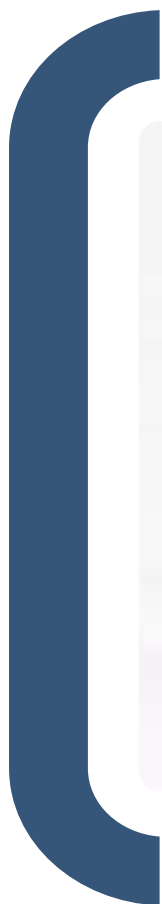




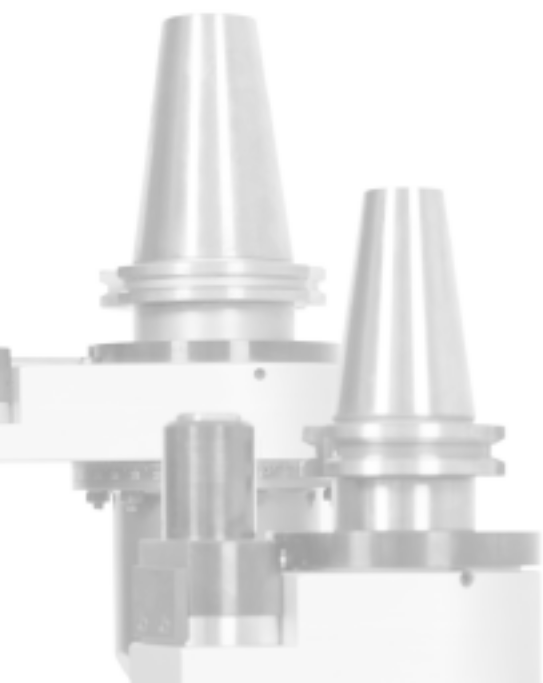
Angular Heads



Tradition in Perfection.

„For more than 50 years the name [ROMAI](#) has stood for the highest precision and process reliability in machining. The next generation begins today.

We have succeeded to further improve the performance of our angular heads. More torque for the same size and at consistent acquisition prices. Both for standard and special functions. Just what you are used to from [ROMAI](#).”



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Structure Angular Head	Page	7
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Angular Heads by ROMAI



- Minimizing the number of tool clampings
- Reducing the machining time
- Simplifying elaborate machining processes
- Exact reproduction of production steps
- Enhancing process reliability
- Reduction of machine downtime periods
- Machining of otherwise inaccessible parts of the work piece (internal machining)

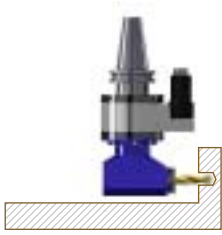
- Cutting costs through complete processing



The next Generation.

- Spiral-toothed bevel gear box with new tooth geometry and surface treatments
- 30-50 % more torque
- For all machines
- For all tool systems
- Drilling, reaming, countersinking, threading, milling, and grinding
- Roughing and finishing up to 6,000 Nm
- With torque support (DMST), 3- or 4-point support, mechanic/hydraulic clamping or flanged
- Internal and/or external coolant supply with pressures of up to 70 bar (use-oriented of up to 140 bar, more on request)
- Transmissions and reductions of up to 40,000 rpm individually realizable





Form

S

Angular Head 90°

For machining tasks without geometric constraints. Internal coolant optional. (Page 16)



Form

S-2

Angular Head 90° with bilateral output

For machining tasks in the opposite direction or with different machining tools. Internal coolant optional. (Page 17)

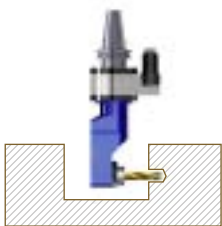


Form

W

Angular Head 90° with offset output

For machining tasks with geometric constraints. Set-back output to maximize the usable tool length. Internal coolant standard, can be omitted optionally. (Page 18)

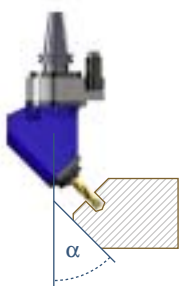


Form

G

Angular Head 90° with offset output (slim shape for special application)

For special machining tasks with strong geometric constraints. Offset output to maximize the usable tool length. Internal coolant optional. (Page 19)



Form

F

Angular Head with fixed angle (for special application)

For special machining tasks in fixed angular position. Internal coolant standard, can be omitted optionally. (Page 20)

