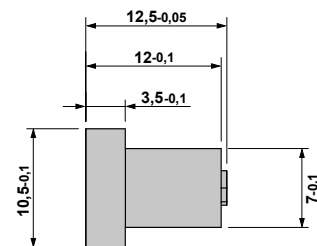
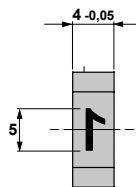
Diferent Lengths On Request.

Material: X153CrMoV12

Hardened: HRC 54 ÷ 56



Material: X153CrMoV12
Hardened: HRC 54 ÷ 56



CODE	Stamp
Z401-06-000	0
Z401-06-001	1
Z401-06-002	2
Z401-06-003	3
Z401-06-004	4
Z401-06-005	5
Z401-06-006	6 or 9
Z401-06-007	7
Z401-06-008	8
Z401-06-009	A
Z401-06-010	B
Z401-06-011	C
Z401-06-012	D

CODE	Stamp
Z401-06-013	E
Z401-06-014	F
Z401-06-015	G
Z401-06-016	H
Z401-06-017	I
Z401-06-018	J
Z401-06-019	K
Z401-06-020	L
Z401-06-021	M
Z401-06-022	N
Z401-06-023	O
Z401-06-024	P
Z401-06-025	Q

CODE	Stamp
Z401-06-026	R
Z401-06-027	S
Z401-06-028	T
Z401-06-029	U
Z401-06-030	V
Z401-06-031	W
Z401-06-032	X
Z401-06-033	Y
Z401-06-034	Z
Z401-06-035	Space
Z401-06-036	-
Z401-06-037	—

Z401-07

Stamp

Ordering-Example:

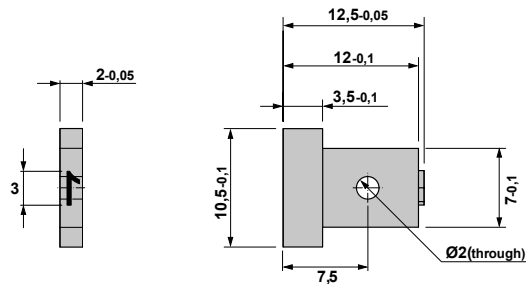
Diferent Lengths On Request.

Material: X153CrMoV12

Hardened: HRC 54 ÷ 56



Material: X153CrMoV12
Hardened: HRC 54 ÷ 56



CODE	Stamp
Z401-07-000	0
Z401-07-001	1
Z401-07-002	2
Z401-07-003	3
Z401-07-004	4
Z401-07-005	5
Z401-07-006	6 or 9
Z401-07-007	7
Z401-07-008	8
Z401-07-009	A
Z401-07-010	B
Z401-07-011	C
Z401-07-012	D

CODE	Stamp
Z401-07-013	E
Z401-07-014	F
Z401-07-015	G
Z401-07-016	H
Z401-07-017	I
Z401-07-018	J
Z401-07-019	K
Z401-07-020	L
Z401-07-021	M
Z401-07-022	N
Z401-07-023	O
Z401-07-024	P
Z401-07-025	Q

CODE	Stamp
Z401-07-026	R
Z401-07-027	S
Z401-07-028	T
Z401-07-029	U
Z401-07-030	V
Z401-07-031	W
Z401-07-032	X
Z401-07-033	Y
Z401-07-034	Z
Z401-07-035	Space
Z401-07-036	-
Z401-07-037	—

Z402-03

Visual Locator Punch

Ordering-Example:

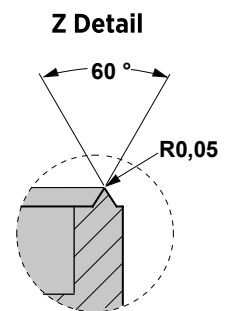
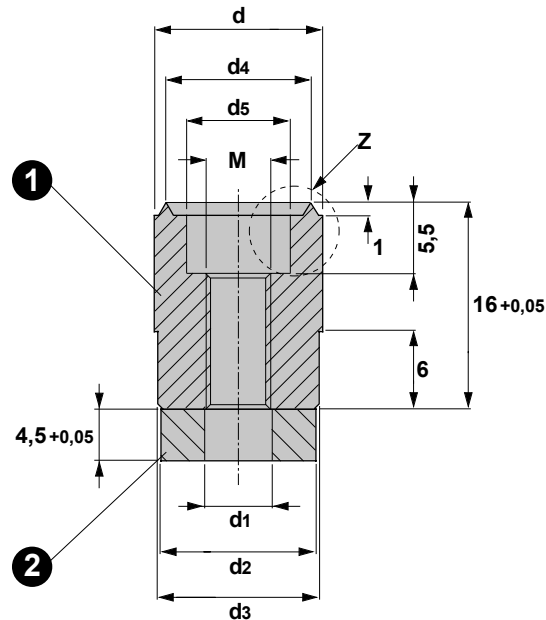
Diferent Lengths On Request.

Material: X205Cr12KU

Hardened: HRC 60 ÷ 62



1 Material: X205Cr12KU
Hardened: HRC 60 ÷ 62
2 Material: X205Cr12KU



CODE	d, d9	d1	d2	d3	d4, ±0,1	d5	M
Z402-03-010	10	4,2	9,9	9,5	8	6	M4
Z402-03-013	13	5,2	12	12,5	11,2	8	M5

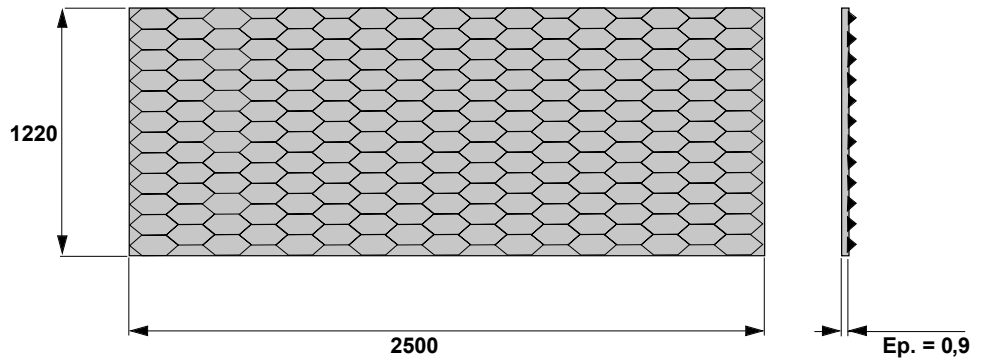
Z000166439

Stainless Steel Embossed Sheet

Ordering-Example:

Diferent Lengths On Request.

Material: Stainless Steel



Material: Stainless Steel

CODE	Dimensions mm
Z000166439	2500x1220xep.0,9

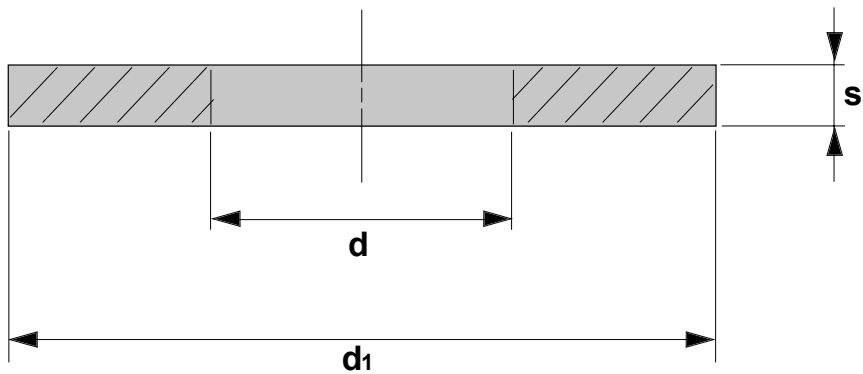
A101-15

Washer

Ordering-Example:

Diferent Lengths On Request.

