

COLT

4PVD
Service & Supply

3-fold Rotation for cylindrical Shanks

Plates

Sleeves

Accessory

Extensions

Shank Masking Sleeves

NEW



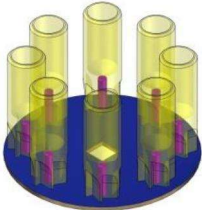
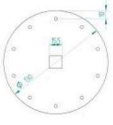
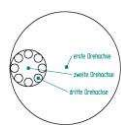
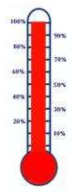
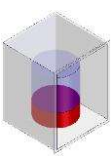


www.webshop.4pvd.de

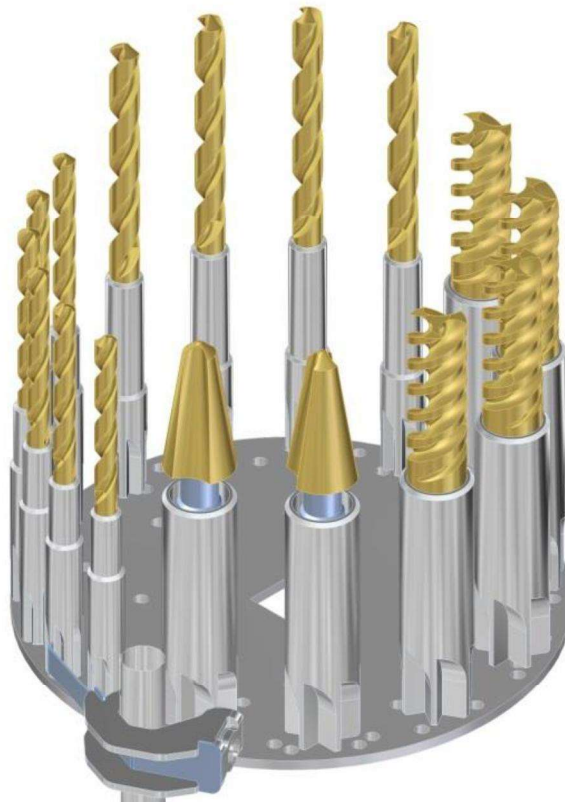
Colt Fixture System









For rotating tools and components

The Colt fixture system provides the most flexibility if products of various diameters and length shall be coated. These various products like drills, mills, taps, reamers and punches, etc. can be mixed in one batch or even on one spindle or table, to achieve maximum utilization of the coating unit even for small and urgent order lines.

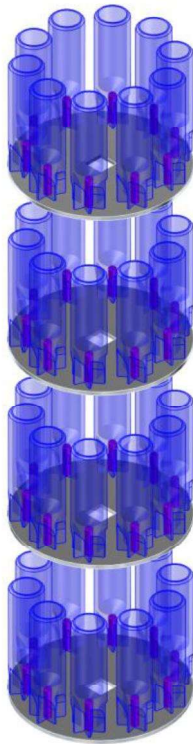
As the substrates rotate parallel to the evaporator sources, they will receive homogenous coating around the circumference and coating on the tip. Colt is the ideal fixture system for job coating with lot of mixed batches.

Model Colt 	Planet  Ø80 – Ø200	Axles  2-4	T_{max}  500°C	Economy  average	Mix  very flexible	FTD  Smooth on circumference
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Drills 	Mills 	Reamers 	Taps 	Punches 	Countersinks 	2-sided 	Lathe tools 
+	+	+	+	○	+	○	○

Colt fixtures fit well (+) with limitations (o) or not (-) for the above marked substrates



Colt plates are mounted with spacers in the desired distance on the shanks and planets of the substrate table. The longest substrate and the requested film thickness on the tip define the distance to the next level of fixtures.

From level to level diameters can be mixed nearly without limit. Within one plate also diameters can be mixed but within certain ranges (e. g. you can mix 6,0mm with 10,0mm but not with 20,0mm)

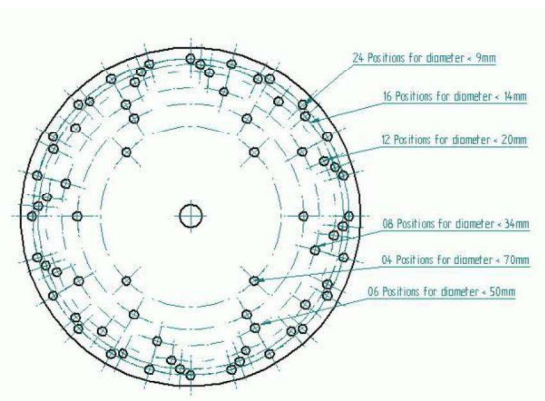
The rotation for the first and second rotation axle is commonly transmitted by gears. Further rotation axes are driven by elastic kickers (also called springs or triggers) which yield in case of blocking substrates.

For the rotation of the third and higher axle all fixture tubes have little gears on the bottom side. These gears may be made in different ways as to see from the technical part.

If not specified differently, fixture tubes of inner diameter up to 25mm have a machined gear. For bigger diameters the fixture tube is welded to the gear.

A 4pvd special are the universal plates. They have multiple circles of holes with different transverse pitch. Bolts for fixture tubes can be mounted onto the universal plates depending on the actual demand.

With this you can set up for mixed batches quick and cost-effective, but still achieve a high grade of utilization.



Colt Stock Program

The Colt standard line contains the most popular designs and sizes of Colt sleeves and plates. The main properties are:

Colt Sleeves, machined from bulk material with integral gears

- inexpensive
- stackable
- fitting one into the next bigger size

Flat, non-permeable Colt Plates with removable pins

- inexpensive, Pins exchangeable
- light weight, low Height
- fast heating / cooling possible
- preferably for left turning planets (CCW)

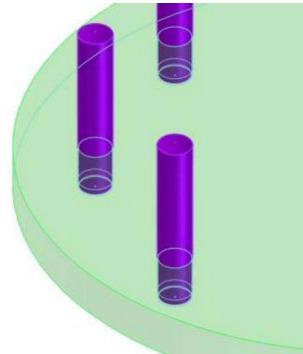
Colt Custom Series

Colt Custom Series are adapted to special requirements. The available sizes are listed in extra brochures:

Colt s8

Heavy Duty Colt Plate from 8,0mm stainless steel with pins firmly pressed in.