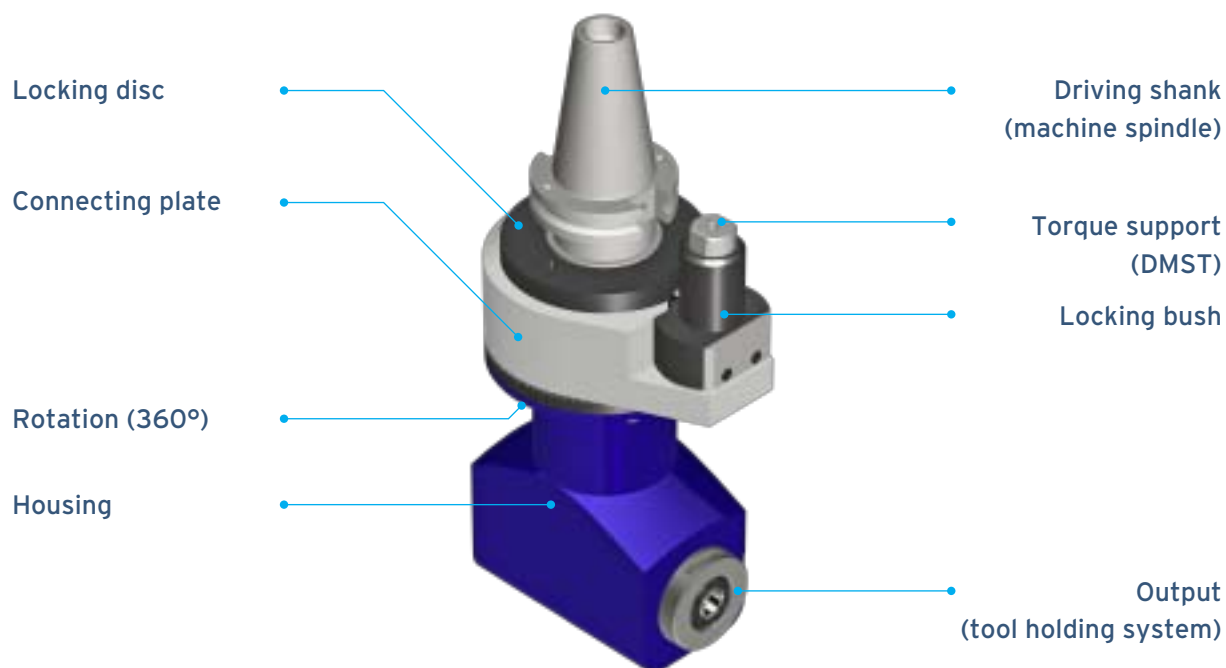


Form

D

Angular Head 0°-90° with fine adjustment

For machining tasks in changing, angular position. Because of the variable adjustment, any angle between 0°-90° (process reliable) can be set. Up to 110° optional. Internal coolant standard, can be omitted optionally. (Page 22)



Locking disc / locking bush

Exact locking of the angular head for the automatic tool change. Exact fitting into the magazine and therefore process reliability is guaranteed.

Connecting plate

Support of the angular head against tilting during machining.

Rotation (360°)

All **ROMAI** standard angular heads can be manually turned around 360°. Fixation is with clamp screws. Hirth coupling is optional.

Driving shank

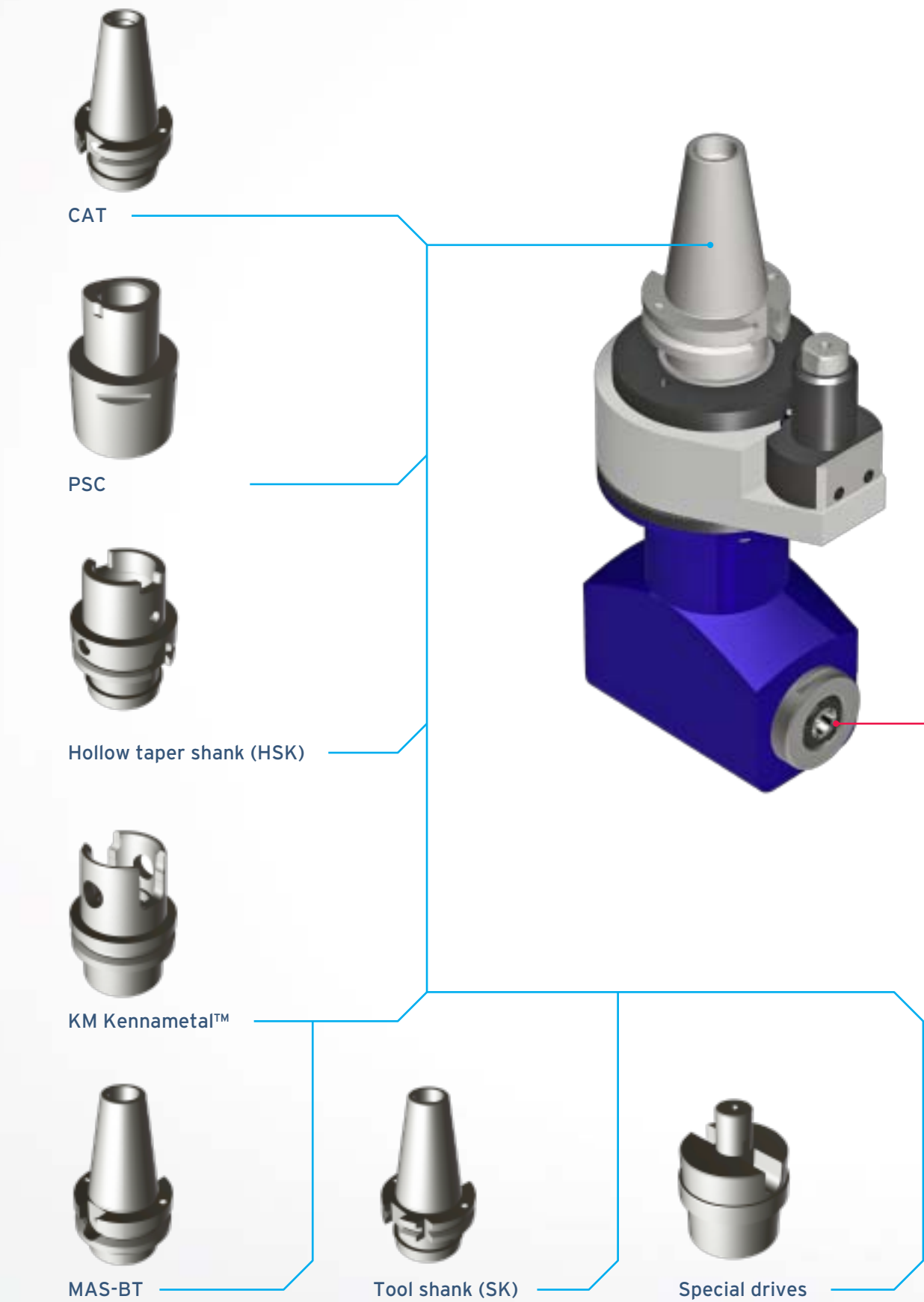
Fitting of the angular head in the machine. All machine interfaces can be realized, e.g. HSK, SK, PSC, MAS-BT, CAT, and many more (see page 10).