Material: CK45



CODE	d	d1	s
A101-15-001	33	80	6
A101-15-002	33	100	8

M307-04

Retainer Bolts

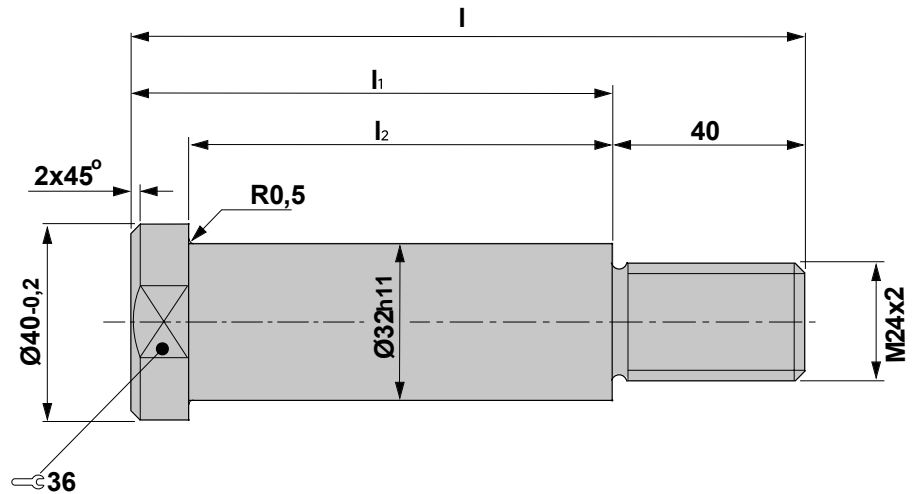
Ordering-Example:

Diferent Lengths On Request.

Material: 42CrMo4



Material: 42CrMo4
1000 ÷ 1200 N/mm²



CODE	I	I1	I2
M307-04-048	100	60	48
M307-04-068	120	80	68
M307-04-088	140	100	88
M307-04-108	160	120	108
M307-04-128	180	140	128
M307-04-148	200	160	148
M307-04-168	220	180	168
M307-04-188	240	200	188
M307-04-208	260	220	208
M307-04-228	280	240	228
M307-04-248	300	260	248
M307-04-268	320	280	268
M307-04-288	340	300	288

M314-01

Spring Plungers

Ordering-Example:

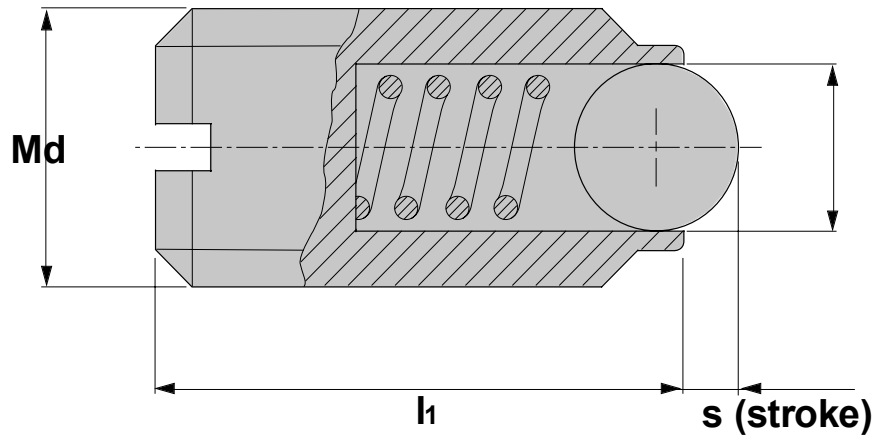
Diferent Lengths On Request.

Material: Steel Class 5.8 inox.

Hardened: inox.



Material: Steel Class 5.8
Hardened inox.



CODE	d	l1	s	M	Initial Force (N)	Final Force (N)
M314-01-004	2.5	9	0.8	M4	6	12
M314-01-005	3	12	0.9	M5	7	13
M314-01-006	3.5	14	1.0	M6	9	15
M314-01-008	5	16	1.5	M8	20	35
M314-01-010	6	19	2.0	M10	25	45
M314-01-012	8	22	2.5	M12	35	60
M314-01-016	10	24	3.5	M16	65	110

M314-02

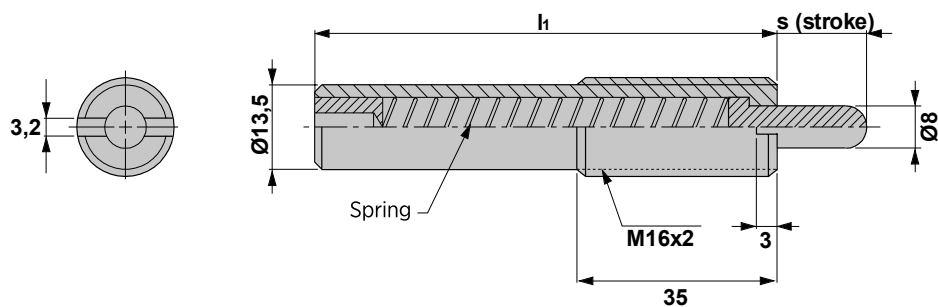
Spring Plungers

Ordering-Example:

Diferent Lengths On Request.

Material: C80W2

Hardened: HRC 36 ÷ 40



Material: C80W2
Hardened: HRC 36 ÷ 40
Body 34CrMo4
Springs C80W2
Hardened: HRC 36 ÷ 40
Black oxide finish.

CODE	l1	s	Initial Force (N)	Final Force (N)
M314-02-060	150	60	11	45
M314-02-080	200	80	2	38

M314-03

Spring Plungers

Ordering-Example:

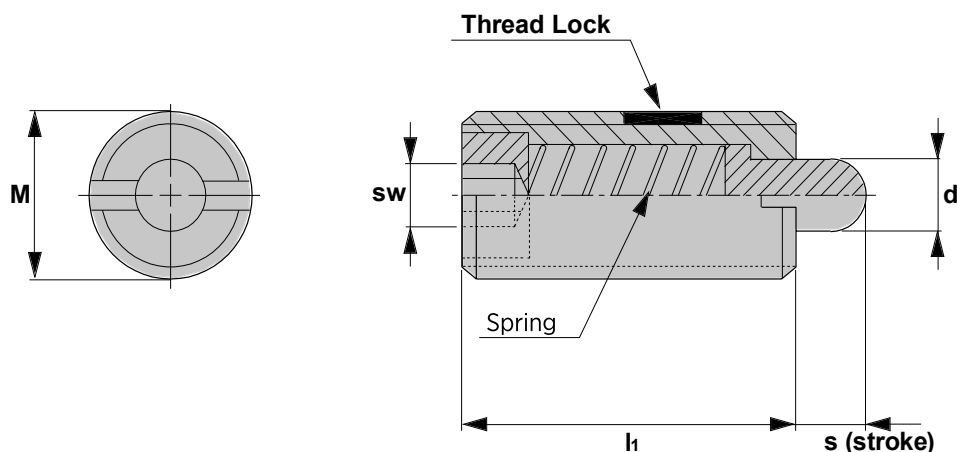
Diferent Lengths On Request.

