TSF-C
Self centering
Floating jaws

TSR-C
Self centering
Rigid jaws

High precision pull-down chucks Ø 135 - 650 mm

- active pull-down
- tongue & groove
- 3 jaws

Application/customer benefits

- Clamping of workpieces with highest demand for **parallelism**
- **Highest productivity** with long maintenance intervals
- Constant grip force and long lifetime ensure **constant quality of workpieces**

TSF-C: Floating base jaws to clamp raw and easy deformed workpieces (6-point-contact)
TSR-C: Rigid base jaws for precise clamping on pre machined diameters

Technical features

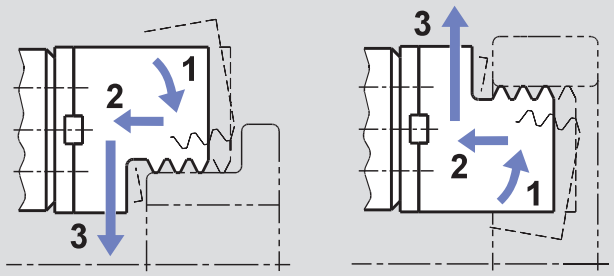
- active pull-down
- centrifugal force compensation
- tongue & groove base jaws
- central bore for coolant and/or air
- permanent grease lubrication
- **proofline® chucks** = fully sealed – low maintenance

Standard equipment

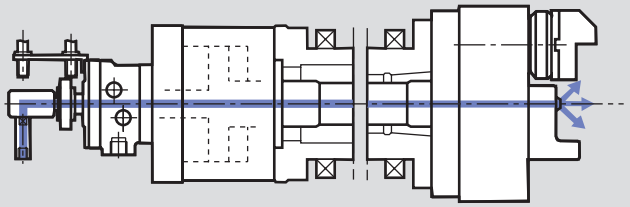
3 jaw chuck
mounting bolts

Ordering example

TSF-C 210/A6
or
TSR-C 315/Z220

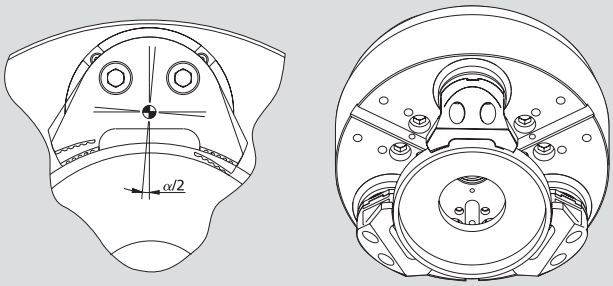


Principle of function:
- **1** pre-clamping - **2** active pull-down - **3** clamping
- For O.D. and I.D. clamping



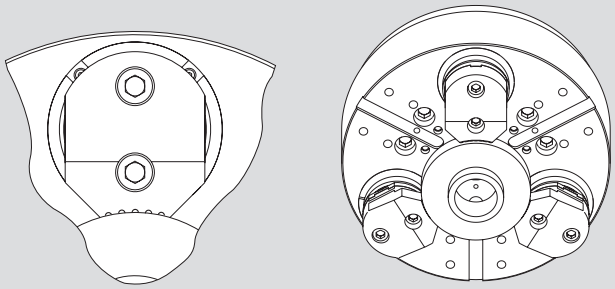
- TSF-C and TSR-C chucks operated with a SIN-S cylinder with central bore for air sensing/coolant flush.

TSF-C



TSF-C: Floating jaws for clamping raw/easy deformed workpieces with 6-point-contact

TSR-C



TSR-C: Rigid jaws for precise clamping on premachined diameters with 3-point-contact