Torque support (DMST)

Locates the angular head at the machine spindle and secures it against tilting caused by machining forces. Because of the variety and the differences in machine tools, the torque support is usually implemented machine-specific, and we adapt it to the individual machine type.

Output (tool holding system)

Clamping of the cutting tool for machining. All tool holding systems can be realized, e.g. collets, WFB, HSK, SK, CAT, and many more (see page 12).





ABS® KOMET® (Licence)



HYDRO-FIX®



Collets ER-Zeta
(Zeta® Zollmann System)



PSC



KM Kennametal™
(Licence)



Tool shank (SK)



Cutter spindle



Collets ER
(Regofix System)



Weldon & Whistle Notch



Hollow taper shank (HSK)



Collets ER-A
(Regofix System)



WFB



Hydro clamp chuck



Collets ER-Zeta
(Zeta® Zollmann System)



Special outputs

	Interface	Available sizes	
	CAT Form AD/B	CAT 30	
		CAT 40	
		CAT 45	
		CAT 50	
		CAT 60	
	PSC ISO 26623	C3	32
		C4	40
		C5	50
		C6	63
		C8	80
		C8X	80X
		C10	100
	Hollow taper shank (HSK) DIN 69893 / ISO 12164 Form A & C	HSK 25	HSK 80
		HSK 32	HSK 100
		HSK 40	HSK 125
		HSK 50	HSK 160
		HSK 63	
	KM Kennametal™	KM 40	
		KM 50	
		KM 63	
		KM 80	
		KM 100	
	MAS-BT JIS B 6339 Form AD/B	BT 30	
		BT 35	
		BT 40	
		BT 45	
		BT 50	
		BT 55	
		BT 60	
	Tool shank (SK) DIN 69871 / ISO 7388 Form AD/B	SK 30	
		SK 40	
		SK 45	
		SK 50	
		SK 60	

Non-specified interfaces are special versions and are available on request.
Talk to us about it!

Machine Connection Examples



Torque support (DMST)



DMST + 4-point-support



DMST + 3-point-support

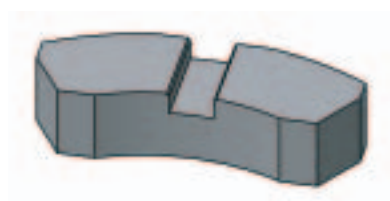


Mechanic / hydraulic clamping

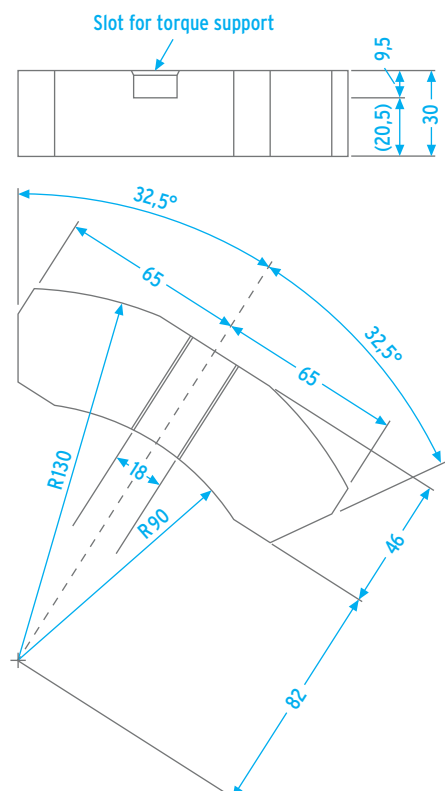
Connector Block (Stop-Block)

Machine connections from **ROMAI** are suitable for adapting to the machining center through the customer, and are standardized to ISO 9524 in their design. On request the connector block will be prepared by **ROMAI**. Otherwise the customer has the opportunity to place the pattern of drilling by himself.

Please also refer to the current version of the operation instruction manual on www.romai.com.