- Higher rigidity (e. g. for longer parts)
- For right and left rotation



Colt s8L

Heavy Duty Colt Plate from 8,0mm stainless steel with pins firmly pressed in but with plasma windows:

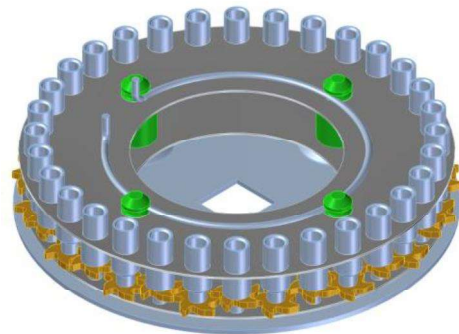
- Higher rigidity (e. g. for longer parts)
- For right and left rotation
- Lower weight
- Permeable for plasma discharge



Colt Flat

Flat design of Colt Plates with non-exchangeable sleeves:

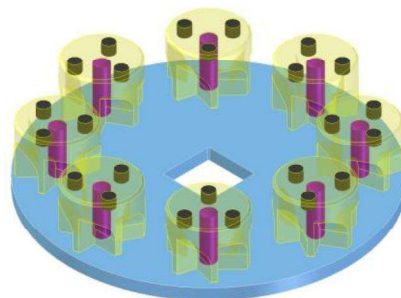
- Higher rigidity (e. g. for longer parts)
- For right and left rotation
- Lower weight
- Only 13mm height under substrate



Colt Mag

Colt Plate with magnetic Sleeves

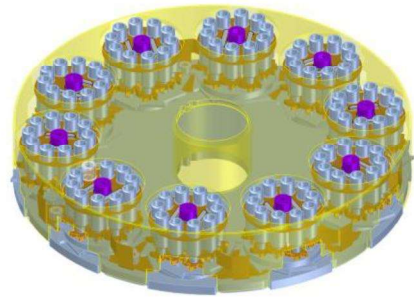
- For substrates w/o shanks or holes
- For right and left rotation



Colt Quad

Colt plates with 4-fold rotation and firmly attached sleeves

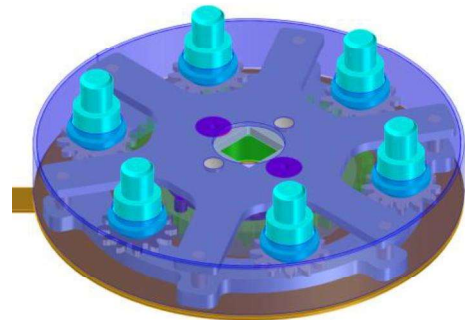
- Higher rigidity (e. g. for longer parts)
- For right and left rotation
- Capsuled design
- High economy



Colt Perm

Colt Plates with continuous enforced rotation

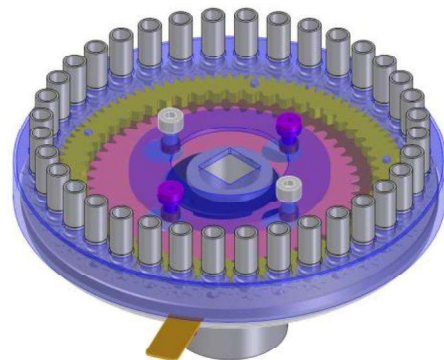
- High reliability of rotation
- For right and left rotation
- Capsuled design
- Smooth rotation
- Overload clutch



Colt CP2

Colt Plates with continuous enforced rotation but with slow rotation

- High reliability of rotation
- For right and left rotation
- Capsuled design
- Smooth rotation
- Overload clutch
- For small substrates



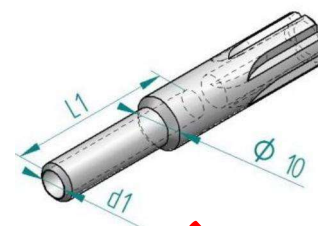
On the following pages you will find our stock program:

- Sleeves for substrates with cylindrical shank (page 5 ff.)
- Extensions to increase the masked shank length (Page 13)
- Plates with pins to carry the sleeves (page 6 ff.)
- Spacer tubes to maintain the height between two levels (page 14)
- Kicker fingers for the third rotation axle (page 12)

Further accessory, complete table systems and adaptors you will find in catalogue No. 9 "table systems".

Toothed Sleeve with OD Ø 10 for Shanks up to Ø 8,0 mm

Size	d1 Ø Shank	L1 deep	€ @ 10	€ @ 50	€ @ 100	€ @ 500	Item number
10 x 3,2 L30	3,0	30	8,50	7,30	6,60	6,00	413891832
10 x 4,2 L31	4,0	31	8,50	7,30	6,60	6,00	406161337
10 x 5,2 L33	5,0	33	8,50	7,30	6,60	6,00	390162049
10 x 6,2 L35	6,0	35	8,50	7,30	6,60	6,00	390162053
10 x 7,2 L30*	7,0		1,30	1,10	1,00	0,90	Upon inquiry
10 x 8,2 L41*	8,0	41	8,00	6,90	6,20	5,70	390162057



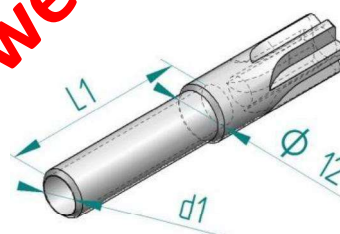
* sleeve different as image

Fitting to Plates from Ø 80mm with Pin Ø 6,0 x 24 and 5,0 – 6,0mm Pin to OD Distance

Sleeves H10xx may be put into Sleeves H1210 and H1510

Toothed Sleeve with OD Ø 12 for shanks up to Ø 10,0 mm

Size	d1 Ø Shank	L1 deep	€ @ 10	€ @ 50	€ @ 100	€ @ 500	Item- number
12 x 4,2 L39	4,0	39	9,10	7,80	7,00	6,40	411451613
12 x 6,2 L35 ¹	6,0	35	9,10	7,80	7,00	6,40	393891919
12 x 6,2 L45 ¹	6,0	45	9,10	7,80	7,00	6,40	411451657
12 x 8,2 L41 ¹	8,0	41	9,10	7,80	7,00	6,40	393891810
12 x 10,2 L50*	10,0	50	8,50	7,30	6,60	6,00	415550043



¹ use Extension for long shank

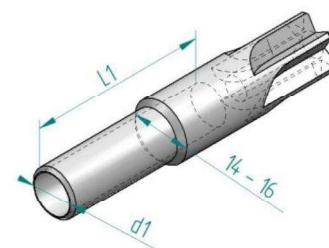
* sleeve different as image

Fitting to Plates from Ø 80mm with Pin Ø 6,0 x 24 and 6,0 – 7,5mm Pin to OD Distance

Sleeves H11xx may be put into Sleeves H1512

Toothed Sleeve with OD Ø 14 – Ø 16 for shanks up to Ø 14,0 mm

Size	d1 Ø Shank	L1 deep	€ @ 10	€ @ 50	€ @ 100	€ @ 500	Item- number
14 x 12,2 L60	12,0	60	9,10	7,80	7,00	6,40	415550051
15 x 10,2 L40	10,0	40	9,30	8,00	7,20	6,60	402801124
15 x 10,2 L45	10,0	45	9,30	8,00	7,20	6,60	390162103
15 x 12,2 L45*	12,0	45	8,50	7,30	6,60	6,00	402801127
15 x 12,2 L50*	12,0	50	8,50	7,30	6,60	6,00	390162106
16 x 14,2 L50*	14,0	50	8,50	7,30	6,60	6,00	405061349



¹ use Extension for long shank

* sleeve different as image

Fitting to plates from Ø 80mm with Pin Ø 6,0 x 24 and 7,5 – 10,0mm to OD Distance

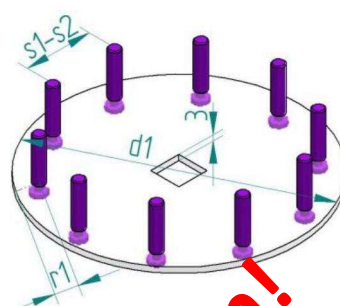
Sleeves may also be placed into bigger sleeves with fitting hole

Further dimensions and other masking length at www.webshop.4pvd.de or upon inq.