Hardened: HRC 36 ÷ 40

Material: 90Mn4



Material: 90Mn4
Hardened: HRC 36 ÷ 40
Body 34CrMo4
Black oxide finish.



CODE	d	l ₁	s	sw	M	Initial Force N (Kgf)	Final Force N (Kgf)
M314-03-001	1	10	1,5	0,8	M3x0,5	0,4 (0,05)	2,9 (0,3)
M314-03-002	1,6	12	2	0,8	M4x0,7	1,9 (0,2)	9,8 (1,0)
M314-03-003	2	20	3	1,5	M5x0,8	3,9 (0,4)	19,6 (2,0)
M314-03-004	2	13	3	1,5	M5x0,8	1,9 (0,2)	7,8 (0,8)
M314-03-005	2	20	3	1,5	M5x0,8	1,9 (0,2)	9,8 (1,0)
M314-03-006	2,5	25	3	2,0	M6x1,0	2,9 (0,3)	9,8 (1,0)
M314-03-007	2,5	25	3	2,0	M6x1,0	7,8 (0,8)	29,4 (3,0)
M314-03-008	3,1	25	3	2,5	M8x1,25	2,9 (0,3)	9,8 (1,0)
M314-03-009	3,1	25	3	2,5	M8x1,25	7,8 (0,8)	29,4 (3,0)
M314-03-010	3,8	30	5	3,0	M10x1,5	2,9 (0,3)	14,7 (1,5)
M314-03-011	3,8	30	5	3,0	M10x1,5	9,8 (1,0)	49,0 (5,0)
M314-03-012	5,5	30	5	4,0	M12x1,75	1,9 (0,2)	9,8 (1,0)
M314-03-013	5,5	30	5	4,0	M12x1,75	9,8 (1,0)	49,0 (5,0)

M314-04

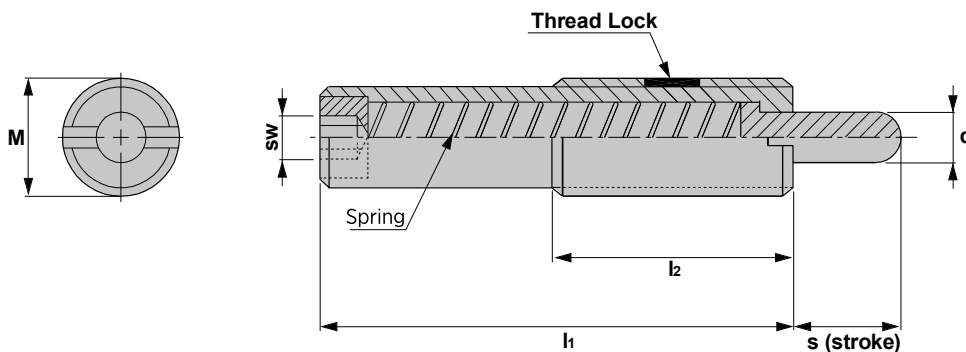
Spring Plungers

Ordering-Example:

Diferent Lengths On Request.

Material: Pin 90Mn4

Hardened: HRC 36 ÷ 40



Material: Pin 90Mn4
Hardened: HRC 36 ÷ 40
Body 34CrMo4
Black oxide finish.

CODE	d	l1	l2	s	sw	M	Initial Force N (Kgf)	Final Force N (Kgf)
M314-04-001	5,5	43	35	10	4	M12x1,75	3,9 (0,4)	19,6 (2)
M314-04-002	5,5	43	35	10	4	M12x1,75	6,8 (0,7)	39,2 (4)
M314-04-003	8	50	35	10	5	M16x2,0	9,8 (1)	49,0 (5)
M314-04-004	8	50	35	10	5	M16x2,0	19,6 (2)	98,0 (10)
M314-04-005	8	60	35	10	5	M16x2,0	12,7 (1,3)	39,2 (4)
M314-04-006	8	60	35	10	5	M16x2,0	26,4 (2,7)	78,4 (8)
M314-04-007	8	60	35	15	5	M16x2,0	9,8 (1)	39,2 (4)
M314-04-008	8	60	35	15	5	M16x2,0	14,7 (1,5)	78,4 (8)
M314-04-009	8	85	35	20	5	M16x2,0	12,7 (1,3)	78,4 (8)
M314-04-010	8	85	35	20	5	M16x2,0	16,6 (1,7)	78,4 (8)
M314-04-011	8	125	35	30	5	M16x2,0	19,6 (1,8)	78,4 (4)
M314-04-012	8	125	35	30	5	M16x2,0	19,6 (2)	78,4 (8)
M314-04-013	8	155	35	50	8	M16x2,0	19,6 (2)	49,0 (5)
M314-04-014	8	155	35	50	8	M16x2,0	29,4 (3)	98,0 (10)
M314-04-015	10	60	45	15	8	M24x3,0	19,6 (2)	98,0 (10)
M314-04-016	10	60	45	15	8	M24x3,0	39,2 (4)	196,1 (20)
M314-04-017	15	70	45	20	12	M30x3,5	29,4 (3)	147,0 (15)
M314-04-018	15	70	45	20	12	M30x3,5	49,0 (5)	294,1 (30)

M314-05

Insertion Tool for Spring Plungers

Ordering-Example:

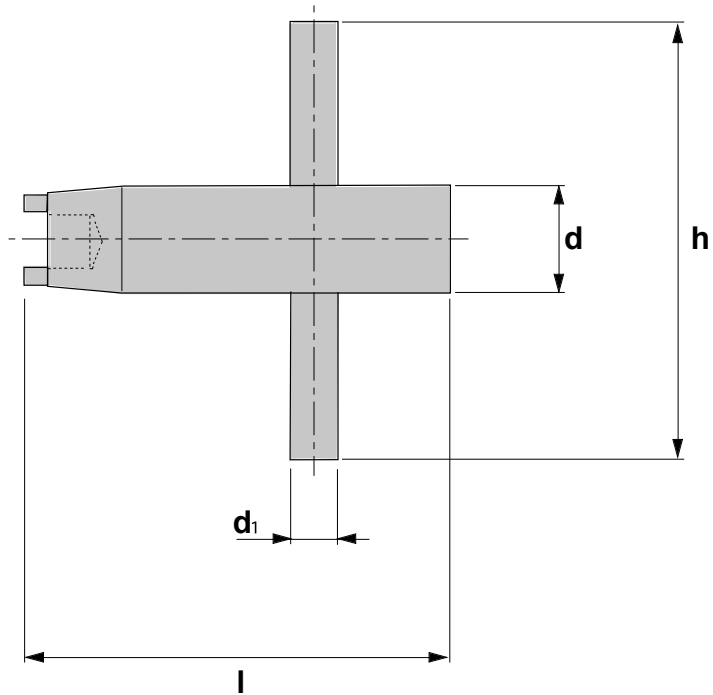
Diferent Lengths On Request.