All dimensions in [mm].



TOOL HOLDING SYSTEMS (OUTPUTS)

	Interface	Available sizes	
	ABS® KOMET® (Lizenz)	ABS 20	ABS 63
		ABS 25	ABS 80
		ABS 32	ABS 100
		ABS 40	ABS 125
		ABS 50	
	PSC ISO 26623	C3	32
		C4	40
		C5	50
		C6	63
		C8	80
		C8X	80X
		C10	100
	Cutter spindle	Ø 10	Ø 32
		Ø 13	Ø 40
		Ø 16	Ø 50
		Ø 22	Ø 60
		Ø 25	Ø 80
		Ø 27	
	Hollow taper shank (HSK) DIN 69893 / ISO 12164 Form A & C	HSK 25	HSK 80
		HSK 32	HSK 100
		HSK 40	HSK 125
		HSK 50	HSK 160
		HSK 63	
	Hydro clamp chuck	Ø 6	Ø 20
		Ø 8	Ø 25
		Ø 10	Ø 32
		Ø 12	Ø 40
		Ø 14	Ø 50
		Ø 16	

Not specified interfaces are special versions and available on request.
Talk to us about it!

Interface	Available sizes		
HYDRO-FIX®	NBC- 10/ 16-40	NBC- 42/ 50- 62	
	NBC- 12/ 16-40	NBC- 42/ 60- 62	
	NBC- 16/ 20-46	NBC- 50/ 60- 70	
	NBC- 20/ 25-46	NBC- 60/ 80-100	
	NBC- 25/ 32-50	NBC- 80/100-120	
	NBC- 32/ 40-55	NBC-100/120-140	
	NBC-40/50-60		
KM Kennametal™ (Licence)	KM 25		
	KM 32		
	KM 40		
	KM 50		
	KM 63		
	KM 80		
	KM 100		
Collets (Regofix System) DIN 6499 / ISO 15488	ER 8 : 1- 5 mm		 ER  ER-A
	ER 11 : 1- 7 mm		
	ER 16 : 1- 10 mm		
	ER 20 : 1- 13 mm		
	ER 25 : 1- 16 mm		
	ER 32 : 2-20 mm		
	ER 40 : 2-30 mm		
	ER 50 : 4-34 mm		
Collets ERST-Zeta (Zeta® Zollmann System) DIN 6388 / DIN 6499 / ISO 15488	ER 8 : 1- 5 mm		 ER  ER-A
	ER 11 : 1- 7 mm		
	ER 16 : 1- 10 mm		
	ER 20 : 1- 13 mm		
	ER 25 : 1- 16 mm		
	ER 32 : 2-20 mm		
	ER 40 : 2-30 mm		
	ER 50 : 4-34 mm		

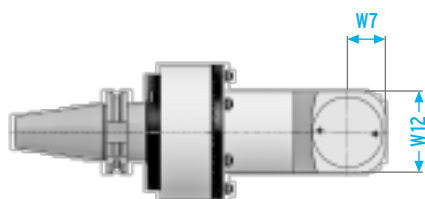
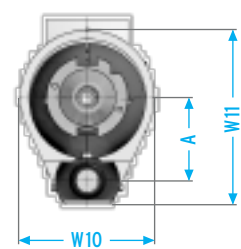
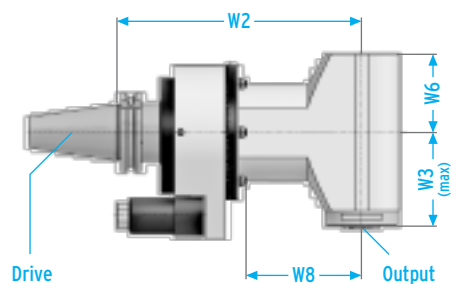
TOOL HOLDING SYSTEMS (OUTPUTS)

	Interface	Available sizes	
	Tool shank (SK)	SK 30	
		SK 40	
		SK 45	
		SK 50	
		SK 60	
	Weldon & Whistle Notch	Ø 6	Ø 18
		Ø 8	Ø 20
		Ø 10	Ø 25
		Ø 12	Ø 32
		Ø 14	Ø 40
		Ø 16	
	WFB	WFB 20	
		WFB 24	
		WFB 32	
		WFB 40	
		WFB 50	

Non-specified interfaces are special versions and are available on request.
Talk to us about it!



SPECIFICATIONS



Type	Specifications			Dimensions drive / machine interface ²			
	Max. speed	Max. torque	Weight ¹ [kg] [lbs]	SK / CAT / BT ³	W2	HSK Form A & C ⁴	W2
S 4	10.000 rpm	10 Nm	2,5 5,5	SK 30	128	HSK 50	135
S 5	10.000 rpm	5 Nm	4 9	SK 40	150	HSK 63	160
S 6	8.000 rpm	43 Nm	7 15	SK 40	200	HSK 63	210
S 7	8.000 rpm	70 Nm	8 18	SK 40	200	HSK 63	210
S 10	6.000 rpm	120 Nm	13 29	SK 50	200	HSK 100	234
S 20	3.000 rpm	250 Nm	18 40	SK 50	200	HSK 100	234
S 30	2.000 rpm	500 Nm	32 70	SK 50	250	HSK 100	284