Plates for Sleeves with OD up to Ø 10 mm

Size OD x Qty. Pins / Sleeves	d1 Pitch	s1-s2 r1	€ @ 5	€ @ 10	€ @ 20	€ @ 50	Item number
C080 x 18 H10	80	12,0	49,40	42,50	38,00	34,90	398181256
	18	5,0					
C120 x 24 H10	120	14,0	66,30	57,10	51,00	46,90	Upon inquiry
	24	5,0					
C130x24 H10*	130	15,0	66,30	57,10	51,00	46,90	392932160
	24	6,0					

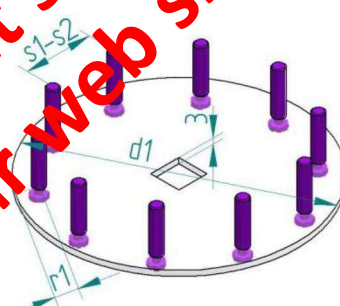
* Fitting also for Sleeves Ø 12mm



Plates for Sleeves with OD up to Ø 12 mm

Size OD x Qty. Pins / Sleeves	d1 Pitch	s1-s2 r1	€ @ 5	€ @ 10	€ @ 20	€ @ 50	Item- number
C080 x 12*	80	17,0	45,50	39,20	35,00	32,20	398181256
	12	7,5					
C120 x 18	120	18,5	53,00	45,60	40,80	37,50	Upon inquiry
	18	6,0					
C120 x 16*	120	20,5	53,00	45,60	40,80	37,50	415550059
	16	7,5					
C130 x 24	130	15,0	66,30	57,10	51,00	46,90	392932160
	24	6,0					
C130 x 20*	130	18,0	60,10	52,30	46,75	43,00	389381743
	20	7,5					

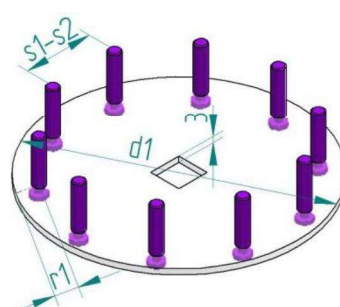
* Fitting also for Sleeves Ø 15



Plates for Sleeves with OD up to Ø 15

Size OD x Qty. Pins / Sleeves	d1 Pitch	s1-s2 r1	€ @ 5	€ @ 10	€ @ 20	€ @ 50	Item- number
C080 x 10	80	20,0	42,90	36,90	33,00	30,30	391141104
	10	7,5					
C120 x 16	120	20,5	53,00	45,60	40,80	37,50	415550059
	16	7,5					
C130 x 20	130	18,0	66,30	57,10	51,00	46,90	389381743
	20	7,5					
C130 x 16*	130	22,0	53,00	45,60	40,80	37,50	398181555
	16	8,0					

* Fitting also for Sleeves Ø 16

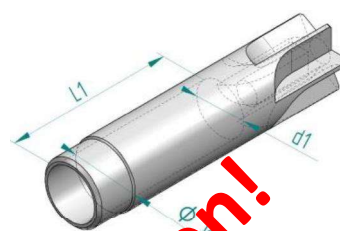


Further dimensions and other masking length at www.webshop.4pvd.de or upon inq.

Chose central interface hole from chart (page 15) and add the index to item no. (e.g. C130 x 24 V15)

Toothed Sleeve with OD Ø 18 for shanks up to Ø 16,0 mm

Size	d1 Ø shank	L1 deep	€ @ 10	€ @ 50	€ @ 100	€ @ 500	Item-number
18 x 14,2 L45*	14,0	45	9,70	8,40	7,50	6,90	402801133
18 x 14,2 L50*	14,0	50	9,70	8,40	7,50	6,90	413051011
18 x 15,2 L50	15,0	50	9,70	8,40	7,50	6,90	400951658
18 x 16,2 L48*	16,0	48	9,70	8,40	7,50	6,90	402801137
18 x 16,2 L50*	16,0	50	9,70	8,40	7,50	6,90	414002008
18 x 16,2 L55*	16,0	55	9,70	8,40	7,50	6,90	413051015
18 x 16,2 L60*	16,0	60	10,10	8,70	7,80	7,10	406391832



¹ use Extension for long shank

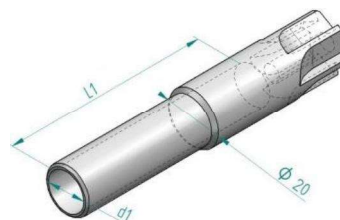
* sleeve different as image

Fitting to plates from Ø 80mm with Pin Ø 6,0 x 24 and 9,0 – 11,0mm to OD Distance

Sleeves H18xx may be put into Sleeves H2018 and H2518

Toothed Sleeve with OD Ø 20 for shanks up to Ø 18,0 mm

Size	d1 Ø shank	L1 deep	€ @ 10	€ @ 50	€ @ 100	€ @ 500	Item-number
20 x 14,2 L60	14,0	60 ¹	10,10	8,70	7,80	7,10	391531562
20 x 16,2 L45*	16,0	45 ¹	10,10	8,70	7,80	7,10	390162112
20 x 16,2 L60*	16,0	60 ¹	10,10	8,70	7,80	7,10	391531611
20 x 18,2 L45*	18,0	45	10,10	8,70	7,80	7,10	410231140
20 x 18,2 L50*	18,0	50	10,10	8,70	7,80	7,10	414002010
20 x 18,2 L60*	18,0	60	10,10	8,70	7,80	7,10	413051018



¹ use Extension for long shank

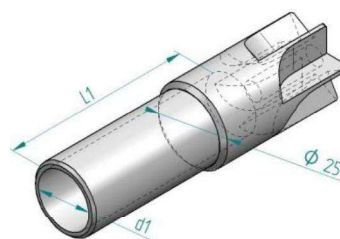
* sleeve different as image

Fitting to plates Ø 80mm with Pin Ø 6,0 x 24 and 10,0 – 12,5mm to OD Distance

Sleeves H20xx may be put into Sleeves H2520

Toothed Sleeve with OD Ø 25 for shanks up to Ø 20,0 mm

Size	d1 Ø shank	L1 deep	€ @ 10	€ @ 50	€ @ 100	€ @ 500	Item-number
25 x 18,2 L45	18,0	45 ¹	10,90	9,40	8,40	7,70	390162115
25 x 18,2 L60	18,0	60 ¹	10,90	9,40	8,40	7,70	391531645
25 x 20,2 L45*	20,0	45 ¹	10,90	9,40	8,40	7,70	390162118
25 x 20,2 L60*	20,0	60 ¹	11,40	9,80	8,80	8,00	391531654



¹ use Extension for long shank

* sleeve different as image

Fitting to plates Ø 80mm with Pin Ø 6,0 x 24 and 12,5 – 14,0mm to OD Distance

Sleeves H25xx may be put into Sleeves H2825

Further dimensions and other masking length at www.webshop.4pvd.de or upon inq.