Material: Steel

Hardened: HRC 36 ÷ 40



Material: Steel
Hardened: HRC 36 ÷ 40
Black oxide finish.



CODE	d	h	l	d1	Spring Plunger
M314-05-006	6	40	40	3	M5, M6
M314-05-008	8	45	45	4	M8
M314-05-010	10	45	45	4	M10
M314-05-012	12	50	50	5	M12
M314-05-016	16	70	52	8	M16
M314-05-024	24	80	62	12	M24
M314-05-030	30	100	73	15	M30

M315-01

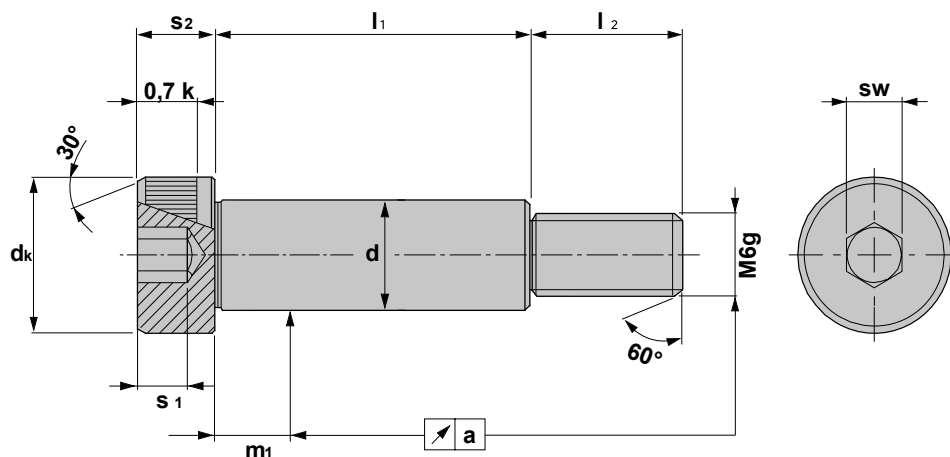
Shoulder Screws

Ordering-Example:
d= 6, l1= 10

Diferent Lengths On Request.
M315-01-0506010

Material: High grade alloy steel

Hardened: HRC 39 ÷ 44



Material: High grade alloy steel
ISO 12.9
Hardened: HRC 39 ÷ 44
Tensile Strength $R_m = 1200$ N/mm²
Yield Strength $R_p = 1080$ N/mm²
Shear Strength $T_m = 720$ N/mm²
Elongation A = %8 min.
Impact Test : KCU 15J min.
m1 measuring point = "d"

d, h8	6	8	10	12	16	20	24
M	M5	M6	M8	M10	M12	M16	M20
dk/s2	10/4,5	13/5,5	16/7	18/9	24/11	30/14	36/16
L2, ±0,25	9,5	11	13	16	18	22	27
s1/sw	2,4/3	3,3/4	4,2/5	4,9/6	6,6/8	8,8/10	10/12
l1, js11							
10	•						
12	•	•					
15	•	•	•	•			
16	•	•	•	•			
20	•	•	•	•			
25	•	•	•	•			
30	•	•	•	•	•		

d, h8	6	8	10	12	16	20	24
l1, js11							
35	•	•	•	•	•		
40	•	•	•	•	•	•	
45	•	•	•	•	•	•	
50	•	•	•	•	•	•	•
55	•	•	•	•	•	•	•
60	•	•	•	•	•	•	•
65		•	•	•	•	•	•
70		•	•	•	•	•	•
80		•	•	•	•	•	•
90		•	•	•	•	•	•
100		•	•	•	•	•	•
120				•	•	•	•

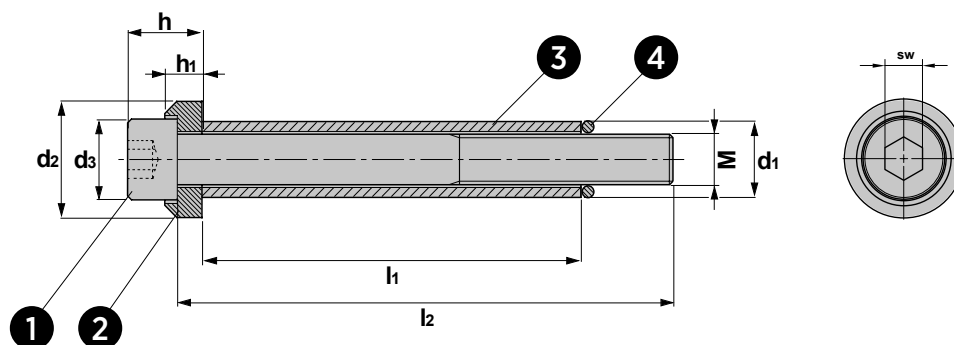
M315-02

Retainer Bolts

Ordering-Example:
M= 6, l1= 20

Diferent Lengths On Request.
M315-02-06020

Material: Steel 1000 N/mm²
Material: Steel 1200 ÷ 1400



- 1** DIN 912 cl. 12.9
- 2** Material: Steel 1000 N/mm²
- 3** Material: Steel 1200 ÷ 1400 N/mm²
- 4** O-Ring*
- * Remove before assembly

d1, h7	10	12,5	15	17,5	23
M	M6	M8	M10	M12	M16
d2	15	19	23	27	34
d3	10	13	16	18	24
h	10	13	15	18	24
h1	5,5	6,5	7,5	7	11
l1, ±0,1	l2				
20	35				
25	40				
30	45	45	50		
35	50	50	55		
40	55	55	60	60	
45	60	60	65	65	
50	65	65	70	70	80
55	70	70	75	80	
60	80	80	80	90	90
70	90	90	90	100	100
80	100	100	100	110	110
90	110	110	110	120	120
100	120	120	120	130	130
110				140	140
120			140	150	150
140				170	180
150					180
160					200

S504-03

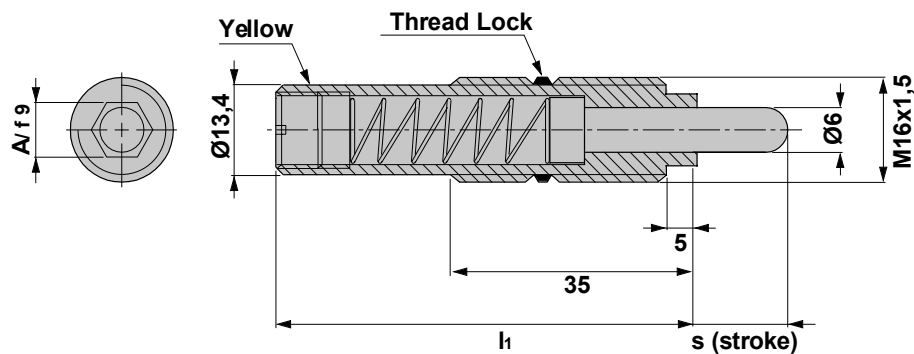
Spring Plungers

Ordering-Example:

Diferent Lengths On Request.