Type	Dimensions angular head							Dimensions output / tool holding system							
	W6	W7	W8	W10	W11	W12	A	 ⁵	W3	 ⁵	W3		W3		W3
S 4	30	17	40	77	122	36	65	ER-11 A	42	ER-16	63	20-12	54	-	-
S 5	40	21	48	85	126	42	65	ER-16 A	57	ER-20	83	24-16	62	-	-
S 6	53	32	98	105	136	64	65	ER-20 A	67	ER-25	89	32-20	77	Ø 16	91
S 7	58	32	95	105	136	64	65	ER-25 A	75	ER-32	98	40-25	88	Ø 20	97
S 10	63	34	95	125	191	80	110	ER-32 A	87	ER-40	119	40-25	99	Ø 20	100
S 20	84	45	90	160	208	99	110	ER-40 A	107	ER-50	150	50-32	115	Ø 32	120
S 30	105	55	135	180	238	120	130	ER-50 A	120	ER-50	145	50-32	139	Ø 42	121

All dimensions in [mm].

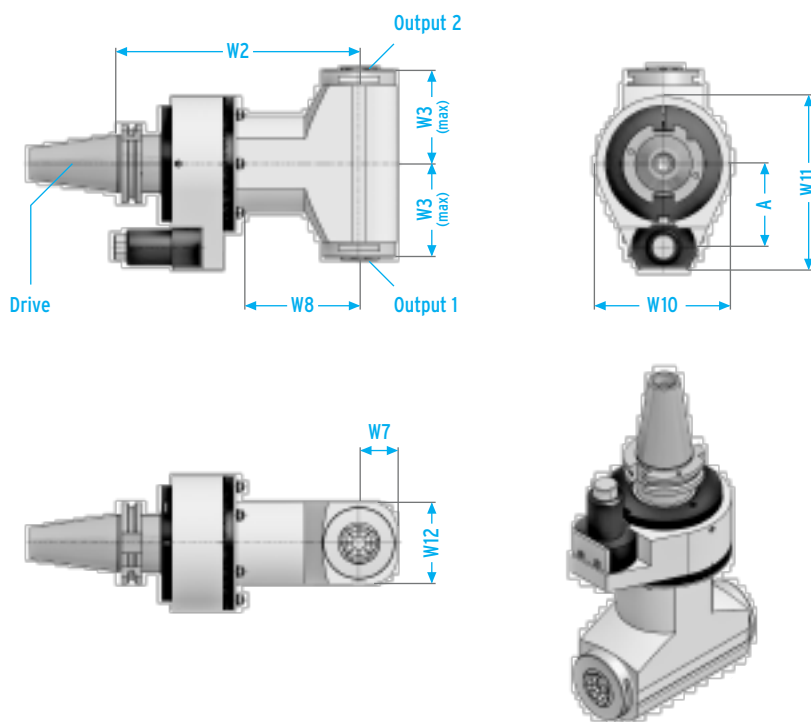
¹ Weight referring to the machine interface