Plates for Sleeves with OD up to Ø 18 mm

Size OD x Qty. Pins / Sleeves	d1 Pitch	s1-s2 r1	€ @ 5	€ @ 10	€ @ 20	€ @ 50	Item- number
C080 x 07*	80	26,0	40,30	34,70	31,00	28,50	390421249
	07	10,0					
C120 x 12*	120	26,0	45,60	43,20	40,80	37,50	393891807
	12	10,0					
C130x12	130	29,0	53,00	45,60	40,80	37,50	400621919
	12	9,0					
C130x14	130	25,0	49,40	42,50	38,00	34,90	405260833
	14	9,0					

* Fitting also for Sleeves Ø 20

Plates for Sleeves with OD up to Ø 20 mm

Size OD x Qty. Pins / Sleeves	d1 Pitch	s1-s2 r1	€ @ 5	€ @ 10	€ @ 20	€ @ 50	Item- number
C080 x 06*	80	27,5	39,00	33,60	30,00	27,00	390421237
	06	12,5					
C120 x 12	120	26,0	45,60	43,20	40,80	37,50	393891807
	12	10,0					
C130 x 12*	130	28,0	51,00	45,60	40,80	37,50	400621919
	12	11,0					
C130 x 10	130	24,0	49,70	42,80	38,25	35,10	392932159
	10	10,0					

* Fitting also for Sleeves Ø 22

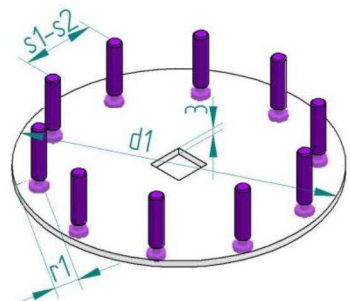
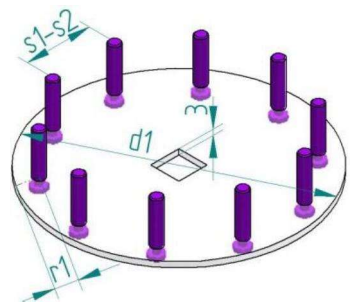
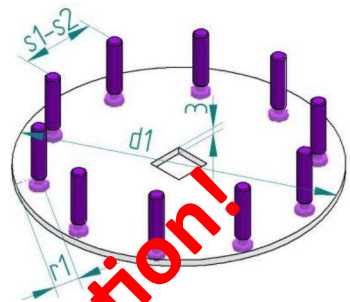
Plates for Sleeves with OD up to Ø 25

Size OD x Qty. Pins / Sleeves	d1 Pitch	s1-s2 r1	€ @ 5	€ @ 10	€ @ 20	€ @ 50	Item- number
C080 x 06	80	27,5	39,00	33,60	30,00	27,60	390421237
	06	12,5					
C120 x 10	120	29,3	49,70	42,80	38,25	35,10	394571006
	10	12,5					
C130 x 12*	130	39,0	53,00	45,60	40,80	37,50	400621919
	08	14,0					

* Fitting also for Sleeves Ø 28

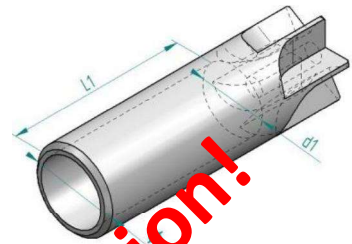
Further dimensions and other masking length at www.webshop.4pvd.de or upon inq.

Chose central interface hole from chart (page 15) and add the index to item no. (e.g. C130 x 24 V15)



Toothed Sleeve with OD Ø 28 for shanks up to Ø 25,0 mm

Size	d1 Ø shank	L1 deep	€ @ 10	€ @ 50	€ @ 100	€ @ 500	Item- number
28 x 22,2 L45	22,0	45	11,40	9,80	8,80	8,00	390420900
28 x 22,2 L60	22,0	60	11,40	9,80	8,80	8,00	391531708
28 x 24,2 L60	24,0	60	11,40	9,80	8,80	8,00	407011729
28 x 25,2 L45	25,0 ¹	45	11,40	9,80	8,80	8,00	390420901
28 x 25,2 L60	25,0 ¹	60	12,70	10,90	9,80	9,00	391531712



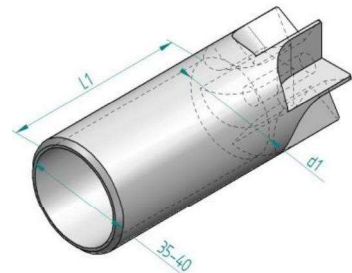
¹ use Extension for long shank
* sleeve different as image

Fitting to plates Ø 80mm with Pin Ø 6,0 x 24 and 14,0 – 20,0mm to OD Distance

Sleeves H28xx may be put into Sleeves H25xx

Toothed Sleeve with OD Ø 35 / 40 for shanks up to Ø 34,0 mm

Size	d1 Ø shank	L1 deep	€ @ 10	€ @ 50	€ @ 100	€ @ 500	Item- number
35 x 30,2 L60	30,0	60	15,90	13,70	12,30	11,30	415550034
35 x 32,2 L60 ¹	32,0	60	15,90	13,70	12,30	11,30	395820823
35 x 32,2 L75 ¹	32,0	75	16,90	14,50	13,00	11,90	408801256
40 x 34,2 L60	34,0	60	27,00	23,50	21,00	19,30	397741848

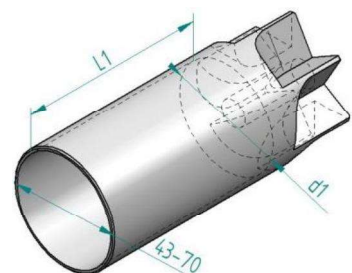


¹ use Extension for long shank
* sleeve different as image

Fitting to plates Ø 120 mm with Pin Ø 6,0 x 24 and 17,5 – 22,0mm to OD Distance

Toothed Sleeve with OD > Ø 40 for shanks up to Ø 70,0 mm

Size	d1 Ø shank	L1 deep	€ @ 10	€ @ 50	€ @ 100	€ @ 500	Item- number
43 x 40,3 L50	40,0	50	25,70	21,80	19,50	17,90	415550049
43 x 40,3 L70	40,0	70	26,80	22,00	20,40	18,70	397490943
53 x 50,3 L80	50,0	80	47,00	38,60	35,70	32,80	394841127
75 x 70,3 L80	70,0	80	69,40	57,00	52,70	48,40	394831127



¹ use Extension for long shank
* sleeve different as image

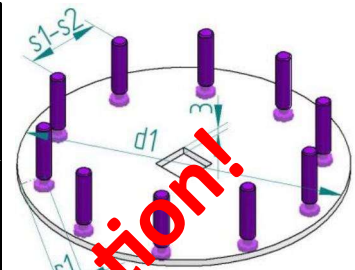
Fitting to plates Ø 130mm with Pin Ø 10,0 x 32 and 22,0 – 40,0mm to OD Distance

Further dimensions and other masking length at www.webshop.4pvd.de or upon inq.