Material: Pin 90Mn4

Hardened: HRC 36 ÷ 40



Material: Pin 90Mn4
Hardened: HRC 36 ÷ 40
Body 34CrMo4
Black oxide finish.
Colour marking yellow.

CODE	l1	s	Spring Rate (N /mm)	Initial Force N (Kgf)	Final Force N (Kgf)
S504-03-010060	60	10	0,95	3,8	13,3
S504-03-015060	60	15	2	10	40
S504-03-020080	80	20	1,38	6,9	34,5
S504-03-030080	80	30	1,3	6,5	45,5
S504-03-030120	120	30	0,73	18	40
S504-03-040150	150	40	0,6	13,2	37,2
S504-03-050150	150	50	0,6	13,2	43,2
S504-03-060150	150	60	0,6	13,2	49,2
S504-03-070200	200	70	0,44	9,68	40,5
S504-03-080200	200	80	0,44	9,68	44,8

S504-04

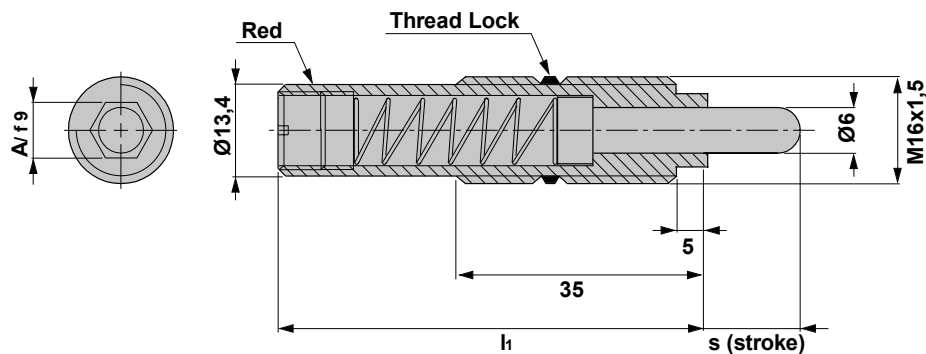
Spring Plungers

Ordering-Example:

Diferent Lengths On Request.

Material: Pin 90Mn4

Hardened: HRC 36 ÷ 40



Material: Pin 90Mn4
Hardened: HRC 36 ÷ 40
Body 34CrMo4
Black oxide finish.
Colour marking red.

CODE	l1	s	Spring Rate (N /mm)	Initial Force (N)	Final Force (N)
S504-04-010060	60	10	3,25	13	45,5
S504-04-015060	60	15	2,60	15	56,0
S504-04-020080	80	20	6,90	34,5	172,5
S504-04-030120	120	30	2	20	80,0
S504-04-030150	150	30	2,55	56,1	132,6
S504-04-040150	150	40	2,55	56,1	158,1
S504-04-050200	200	50	1,61	19,3	99,9
S504-04-060200	200	60	1,61	19,3	116,1
S504-04-07020	200	70	1,61	19,3	132,1
S504-04-080200	200	80	0,94	25	100,1

S504-05

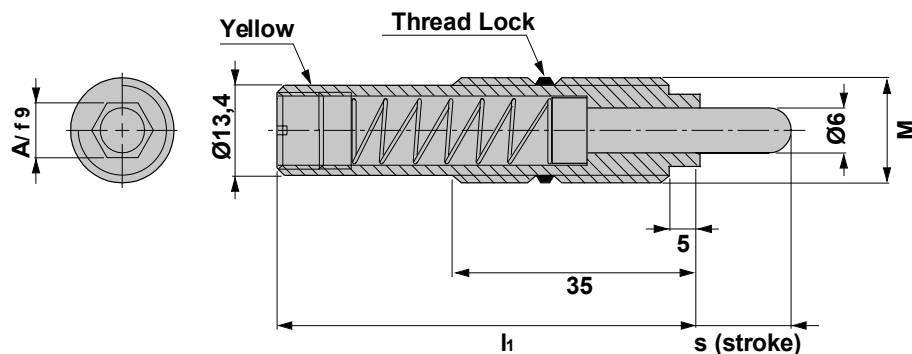
Spring Plungers

Ordering-Example:

Diferent Lengths On Request.

Material: Pin 90Mn4

Hardened: HRC 36 ÷ 40



Material: Pin 90Mn4

Hardened: HRC 36 ÷ 40

Body 34CrMo4

Black oxide finish.

Colour marking yellow.

*The spring pin made from high performance plastic with additives permits lateral loading of max. 15° depending on the stroke length.

CODE	M	l1	s	Spring Rate (N /mm)	Initial Force N (Kgf)	Final Force N (Kgf)
S504-05-010060	16x1,5	60	10	0,95	3,8	13,3
S504-05-010060-002	16x2	60	10	0,95	3,8	13,3
S504-05-015060	16x1,5	60	15	2	10	40
S504-05-015060-002	16x2	60	15	2	10	40
S504-05-020080	16x1,5	80	20	1,38	6,9	34,5
S504-05-020080-002	16x2	80	20	1,38	6,9	34,5
S504-05-030080	16x1,5	80	30	1,3	6,5	45,5
S504-05-030080-002	16x2	80	30	1,3	6,5	45,5
S504-05-030120	16x1,5	120	30	0,73	18	40
S504-05-030120-002	16x2	120	30	0,73	18	40
S504-05-040150	16x1,5	150	40	0,6	13,2	37,2
S504-05-040150-002	16x2	150	40	0,6	13,2	37,2
S504-05-050150	16x1,5	150	50	0,6	13,2	43,2
S504-05-050150-002	16x2	150	50	0,6	13,2	43,2

S504-06

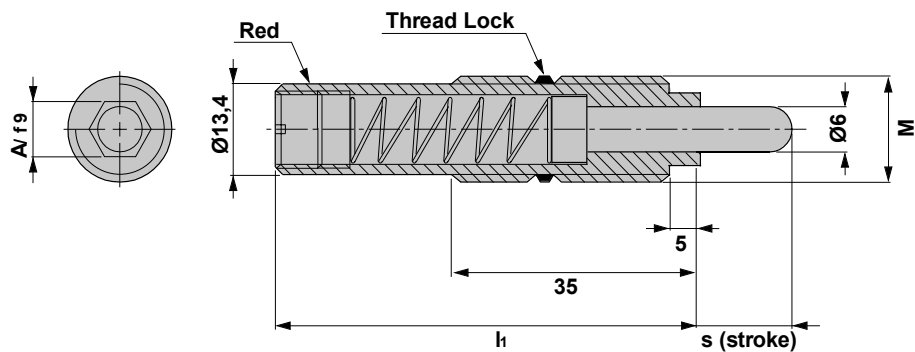
Spring Plungers

Ordering-Example:

Diferent Lengths On Request.

Material: Pin 90Mn4

Hardened: HRC 36 ÷ 40



Material: Pin 90Mn4

Hardened: HRC 36 ÷ 40

Body 34CrMo4

Black oxide finish.

Colour marking red.

*The spring pin made from high performance plastic with additives permits lateral loading of max. 15° depending on the stroke length.