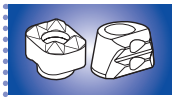
Technical data

SMW-AUTOBLOK Type		TSF-C 135 TSR-C 135	TSF-C 170 TSR-C 170	TSF-C 210 TSR-C 210	TSF-C 250 TSR-C 250	TSF-C 315 TSR-C 315	TSF-C 400 TSR-C 400	TSF-C 530 TSR-C 530	TSF-C 650 TSR-C 650
Angular jaw stroke U°	deg.	5°	5.2°	5.2°	4.9°	4.9°	4.7°	4.7°	5°
Radial jaw stroke at distance **h**	mm	3.4	5.3	6.3	7	7	7.5	7.5	9.8
Pull down movement (standard)	mm	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.4
Axial piston stroke	mm	16	21	25	25	25	30	30	32
Max. draw pull**	kN	12	18	25	40	40	50	60	100
Max. gripping force at distance **h****	kN	29	44	60	96	96	120	150	180
Max. speed*	r.p.m.	8000	5000	4500	3800	3000	2200	1800	1600
Weight (without top jaws)	kg	4.5	15	27	41	66	115	196	386
Moment of inertia	kg·m²	0.015	0.06	0.16	0.34	0.83	2.3	7	21
Recommended actuating cylinders	**SIN-S**	**70**	**85**	**100**	**125**	**125**	**150**	**150-175**	**150-175-200**

* The above maximum speed is allowed with standard weight/height top jaws and applying the full draw pull only. For more informations please contact SMW-AUTOBLOK.

** For internal clamping reduce the draw pull by 30 %.

on request:
Tooling Standard
Parts Catalog



SMW-AUTOBLOK
396

SMW-AUTOBLOK
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SMW-AUTOBLOK
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High precision pull-down chucks Ø 135 - 650 mm

- active pull-down
- tongue & groove
- 3 jaws

TSF-C
Self centering
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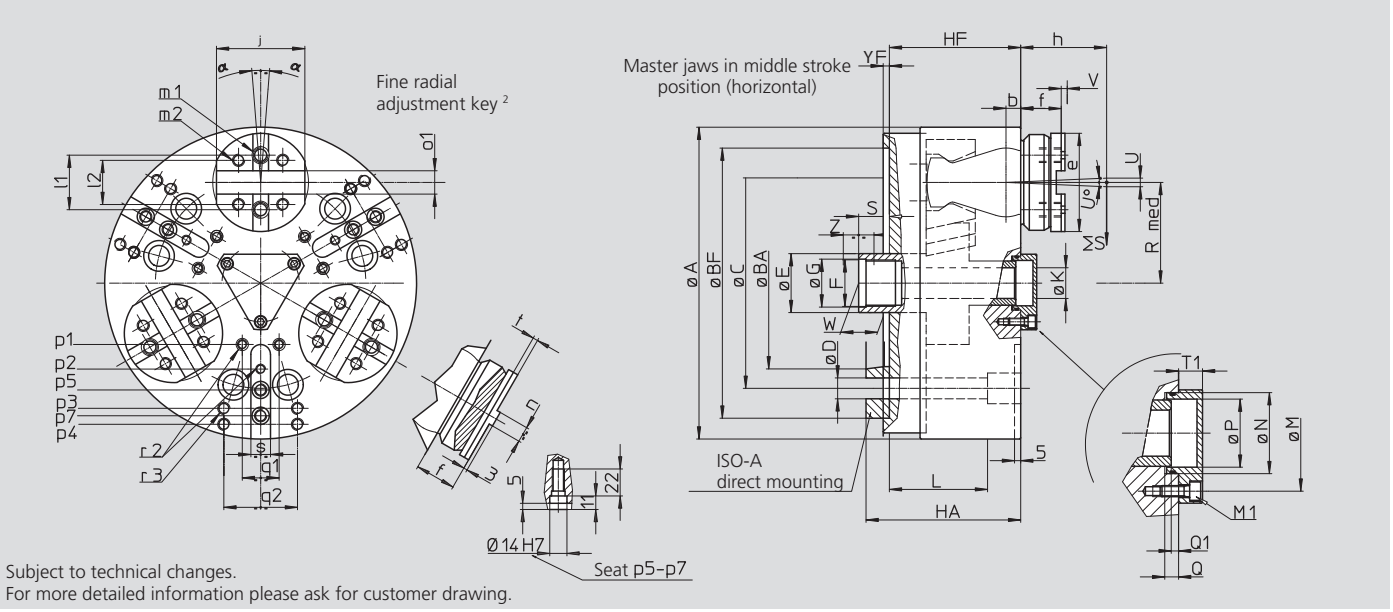
TSR-C
Self centering
Rigid jaws



Subject to technical changes.
For more detailed information please ask for customer drawing.