Plates for Sleeves with OD up to Ø 28 mm

Size OD x Qty. Pins / Sleeves	d1 Pitch	s1-s2 r1	€ @ 5	€ @ 10	€ @ 20	€ @ 50	Item- number
C080 x 04	80	37,0	36,40	31,30	28,00	25,70	390421244
	04	14,0					
C120 x 08	120	35,0	46,40	39,90	35,70	32,80	395020036
	08	14,0					
C130x08	130	39,0	46,40	39,90	35,70	32,80	398411105
	08	14,0					
C130x06*	130	46,0	44,20	38,00	34,00	31,20	upon inquiry
	06	18,5					

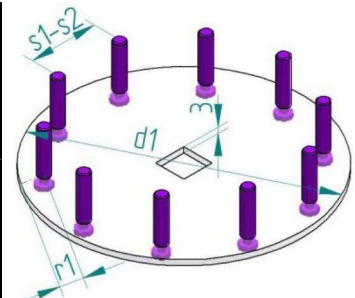
* Fitting also for Sleeves Ø 37



Plates for Sleeves with OD up to Ø 35 mm

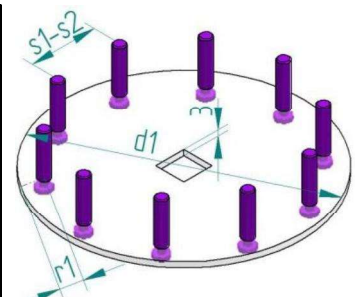
Size OD x Qty. Pins / Sleeves	d1 Pitch	s1-s2 r1	€ @ 5	€ @ 10	€ @ 20	€ @ 50	Item- number
C120 x 06	120	42,5	44,80	38,60	34,50	31,70	408801255
	06	17,5					
C130 x 06	130	46,0	44,20	38,00	34,00	31,20	upon inquiry
	06	19,0					
C130 x 05*	130	50,0	44,20	38,00	34,00	31,20	389381801
	05	22,0					

* Fitting also for Sleeves Ø 44



Plates for Sleeves with OD up to > Ø 40 mm

Size OD x Qty. Pins / Sleeves	d1 Pitch	s1-s2 r1	€ @ 5	€ @ 10	€ @ 20	€ @ 50	Item- number
C120 x 04	120	54,5	42,90	36,90	33,00	30,30	397490942
	04	21,5					
C130 x 04	130	58,0	41,60	35,80	32,00	29,40	Upon inquiry
	04	23,5					
C130 x 03	130	66,5	39,00	33,60	30,00	27,60	Upon inquiry
	03	26,5					



Further dimensions and other masking length at www.webshop.4pvd.de or upon inq.

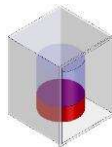
Chose central interface hole from chart (page 15) and add the index to item no. (e.g. C130 x 24 V15)

Modell
Colt

Planet
Ø div.

Axles
3

T_{max}
500°C

Economy

average

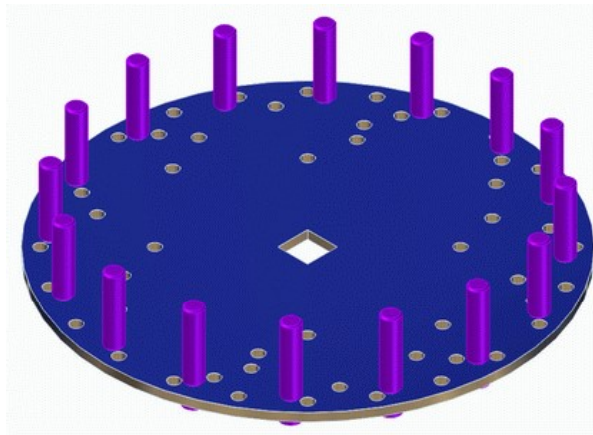
Mix

flexible

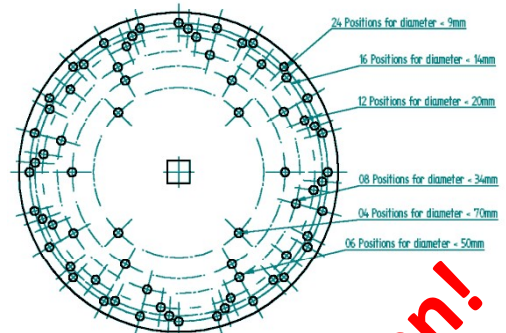
SDV

Smooth on circumference

Colt universal plates for substrates with cylindrical shank of varying diameter.



Colt Universal Plate



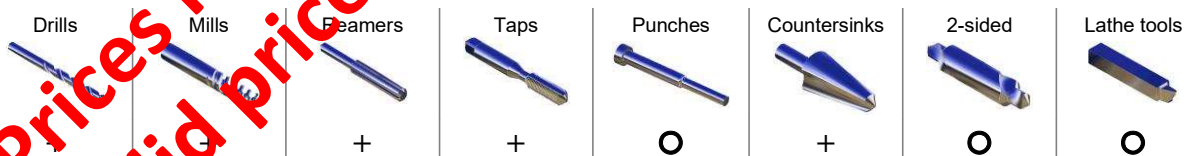
Dimensions C150 Uni

On these Colt plates the bearing pins can be mounted on different PCD. With this very flexible mixed batches can be built. Substrates of different diameters can be mixed within one plate. The universal plates are delivered with the listed quantity of pins but not mounted to the disc. Fixture sleeves do not come with these universal plates.

In the middle of the plate there is a square hole of 10,5mm * 10,5mm which centres the plate and transmits the torque for the rotation. The distance to the next plate is adjusted with spacers to be found on page 14. All tubes listed on previous pages may be mixed on one plate.

Colt	d _p [mm]	Pins included	€ @ 5	€ @ 10	€ @ 20	Item number
C080uni	080	12	45,50	42,00	35,00	389801334
C110uni	115	15	52,00	44,80	40,00	390871609
C120uni	120	15	54,60	47,00	42,00	Upon inquiry
C130uni	130	20	57,40	49,50	44,20	400621944
C150uni	150	25	62,40	53,70	48,00	Upon inquiry
C200uni	200	30	75,40	64,90	58,00	398181527
C220uni	220	30	84,50	72,80	65,00	Upon inquiry

Chose centre interface hole from chart (page 15) and add the index to item no. (E.g. C130 UNI V15)



Colt fixtures fit well (+) with limitations (0) or not (-) for the above marked substrates

Kicker Spring Holder for third and higher rotation axle (also triggers, spring or clinch)

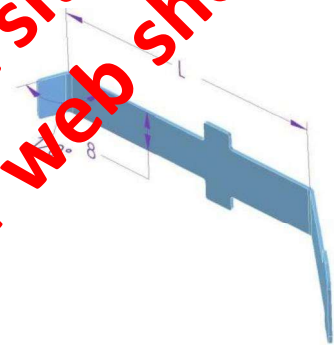
Size	d1 Ø Rod	Corr. Spring	€ @ 1	€ @ 10	€ @ 50	€ @ 100	Item-- number
FCL 10	10,0	12-16	15,60	12,70	10,90	9,80	390821649
FCL 12	12,0	12-16	15,60	12,70	10,90	9,80	403531031
FCL 16	16,0	12-16	15,60	12,70	10,90	9,80	405640937
FCL 25	25,0	25	15,60	12,70	10,90	9,80	400622133