CODE	M	l1	s	Spring Rate (N /mm)	Initial Force (N)	Final Force (N)
S504-06-010060	16x1,5	60	10	3,25	13	45,5
S504-06-010060-002	16x2	60	10	3,25	13	45,5
S504-06-015060	16x1,5	60	15	2,6	15	56
S504-06-015060-002	16x2	60	15	2,6	15	56
S504-06-020080	16x1,5	80	20	6,9	34,5	172,5
S504-06-020080-002	16x2	80	20	6,9	34,5	172,5
S504-06-030120	16x1,5	120	30	2	20	80
S504-06-030120-002	16x2	120	30	2	20	80
S504-06-030150	16x1,5	150	30	2,55	56,1	132,6
S504-06-030150-002	16x2	150	30	2,55	56,1	132,6
S504-06-040150	16x1,5	150	40	2,55	56,1	158,1
S504-06-040150-002	16x2	150	40	2,55	56,1	158,1
S504-06-050200	16x1,5	200	50	1,61	19,3	99,9
S504-06-050200-002	16x2	200	50	1,61	19,3	99,9

S504-07

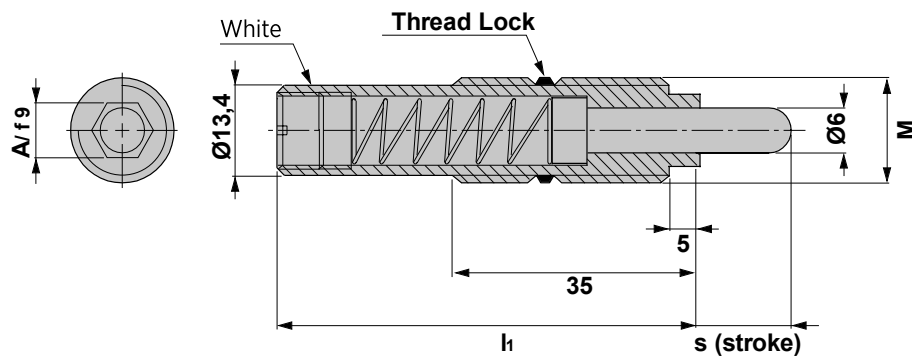
Spring Plungers

Ordering-Example:

Diferent Lengths On Request.

Material: Pin 90Mn4

Hardened: HRC 36 ÷ 40



Material: Pin 90Mn4

Hardened: HRC 36 ÷ 40

Body 34CrMo4

Black oxide finish.

Colour marking white.

*The spring pin made from high performance plastic with additives permits lateral loading of max. 15° depending on the stroke length.

CODE	M	l1	s	Spring Rate (N /mm)	Initial Force N (Kgf)	Final Force N (Kgf)
S504-07-020080	16x1,5	80	20	3,02	15,1	75,6
S504-07-020080-002	16x2	80	20	3,02	15,1	75,6

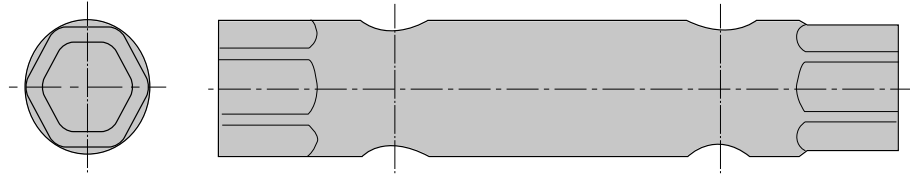
S504-08

Insertion Tool for Spring Plungers

Ordering-Example:

Diferent Lengths On Request.

Material: Steel



Material: Steel

CODE

S504-08-016

S510-05

Elastomer Springs, Hollow

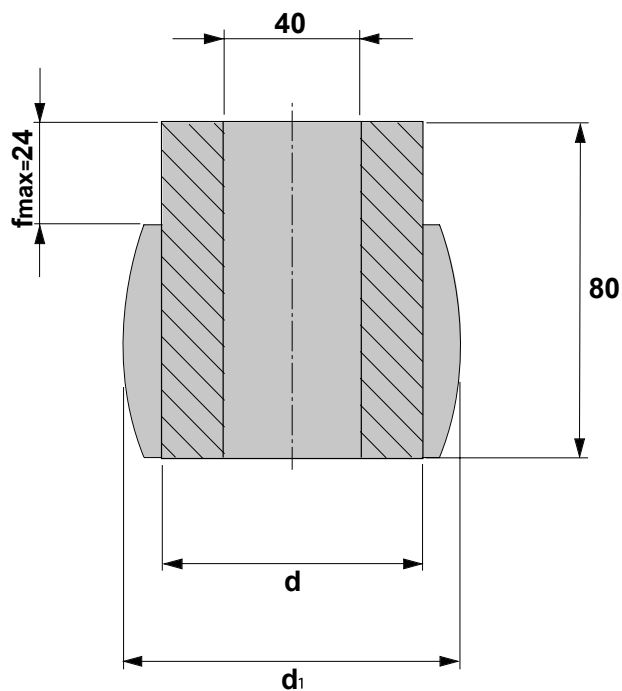
Ordering-Example:

Diferent Lengths On Request.

Material: Elastomer 92 Shore A



Material: Elastomer 92 Shore A



CODE	d	d1
S510-05-003	80	106
S510-05-004	90	117

S512-1XX

Elastomer Springs, Hollow

Ordering-Example:

d= 32, l= 500, Hardness= 92 Sh

Diferent Lengths On Request.

S512-192-0320500

Material: Polyurethane - Ultraflex



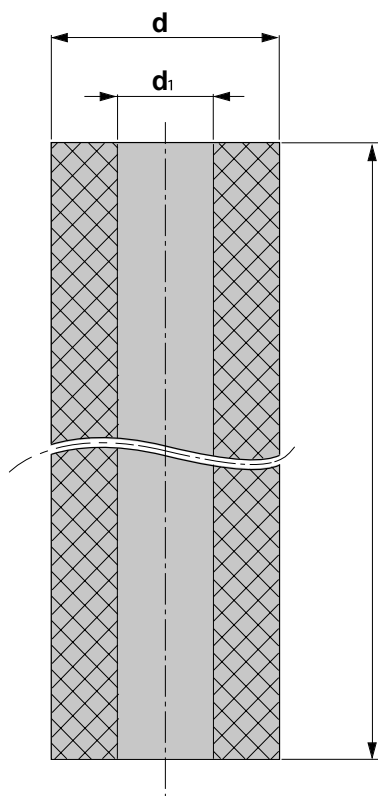
Material: Polyurethane - Ultraflex

Hardness - Color - Deflection

82 Shore A - Yellow %35

92 Shore A - Red %30

94 Shore A - Green %25



CODE	d	d1	l
S512-1XX-0160250	16	6,5	250
S512-1XX-0200250	20	8,5	250
S512-1XX-0250250	25	10,5	250
S512-1XX-0320500	32	13,5	500
S512-1XX-0400500	40	13,5	500
S512-1XX-0500500	50	17	500
S512-1XX-0630500	63	17	500
S512-1XX-0800500	80	21	500
S512-1XX-1000500	100	21	500
S512-1XX-1250500	125	27	500

S513-1XX

Elastomer Springs

Ordering-Example:

d= 32, l= 500, Hardness= 92 Sh

Diferent Lengths On Request.