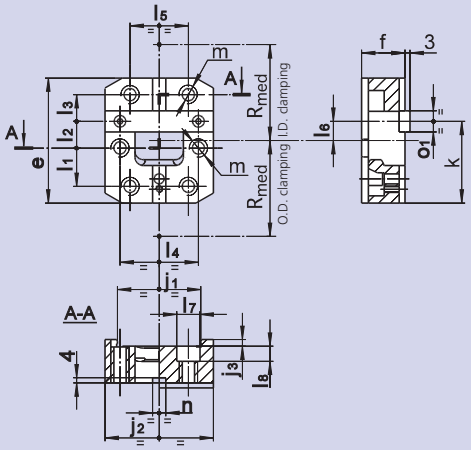
SMW-AUTOBLOK Type			TSF-C 135 TSR-C 135		TSF-C 170 TSR-C 170				TSF-C 210 TSR-C 210		TSF-C 250 TSR-C 250		TSF-C 315 TSR-C 315		TSF-C 400 TSR-C 400		TSF-C 530 TSR-C 530		TSF-C 650 TSR-C 650	
Mounting			Z115	A4	Z140	A5	Z160	A6	Z170	A6	Z220	A8	Z220	A8	Z300	A11	Z380	A15	Z380	A15
	A	mm	135		173				212		254		315		390		535		650	
	BF/BA H6	mm	115	65.513	140	82.563	160	106.375	170	106.375	220	139.719	220	139.719	300	196.869	380	285.775	380	285.775
	C	mm	82.6		104.8		133.4		133.4		171.4		171.4		235		330.2		330.2	
	D	mm	11		11.5		13.5		13.5		17		17		21		25		25	
	E	mm	25		36				38		48		48		75		75		100	
	F	mm	M20 x 1.5		M28 x 1.5				M32 x 1.5		M38 x 1.5		M38 x 1.5		M60 x 1.5		M60 x 1.5		M80 x 2	
	G H8	mm	20.5		29				33		39		39		61		61		81	
	HF/HA	mm	64.5	72.5	83	98	83	100	100	117	107	126	107	126	127	148	132	155	155	178
Through-hole	**K**	mm	8.3		14				18		25		25		52		52		75	
	L	mm	37		56				82		80		80		74		77		97	
	M	mm	41		36				42		63		63		90		90		128	
Thread/depth	**M1**	mm	M4/9		M5/13				M6/11		M6/12		M6/12		M8/17		M8/17		M8/17	
	N H8	mm	20		28				34		44		44		75		75		150	
	P	mm	16		23				28.5		37		37		66		66		101	
	Q	mm	6		6				5.5		7.5		7.5		9		9		19	
At middle stroke	**Q1**	mm	0.5		3				2		4		4		4		4		21	
At middle stroke	**Rmed**	mm	42		55				64		82		107		130		190		245	
At middle stroke	**S**	mm	8		18				20		25		25		25		20		20	
	T1	mm	10		10				13		13		13		15		15		15	
Radial stroke	**U°**	deg.	5°		5.2°				5.2°		4.9°		4.9°		4.7°		4.7°		5°	
Radial stroke (1) @ **h**	**U**	mm	3.4		5.3				6.3		7		7		7.5		7.5		9.8	
Pull-down s/d (option)	**V**	mm	0.1		0.1 (0.6)				0.1 (0.6)		0.1 (0.6)		0.1 (0.6)		0.2 (0.8)		0.2 (0.8)		0.4	
	W	mm	17		25				25		25		25		25		25		36	
Axial wedge stroke	**Z**	mm	16		21				25		25		25		30		30		32	
Only TSF-C	**α**	deg.	±2°		±2°				±2°		±1.5°		±1.5°		±1.5°		±1.5°		±1.3°	
	b	mm	5		9				10		12		12		12		12		12	
	e	mm	37		60				75		80		80		105		105		127	
	f	mm	16		27				33		33		33		32		32		46	
Reference height	**h**	mm	39		50				60		70		70		80		80		100	
	j	mm	36		55				65		72		72		100		100		116	
	l1	mm	19		32				38		44.4		44.4		63.5		63.5		63.5	
	l2	mm	15		24				32		36		36		48		48		54	
Thread/depth	**m1**	mm	M6/10		M10/16				M12/18		M12/18		M12/18		M16/22		M16/22		M20/26	
Thread/depth	**m2**	mm	M5/12		M8/14				M10/14		M10/14		M10/14		M12/22		M12/22		M16/24	
	n h8	mm	6.35		7.94				7.94		12.7		12.7		12.7		12.7		12.7	
	o1 H7	mm	7.94		12.68				12.68		19.03		19.03		19.03		19.03		19.03	
	p1	mm	-		-				30		50		60		80		(*)		(*)	
	p2	mm	-		35				-		70		80		110		(*)		(*)	
	p3	mm	-		65				80		102		102		140		(*)		(*)	
	p4	mm	57.5		-				-		-		135		170		(*)		(*)	
	p5	mm	-		-				87		87		-		-		(*)		(*)	
	p7	mm	57.5		-				-		108		108		-		(*)		(*)	
Thread/depth	**q1**	mm	-		-				8		30		30		36		(*)		(*)	
Thread/depth	**q2**	mm	18		36				45		60		60		80		(*)		(*)	
	r2	mm	-		M6/12				M6/12		M8/15		M8/15		M10/19		(*)		(*)	
	r3	mm	M6/14		M8/17				M8/17		M10/19		M10/19		M12/22		(*)		(*)	
	s	mm	-		16				16		16		16		20		(*)		(*)	
	t	mm	2.2		4				4		4		4		7		7		7	
	yF	mm	5		5				5		5		5		5		5		6	