Order Springs separately from the charts below

Slim Springs for Kicker Spring Holder (Holders as above)

Size 12-16	Length [mm]	Thick [mm]	for Holder	€ @ 10	€ @ 50	€ @ 100	Item-- number
M45	45	0,6	10-16	2,90	2,50	2,30	392131137
M60	60	0,6	10-16	2,90	2,50	2,30	389491803
M60-0,8	60	0,8	10-16	3,40	2,90	2,60	405221056
M90-0,8	90	0,8	10-16	3,50	3,00	2,70	415550143
Size 25							
M60-0,8	60	0,8	25	3,70	3,20	2,90	400622134

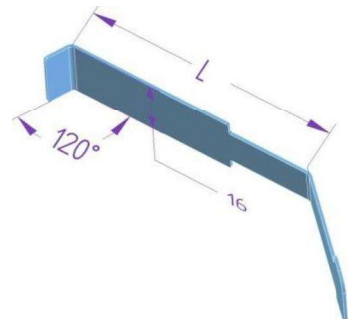


Length L from rod to nose

Slim springs for broad gears (COLT)

Broad Springs for Kicker Spring Holder (Holders as above)

Size 12-16	Length [mm]	Thick [mm]	for Holder	€ @ 10	€ @ 50	€ @ 100	Item-- number
B45	45	0,6	10-16	2,90	2,50	2,30	405061307
B60	60	0,6	10-16	2,90	2,50	2,30	392521939
B60-0,8	60	0,8	10-16	3,60	3,10	2,80	415550725
B90-0,8	90	0,8	10-16	3,50	3,00	2,70	399860958
Size 25							
B60-0,8	60	0,8	25	3,70	3,20	2,90	400622134

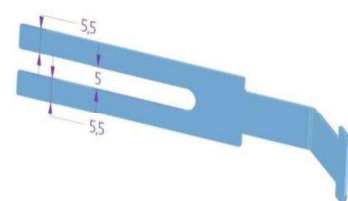


Length L from rod to nose

Broad Springs for slim gears (SPEAR, TONGS), Length taken from kicker rod to working point

Double Springs for Kicker Spring Holder (Holders as above)

Size 12-16	Length [mm]	Thick [mm]	for Holder	€ @ 10	€ @ 50	€ @ 100	Item-- number
D60	60	0,6	10-16	3,70	3,20	2,90	389491806
Size 25							
D60	60	0,8	25	3,70	3,20	2,90	400622134



Springs with double end, ends not bend at delivery.

These kicker assemblies are mounted to the rods parallel to the planetary axes. They transmit the rotation to the Colt, Boxer, Spear and TongS fixtures for the third and higher rotation axes. The assemblies can be mounted to the rod sideways. The position is fixed with the central bolt. The spring can be changed without tools, if the assembly is not mounted to the rod.

Extensions to increase masking length

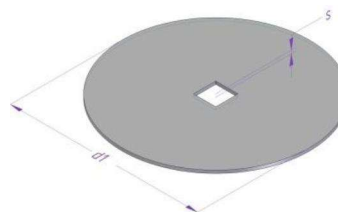
Size	d1 Ø Shank	d2 Ø Tube	€ @ 10	€ @ 50	€ @ 100	€ @ 500	Item-- number
H12 x 06 L10	6,0	8,3	2,80	2,40	2,20	2,00	399872152
H12 x 08 L10	8,0	10,3	3,50	3,00	2,70	2,40	399872159
H15 x 10 L10	10,0	12,3	3,60	3,10	2,80	2,50	399872356
H15 x 12 L10	12,0	15,1	3,60	3,10	2,80	2,50	399880007
H20 x 14 L10	14,0	17,5	4,20	3,60	3,30	3,00	405901157
H20 x 16 L10	16,0	20,2	4,20	3,60	3,30	3,00	399880015
H22 x 18 L10	18,0	22,3	4,20	3,60	3,30	3,00	415550084
H25 x 20 L10	20,0	25,2	4,60	4,00	3,60	3,30	405122110
H28 x 25 L10	25,0	28,2	5,20	4,40	4,00	3,60	405122113
H35 x 32 L10	32,0	35,2	6,30	5,40	4,90	4,50	405122116



Extensions increase the masking length of shanks by 10mm each. They may be stacked upon each other.

Plates without holes for custom design or used as dust collector.

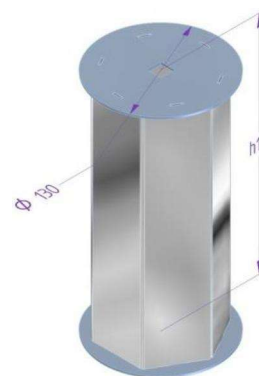
Size (OD x Qty. Pins)	d1 Ø	s	€ @ 5	€ @ 10	€ @ 20	€ @ 50	Item- number
C080 x 00	80	3,0	6,00	5,50	5,00	4,50	Upon inq.
C120 x 00	120	3,0	6,50	6,00	5,50	5,00	Upon inq.
C130 x 00	130	3,0	7,00	6,50	6,00	5,50	401271050
C165 x 00	165	3,0	8,00	7,50	7,00	6,50	407551343



Chose central interface hole from chart (page 15) and add the index to item no. (e.g. C130 x 00 V15)

Dummy-Towers to fill Planets not in use

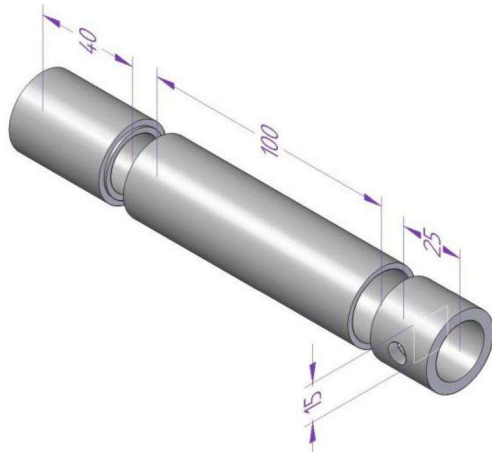
Size (OD - height)	H1	€ @ 1	€ @ 3	€ @ 5	€ @ 10	Item number
DMY130-250va	250	170,00	136,00	96,90	85,00	Upon inq.
DMY130-300va	300	170,00	136,00	96,90	85,00	Upon inq.
DMY130-250St	250	170,00	136,00	96,90	85,00	Upon inq.
DMY130-300St	300	170,00	136,00	96,90	85,00	Upon inq.
Dummy-Towers are available made from stainless steel (va) or magnetic steel (st). The magnetic ones may be used to attach sample pieces with magnets.						