S513-192-0320500

Material: Polyurethane - Ultraflex



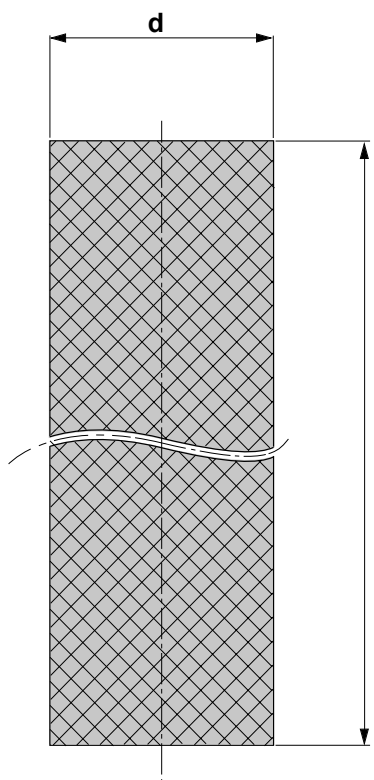
Material: Polyurethane - Ultraflex

Hardness - Color - Deflection

82 Shore A - Yellow %35

92 Shore A - Red %30

94 Shore A - Green %25



CODE	d	d1
S513-1XX-0160250	16	250
S513-1XX-0200250	20	250
S513-1XX-0250250	25	250
S513-1XX-0320500	32	500
S513-1XX-0400500	40	500
S513-1XX-0500500	50	500
S513-1XX-0630500	63	500
S513-1XX-0800500	80	500
S513-1XX-1000500	100	500
S513-1XX-1000500	125	500

S514-XXX

Elastomer Springs, Hollow

Ordering-Example:

d= 32, l= 50, Hardness= 92 Sh

Diferent Lengths On Request.

S514-192-032050

Material: Polyurethane - Ultraflex

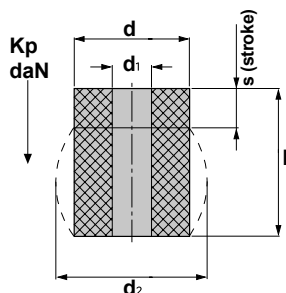
Material: Polyurethane - Ultraflex

Hardness - Color - Deflection

82 Shore A - Yellow %35

92 Shore A - Red %30

94 Shore A - Green %25



				S514-182			S514-192			S514-194		
				Mak. Esneme %35 Ultrafleks 82 Shore Yellow			Mak. Esneme %30 Ultrafleks 92 Shore Red			Mak. Esneme %25 Ultrafleks 94 Shore Green		
dxl	d	d1	l	s	d2	Kp	s	d2	Kp	s	d2	Kp
mm	mm	mm	mm	mm	mm	daN	mm	mm	daN	mm	mm	daN
Ø16 x 16	16	6,5	16	5,6	22	80	4,8	19	130	4	19	160
Ø16 x 20	16	6,5	20	7	22	80	6	19	130	5	19	160
Ø16 x 25	16	6,5	25	9	22	80	7,5	19	130	6	19	160
Ø16 x 32	16	6,5	32	11,2	22	80	9,6	19	130	8	19	160
Ø20 x 16	20	8,5	16	6	28	150	4,8	26	200	4	25	325
Ø20 x 20	20	8,5	20	7	28	150	6	26	200	5	25	325
Ø20 x 25	20	8,5	25	9	28	150	7,5	26	200	6	25	325
Ø20 x 32	20	8,5	32	11,2	28	150	9,6	26	200	8	25	325
Ø20 x 40	20	8,5	40	14	28	150	12	26	200	10	25	325
Ø25 x 16	25	10,5	16	6	33	210	4,8	30	300	4	29	450
Ø25 x 20	25	10,5	20	7	33	210	6	30	300	5	29	450
Ø25 x 25	25	10,5	25	9	33	210	7,5	30	300	6	29	450
Ø25 x 32	25	10,5	32	11	33	210	9,6	30	300	8	29	450
Ø25 x 40	25	10,5	40	14	33	210	12	30	300	10	29	450
Ø25 x 50	25	10,5	50	17,5	33	210	15	30	300	13	29	450
Ø32 x 16	32	13,5	16	6	43	360	4,8	41	580	4	38	800
Ø32 x 20	32	13,5	20	7	43	360	6	41	580	5	38	800
Ø32 x 25	32	13,5	25	9	43	360	7,5	41	580	6	38	800
Ø32 x 32	32	13,5	32	11	43	360	9,6	41	580	8	38	800
Ø32 x 40	32	13,5	40	14	43	360	12	41	580	10	38	800
Ø32 x 50	32	13,5	50	18	43	360	15	41	580	13	38	800
Ø32 x 63	32	13,5	63	22	43	360	19	41	580	16	38	800
Ø40 x 20	40	13,5	20	7	54	650	6	50	1250	5	47	1500
Ø40 x 25	40	13,5	25	9	54	650	7,5	50	1250	6	47	1500
Ø40 x 32	40	13,5	32	11	54	650	9,6	50	1250	8	47	1500
Ø40 x 40	40	13,5	40	14	54	650	12	50	1250	10	47	1500
Ø40 x 50	40	13,5	50	18	54	650	15	50	1250	13	47	1500
Ø40 x 63	40	13,5	63	22	54	650	19	50	1250	16	47	1500
Ø40 x 80	40	13,5	80	28	54	650	24	50	1250	20	47	1500
Ø50 x 25	50	17	25	9	65	1100	7,5	62	1700	6	60	2000
Ø50 x 32	50	17	32	11	65	1100	9,6	62	1700	8	60	2000
Ø50 x 40	50	17	40	14	65	1100	12	62	1700	10	60	2000
Ø50 x 50	50	17	50	18	65	1100	15	62	1700	13	60	2000
Ø50 x 63	50	17	63	22	65	1100	19	62	1700	16	60	2000
Ø50 x 80	50	17	80	28	65	1100	24	62	1700	20	60	2000
Ø50 x 100	50	17	100	35	65	1100	30	62	1700	25	60	2000

S514-XXX

Elastomer Springs, Hollow

Ordering-Example:

d= 32, l= 50, Hardness= 92 Sh

Diferent Lengths On Request.