(1) Calculated at **h** distance from the chuck's face (where normally the clamping takes place)
* For chuck Ø 530-650 please ask for customer drawing
(2) SMW-AUTOBLOK 166: General catalog

Accessories for TS chucks

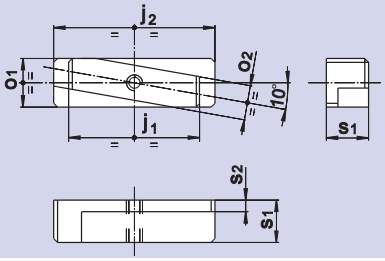
■ quick jaw change pallets
■ cross keys for top jaws fine adjustment

Quick change pallets for **TSF-RM** and **TSR-RM** chucks



Chuck type		TSF-RM 170 TSR-RM 170	TSF-RM 210 TSR-RM 210	TSF-RM 250 TSR-RM 250	TSF-RM 315 TSR-RM 315	TSF-RM 400/530 TSR-RM 400/530
Id. No.		19701716	19702116	19702516	19702516	19704016
e	mm	60	75	80	80	105
f	mm	21.5	26	28	28	34
j1	mm	44	50	55	55	80
j2	mm	55	65	72	72	100
j3	mm	3.5	4	4	4	4
k	mm	39.5	49	51	51	66.5
l1	mm	19	23	22	22	28
l2	mm	12.5	16	19	19	25
l3	mm	12.5	16	19	19	25
l4	mm	42	47	52	52	74
l5	mm	32	35	40	40	62
l6	mm	9.5	11.5	11	11	14
l7	mm	11	14	14	14	17
l8	mm	7	9	9	9	11
m	mm	M8	M10	M10	M10	M12
n (H7)	mm	7.94	7.94	12.7	12.7	12.7
o1 (h7)	mm	12.68	12.68	19.03	19.03	19.03
Rmed	mm	55	64	82	107	130

Cross keys for jaw radial fine adjustment



- Inclined key for radial fine adjustment of the top jaws, used when high concentricity for second operations is required.
- Used in second operation and sometimes in first or unique operations.

Chuck Ø		170	210	250	315	400/530/650
Id. No.		15711633	15712133	15712533	15712533	15714033
j1	mm	24	32	38	38	46
j2	mm	38	46	56	56	70
o1 (h7)	mm	12.68	12.68	19.03	19.03	19.03
o2 (h7)	mm	9	9	12	12	12
s1	mm	11	11	11	11	14.5
s2	mm	3	3	3	3	4.5