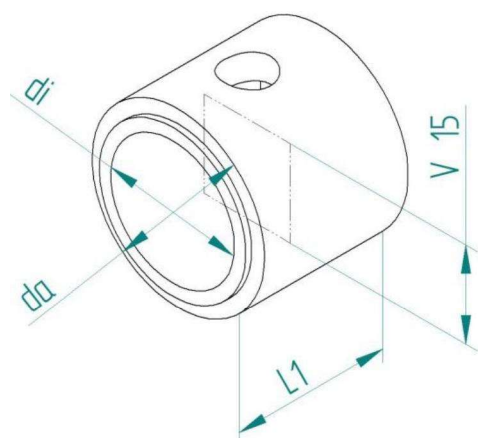
Chose central interface hole from chart (page 15) and add the index to item no. (E.g. DMY-250va V15)

Colt Spacer Tubes

To adjust the distance between the levels of Colt or Boxer plates.



Combination of Colt Spacer Tubes for V15



With these the distance between the levels of colt (or Boxer) plates is set up. The tubes of different length can be combined and stacked to reach the desired distance. There are various inner and outer diameters available. Please note:

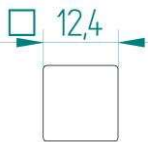

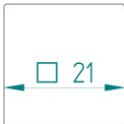
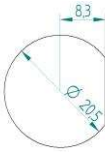


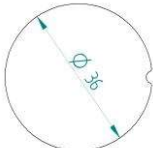
The inner diameter should have at least 1mm gap to the planetary shank. Smaller gaps may lead to sticking, much higher gap may cause that the spacer tubes are not centered properly and the plates tilt.

There are tubes with thin wall (approx. 2mm) and thick wall (approx. 8mm) available. The thin walls are cheaper and less in weight and are better suitable for smaller plate diameters and larger planetary shank diameters. Thick walls provide a more precise positioning of the plates and in case of round shanks a higher torque.

Size OD x L1 x wall	da	Di	For Shank	L1	€ @ 5	€ @ 10	€ @ 20	€ @ 50	Item-number
21 x 020 x 2	21,3	17,3	VK12, RN15	20,0	5,20	4,80	4,40	4,10	415550340
21 x 030 x 2	21,3	17,3	VK12, RN15	30,0	5,30	4,80	4,40	4,10	415550341
21 x 040 x 2	21,3	17,3	VK12, RN15	40,0	5,30	4,80	4,40	4,10	415550342
21 x 070 x 2	21,3	17,3	VK12, RN15	70,0	5,30	5,00	4,40	4,10	415550343
30 x 025 x 4	30,0	21,5	VK15, RF20	25,0	5,10	4,50	4,20	3,90	398761904
30 x 040 x 4	30,0	21,5	VK15, RF20	40,0	5,80	5,20	4,80	4,40	398761855
30 x 100 x 2	30,0	26,0	VK15, RF20	100	4,40	3,90	3,60	3,30	398761915
32 x 025 x 1,5	32,0	29,0	VK20, RN25	25,0	6,80	5,90	4,30	4,80	405141346
32 x 040 x 1,5	32,0	29,0	VK20, RN25	40,0	6,80	5,90	4,70	4,80	upon inq.
32 x 100 x 1,5	32,0	29,0	VK20, RN25	100	6,80	5,90	5,10	4,80	406171056
40 x 025 x 2	40,0	36,0	RN36	25,0	6,80	5,90	4,90	4,80	409211222
40 x 040 x 2	40,0	36,0	RN36	40,0	6,80	5,90	5,30	4,80	411711022
40 x 100 x 2	40,0	36,0	RN36	100,0	6,80	5,90	5,70	4,80	411711030

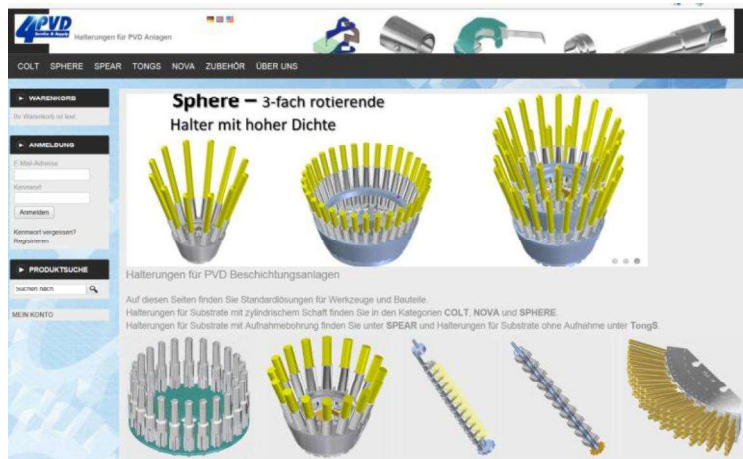
Variations of **center Hole** for Colt Plates

Colt Plates will be stacked with spacers on the planetary shanks.in order to fix the position and transmit the torque. 4pvd offers center hole design for many PVD systems, so Colt plates can be mounted without change of the PVD machine. These shapes of the central hole are available:

Name	Geometry	Description
V12		Square Shape Hole for Square Shank 12mm
V15		Square Shape Hole for Square Shank 15mm
V20		Square Shape Hole for Square Shank 20mm
RF20		Round Hole with Flat for Shank 20mm
RN15		Round Hole with Nose for Shank 15mm
RN25		Round Hole with Nose for Shank 25mm
RN36		Round Hole with Nose for Shank 35mm

If you are still free regarding the design of your planetary shanks we recommend the square shapes, as they are inexpensive and the plates will fit in four orientations. Usually size V15 is sufficient, for very long planets better V20.

Easy product finding in our 4pvd Online Shop



On the main page our products are sorted according to our product lines Colt, Sphere, Spear, TongS, Nova and accessory.

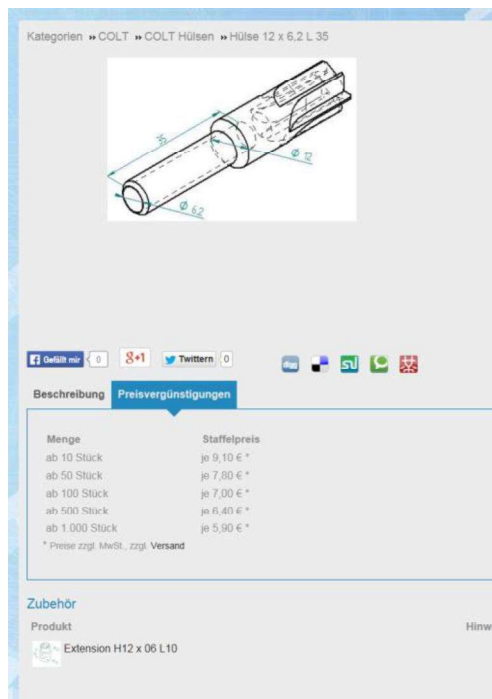
In the center some examples will appear in intervals.

You can browse through the shop with or without log-in.

Behind the main categories other menus are available.

You may also search for key words or item numbers.

A log in account is only necessary for ordering. If you are already a 4pvd customer, please let us fill your account data.



For each item you can find dimensions, prices and discounts as well as stock availability.