² Further machine interfaces see page 10

³ DIN 69871 / ISO 7388

⁴ DIN 69893 / ISO 12164

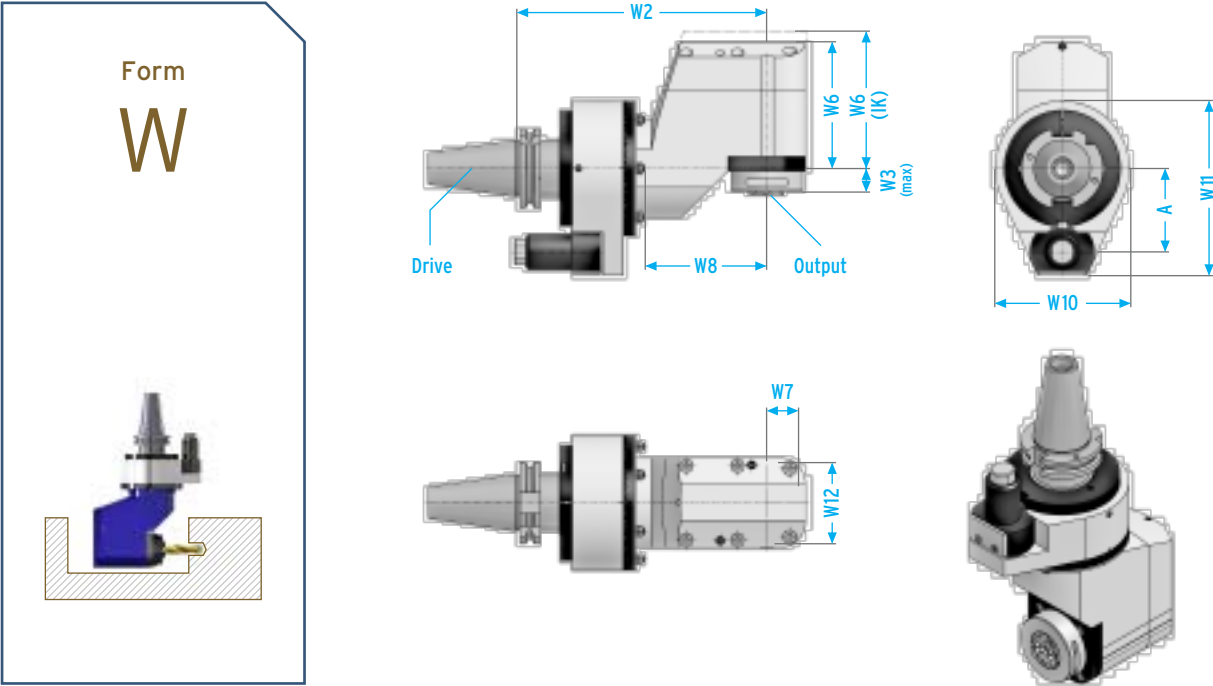
⁵ Collets - DIN 6499 / ISO 15488



Type	Specifications			Dimensions drive / machine interface			
	Max. speed	Max. torque	Weight ¹ [kg] [lbs]	SK / CAT / BT ³	W2	HSK Form A & C ⁴	W2
S 5 -2	10.000 rpm	15 Nm	4 9	SK 40	150	HSK 63	160
S 6 -2	8.000 rpm	43 Nm	7 15	SK 40	200	HSK 63	210
S 7 -2	8.000 rpm	70 Nm	8 18	SK 40	200	HSK 63	210
S 10-2	6.000 rpm	120 Nm	13 29	SK 50	200	HSK 100	234
S 20-2	3.000 rpm	250 Nm	19 42	SK 50	200	HSK 100	234
S 30-2	2.000 rpm	500 Nm	32 70	SK 50	250	HSK 100	284

Type	Dimensions angular head						Dimensions output / tool holding system							
	W7	W8	W10	W11	W12	A	 ⁵ ER-16 A	W3	 ⁵ ER-20	W3	 WFB	W3	Hydraulic	W3
S 5 -2	21	48	85	126	42	65	ER-16 A	57	ER-20	83	24-16	62	-	-
S 6 -2	32	98	105	136	64	65	ER-20 A	67	ER-25	89	32-20	77	Ø 16	91
S 7 -2	32	95	105	136	64	65	ER-25 A	75	ER-32	98	40-25	88	Ø 20	97
S 10-2	34	97	125	191	80	110	ER-32 A	87	ER-40	119	40-25	99	Ø 20	100
S 20-2	45	90	160	208	99	110	ER-40 A	107	ER-50	150	50-32	115	Ø 32	120
S 30-2	55	135	180	238	120	130	ER-50 A	120	ER-50	145	50-32	139	Ø 42	121

SPECIFICATIONS



Type	Specifications			Dimensions drive / machine interface ²			
	Max. speed	Max. torque	Weight ¹ [kg] [lbs]	SK / CAT / BT ³	W2	HSK Form A & C ⁴	W2
W 5	10.000 rpm	15 Nm	5 11	SK 40	180	HSK 63	190
W 6	8.000 rpm	43 Nm	8 18	SK 40	220	HSK 63	230
W 7	8.000 rpm	70 Nm	10 22	SK 40	235	HSK 63	245
W 10	6.000 rpm	120 Nm	17 37	SK 50	245	HSK 100	279
W 20	3.000 rpm	250 Nm	25 55	SK 50	285	HSK 100	319
W 30	2.000 rpm	500 Nm	40 88	SK 50	319	HSK 100	329

Type	Dimensions angular head								Dimensions output / tool holding system							
	W6	W6 (IK) ⁵	W7	W8	W10	W11	W12	A	 ⁶	W3	 ⁶	W3		W3		W3
W 5	63	80	26	79	85	126	55	65	ER-16 A	17	ER-20	39	24-16	22	-	-
W 6	75	98	30	119	105	136	70	65	ER-20 A	20	ER-25	42	32-20	29	Ø 16	44
W 7	84	109	34	133	105	136	70	65	ER-25 A	25	ER-32	48	40-25	38	Ø 20	47
W 10	95	116	45	142	125	191	90	110	ER-32 A	28	ER-40	58	40-25	36	Ø 20	41
W 20	125	140	50	175	160	208	110	110	ER-40 A	25	ER-50	70	50-32	38	Ø 32	43
W 30	150	169	65	204	180	238	130	130	ER-50 A	40	ER-50	60	50-32	35	Ø 42	36

All dimensions in [mm].