S514-192-032050

Material: Polyurethane - Ultraflex

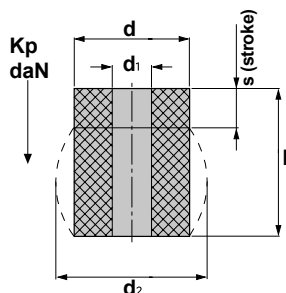
Material: Polyurethane - Ultraflex

Hardness - Color - Deflection

82 Shore A - Yellow %35

92 Shore A - Red %30

94 Shore A - Green %25



				S514-182			S514-192			S514-194		
				Mak. Esname %35 Ultrafleks 82 Shore Yellow			Mak. Esname %30 Ultrafleks 92 Shore Red			Mak. Esname %25 Ultrafleks 94 Shore Green		
dxl	d	d1	l	s	d2	Kp	s	d2	Kp	s	d2	Kp
mm	mm	mm	mm	mm	mm	daN	mm	mm	daN	mm	mm	daN
Ø16 x 16	16	6,5	16	5,6	22	80	4,8	19	130	4	19	160
Ø16 x 20	16	6,5	20	7	22	80	6	19	130	5	19	160
Ø16 x 25	16	6,5	25	9	22	80	7,5	19	130	6	19	160
Ø16 x 32	16	6,5	32	11,2	22	80	9,6	19	130	8	19	160
Ø20 x 16	20	8,5	16	6	28	150	4,8	26	200	4	25	325
Ø20 x 20	20	8,5	20	7	28	150	6	26	200	5	25	325
Ø20 x 25	20	8,5	25	9	28	150	7,5	26	200	6	25	325
Ø20 x 32	20	8,5	32	11,2	28	150	9,6	26	200	8	25	325
Ø20 x 40	20	8,5	40	14	28	150	12	26	200	10	25	325
Ø25 x 16	25	10,5	16	6	33	210	4,8	30	300	4	29	450
Ø25 x 20	25	10,5	20	7	33	210	6	30	300	5	29	450
Ø25 x 25	25	10,5	25	9	33	210	7,5	30	300	6	29	450
Ø25 x 32	25	10,5	32	11	33	210	9,6	30	300	8	29	450
Ø25 x 40	25	10,5	40	14	33	210	12	30	300	10	29	450
Ø25 x 50	25	10,5	50	17,5	33	210	15	30	300	13	29	450
Ø32 x 16	32	13,5	16	6	43	360	4,8	41	580	4	38	800
Ø32 x 20	32	13,5	20	7	43	360	6	41	580	5	38	800
Ø32 x 25	32	13,5	25	9	43	360	7,5	41	580	6	38	800
Ø32 x 32	32	13,5	32	11	43	360	9,6	41	580	8	38	800
Ø32 x 40	32	13,5	40	14	43	360	12	41	580	10	38	800
Ø32 x 50	32	13,5	50	18	43	360	15	41	580	13	38	800
Ø32 x 63	32	13,5	63	22	43	360	19	41	580	16	38	800
Ø40 x 20	40	13,5	20	7	54	650	6	50	1250	5	47	1500
Ø40 x 25	40	13,5	25	9	54	650	7,5	50	1250	6	47	1500
Ø40 x 32	40	13,5	32	11	54	650	9,6	50	1250	8	47	1500
Ø40 x 40	40	13,5	40	14	54	650	12	50	1250	10	47	1500
Ø40 x 50	40	13,5	50	18	54	650	15	50	1250	13	47	1500
Ø40 x 63	40	13,5	63	22	54	650	19	50	1250	16	47	1500
Ø40 x 80	40	13,5	80	28	54	650	24	50	1250	20	47	1500
Ø50 x 25	50	17	25	9	65	1100	7,5	62	1700	6	60	2000
Ø50 x 32	50	17	32	11	65	1100	9,6	62	1700	8	60	2000
Ø50 x 40	50	17	40	14	65	1100	12	62	1700	10	60	2000
Ø50 x 50	50	17	50	18	65	1100	15	62	1700	13	60	2000
Ø50 x 63	50	17	63	22	65	1100	19	62	1700	16	60	2000
Ø50 x 80	50	17	80	28	65	1100	24	62	1700	20	60	2000
Ø50 x 100	50	17	100	35	65	1100	30	62	1700	25	60	2000

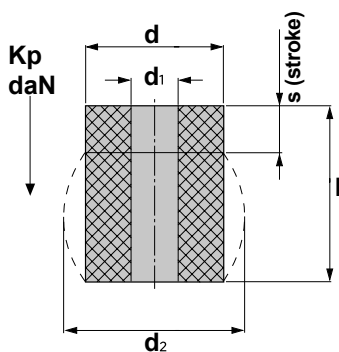
S514-XXX

Elastomer Springs, Hollow

Ordering-Example:
d= 80, l= 100, Hardness= 92 Sh

Diferent Lengths On Request.
S514-192-080100

Material: Polyurethane - Ultraflex



Material: Polyurethane - Ultraflex
Hardness - Color - Deflection
82 Shore A - Yellow %35
92 Shore A - Red %30
94 Shore A - Green %25

				S514-182			S514-192			S514-194		
				Mak. Esneme %35 Ultrafleks 82 Shore Yellow			Mak. Esneme %30 Ultrafleks 92 Shore Red			Mak. Esneme %25 Ultrafleks 94 Shore Green		
dxl	d	d1	l	s	d2	Kp	s	d2	Kp	s	d2	Kp
mm	mm	mm	mm	mm	mm	daN	mm	mm	daN	mm	mm	daN
Ø63 x 32	63	17	32	11	81	1600	9,6	78	2600	8	74	3500
Ø63 x 40	63	17	40	14	81	1600	12	78	2600	10	74	3500
Ø63 x 50	63	17	50	18	81	1600	15	78	2600	13	74	3500
Ø63 x 63	63	17	63	22	81	1600	19	78	2600	16	74	3500
Ø63 x 80	63	17	80	28	81	1600	24	78	2600	20	74	3500
Ø63 x 100	63	17	100	35	81	1600	30	78	2600	25	74	3500
Ø63 x 125	63	17	125	44	81	1600	37,5	78	2600	31	74	3500
Ø80 x 40	80	21	40	14	103	2600	12	98	4300	10	95	6000
Ø80 x 50	80	21	50	18	103	2600	15	98	4300	13	95	6000
Ø80 x 63	80	21	63	22	103	2600	19	98	4300	16	95	6000
Ø80 x 80	80	21	80	28	103	2600	24	98	4300	20	95	6000
Ø80 x 100	80	21	100	35	103	2600	30	98	4300	25	95	6000
Ø80 x 125	80	21	125	44	103	2600	37,5	98	4300	31	95	6000
Ø80 x 160	80	21	160	56	103	2600	48	98	4300	40	95	6000
Ø100 x 50	100	21	50	18	126	4300	15	120	5900	13	120	10000
Ø100 x 63	100	21	63	22	126	4300	19	120	5900	16	120	10000
Ø100 x 80	100	21	80	28	126	4300	24	120	5900	20	120	10000
Ø100 x 100	100	21	100	35	126	4300	30	120	5900	25	120	10000
Ø100 x 125	100	21	125	44	126	4300	37,5	120	5900	31	120	10000
Ø100 x 160	100	21	160	56	126	4300	48	120	5900	40	120	10000
Ø125 x 63	125	27	63	22	160	6400	19	152	9900	15,7	150	15000
Ø125 x 80	125	27	80	28	160	6400	24	152	9900	20	150	15000
Ø125 x 100	125	27	100	35	160	6400	30	152	9900	25	150	15000
Ø125 x 125	125	27	125	43,7	160	6400	37,5	152	9900	31,2	150	15000
Ø125 x 160	125	27	160	56	160	6400	48	152	9900	40	150	15000
Ø125 x 200	125	27	200	70	160	6400	50	152	9900	50	150	15000

D901-01-745

Dressing Paste for Surface Control

Ordering-Example:

Diferent Lengths On Request.



CODE	Colour	Lt.
D901-01-745	Blue	250 ml.

Physical and Chemical Properties	
Physical State	Paste
Colour	Blue
Odour	Characteristic
Melting Point	45 °C
Flammability	> 150 °C
Explosiveness	not explosive
Density	0,85 g /ml
Solubity	In many solvents
Water Solubility (20°C)	Insoluble