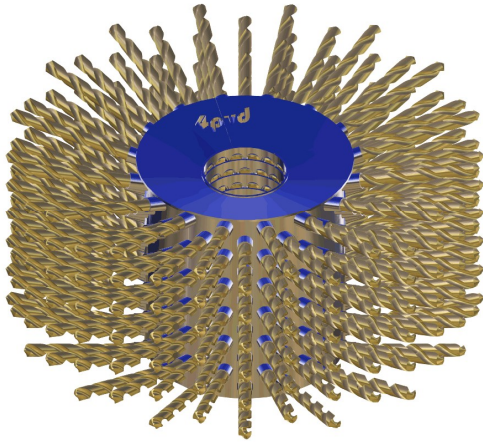
Corresponding accessory is listed at the bottom part of the item window.

Get into the shop via the link for our website www.4pvd.de or directly via: www.webshop.4pvd.de

The pages and descriptions may be displayed in English and German language.

Earlier orders can be recalled and products can be place on the memory board until the next visit.

Other 4pvd Fixture Systems



Nova fixtures position the products radial, so the tips face to the evaporators and get the highest coating thickness. Nova is most useful for products with short length of operation as end mills, micro drills, punches, etc.

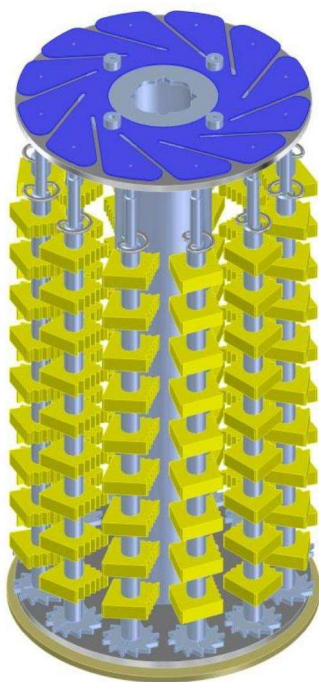
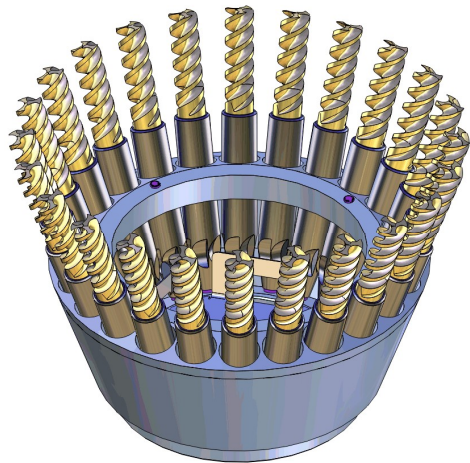
If rotation along the products axle is not necessary, nova provides huge capacity for your furnace.

Nova is available for up to three rotation axes, with encoding and optional with integrated clinch.

By use of the **Sphere** fixtures your products are tilt with the tips to the evaporators and the highest film thickness is applied on the top.

This provides best quality to your products and optimized utilization of the target material e. g. for coating of drills, mills, punches, forming tools and bolts.

Sphere is available for up to three rotation axes, with encoding and integrated clinch.



Spear fixtures hold a large quantity of small substrates as indexable inserts in a very compact space. If the substrates have a hole where the fixture can hold them, the Spear holder is a very simple rod with a gear for the third rotation axle at the bottom end.

For substrates without that hole, Spear fixtures will be adapted individually on the substrate geometry and hold them with form fit. This form fit is one of the main differences to the TongS fixture series which take the substrates non-positive.

The standard Spear and Tongs fixture sizes fit to plates with a bearing on the lower and the upper end. They may rotate around two or three axes on the substrate table. A spring protects the rods against unwanted displacement. Please check also:

<http://www.4pvd.de/html/wendeplatten.html>

Other 4pvd Products

Table Systems

Substrate tables for 2-fold rotation with up to 18 planets, optionally on different PCD (e. g. for occasionally coating of bigger parts)

Flat design for maximum utilization of your coating zone. Modular concept for fast maintenance. Low weight, low torque.

Double shield set for better heat insulation available.

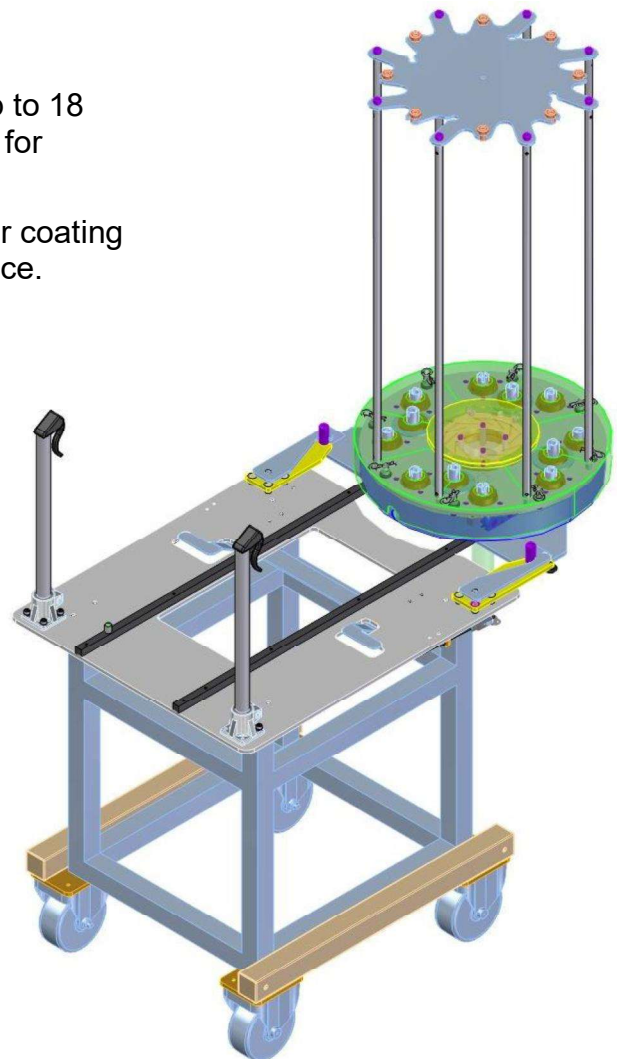
Exchangeable liners on floating potential.

Prepared with kicker rods and upper bearing plate for operation of third rotation axis.

Installation kits with rails and clutch system for easy roll-in and roll-out.

Batching cart with clutch system and brakes as well as parking stations for preloading.

Accessory as planet adaptors
High load platforms and
all fixtures from our supply.

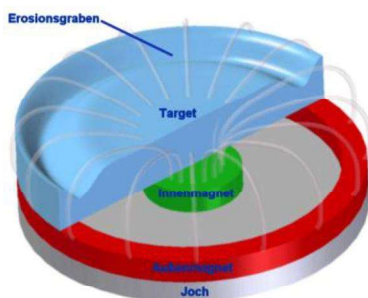
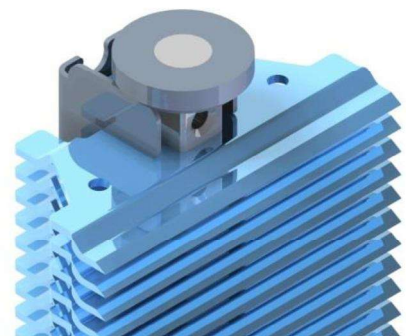


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