¹ Weight referring to the machine interface

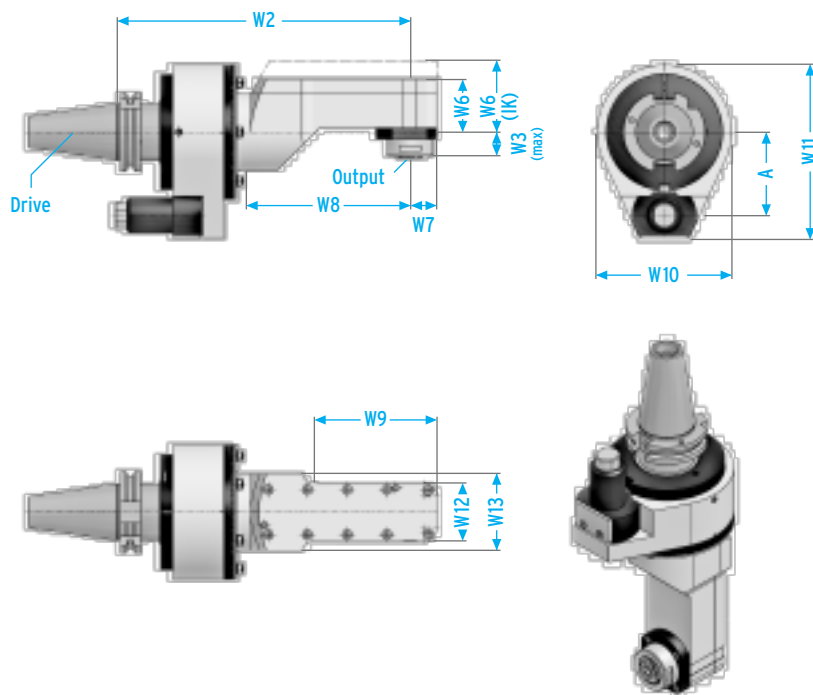
² Further machine interfaces see page 10

³ DIN 69871 / ISO 7388

⁴ DIN 69893 / ISO 12164

⁵ With internal coolant

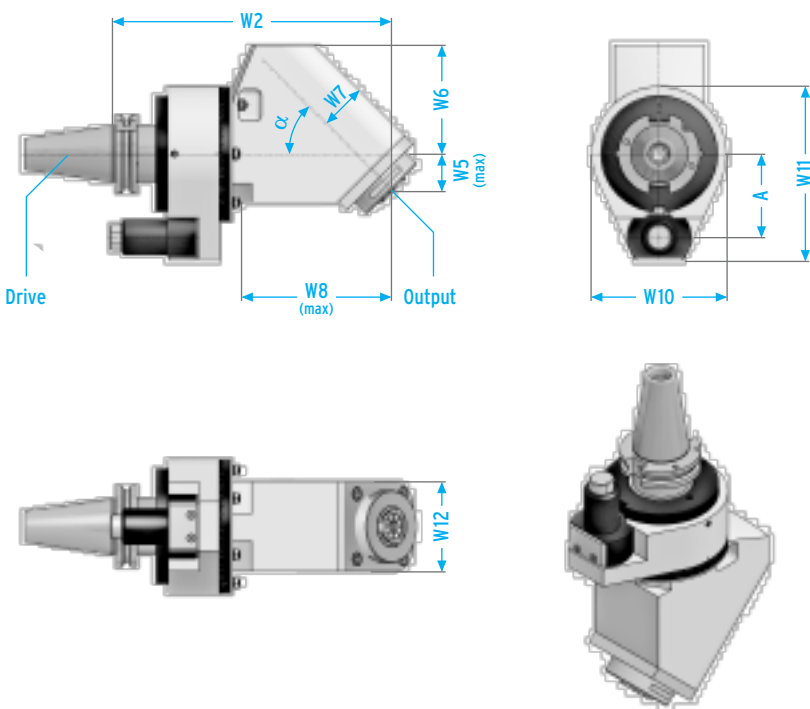
⁶ Collets - DIN 6499 / ISO 15488



Type	Specifications			Dimensions drive / machine interface ²			
	Max. speed	Max. torque	Weight ¹ [kg] [lbs]	SK / CAT / BT ³	W2	HSK Form A & C ⁴	W2
G 5	10.000 rpm	15 Nm	5 11	SK 40	230	HSK 63	240
G 6	8.000 rpm	43 Nm	7 15	SK 40	240	HSK 63	250
G 7	8.000 rpm	70 Nm	9 18	SK 40	250	HSK 63	260
G 10	6.000 rpm	120 Nm	16 20	SK 50	290	HSK 100	324
G 20	3.000 rpm	250 Nm	22 35	SK 50	330	HSK 100	364
G 30	2.000 rpm	500 Nm	34 75	SK 50	380	HSK 100	414

Type	Dimensions angular head										Dimensions output / tool holding system							
	W6	W6 (IK) ⁵	W7	W8	W9	W10	W11	W12	W13	A	 ⁶	W3	 ⁶	W3		W3	Hydraulic	W3
G 5	42	67	21	128	95	85	126	45	50	65	ER-16 A	19	ER-20	41	24-16	24	-	-
G 6	56	84	25	138	95	105	136	55	70	65	ER-20 A	12 (4)	ER-25	33	32-20	21	Ø 16	36
G 7	66	98	32	148	120	105	136	65	76	65	ER-25 A	12 (0)	ER-32	37	40-25	27	Ø 20	34
G 10	98	123	40	186	140	125	191	80	90	110	ER-32 A	-4	ER-40	26	40-25	4	Ø 20	9
G 20	113	138	45	220	140	160	208	99	110	110	ER-40 A	-4	ER-50	36	50-32	4	Ø 32	9
G 30	130	155	55	265	150	180	238	119	130	130	ER-50 A	5	ER-50	30	50-32	5	Ø 42	6

SPECIFICATIONS

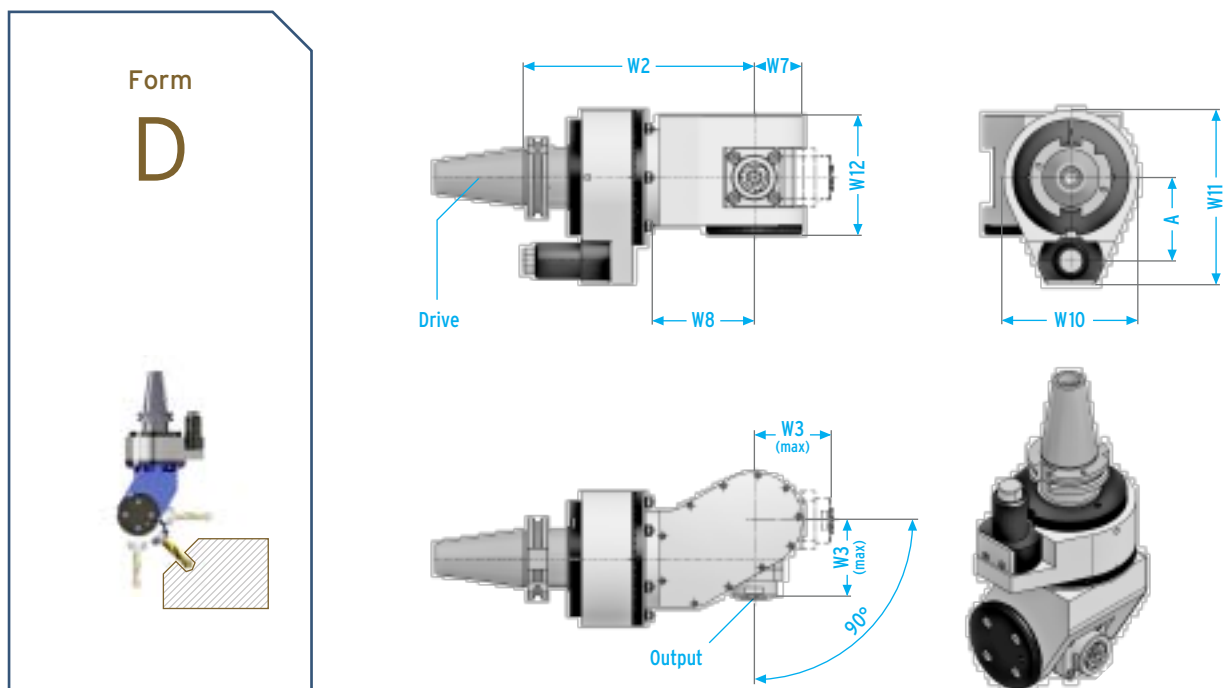


Type	Dimensions output / tool holding system																
	Winkel α	 ⁴	W5	W6	W8	 ⁴	W5	W6	W8	 ⁴	W5	W6	W8	 ⁴	W5	W6	W8
F 5	30°	ER-16 A	8	66	107	ER-20	19	66	126	24-16	11	66	111	-	-	-	-
	45°		58	90	99		41	90	115		29	90	103				
	60°		39	88	87		58	88	98		43	88	90				
F 6	30°	ER-20 A	7	75	119	ER-25	18	75	138	32-20	12	75	127	Ø 16	19	75	140
	45°		27	90	109		43	90	125		33	90	115		44	90	126
	60°		45	98	95		64	98	106		53	98	100		66	98	107
F 7	30°	ER-25 A	7	81	125	ER-32	19	81	145	40-25	14	81	136	Ø 20	18	81	144
	45°		30	95	114		46	95	130		39	95	123		46	95	130
	60°		50	101	99		70	101	111		61	101	106		69	101	110
F 10	30°	ER-32 A	7	90	149	ER-40	22	90	175	40-25	11	90	156	Ø 20	14	90	160
	45°		34	105	137		55	105	158		40	105	143		43	105	146
	60°		56	113	118		82	113	133		63	113	122		67	113	125
F 20	30°	ER-40 A	7	107	205	ER-50	27	107	240	50-32	11	107	212	Ø 32	14	107	216
	45°		45	120	190		73	120	218		51	120	196		54	120	199
	60°		75	125	165		110	125	185		82	125	169		86	125	172
F 30	30°	ER-50 A	8	130	256	ER-50	21	130	278	50-32	8	130	256	Ø 42	9	130	257
	45°		55	140	236		73	140	254		55	140	236		56	140	237
	60°		95	145	206		117	145	219		95	145	206		96	145	207

All dimensions in [mm].¹ Weight referring to the machine interface² Further machine interfaces see page 10
³ DIN 69871 / ISO 7388, DIN 69893 / ISO 12164⁴ Collets - DIN 6499 / ISO 15488

Type	Specifications				Dimensions drive / machine interface ²					Dimensions angular head				
	Max. speed	Max. torque	Weight ¹ [kg] [lbs]	Winkel α	SK / HSK ³	ER-A	ER	WFB	HF	W7	W10	W11	W12	A
F 5	10.000 rpm	15 Nm	4 9	30°	SK 40	208	227	212	-	21	85	126	42	65
					HSK 63	218	237	222	-					
				45°	SK 40	200	216	204	-					
					HSK 63	210	226	214	-					
				60°	SK 40	188	199	191	-					
					HSK 63	198	209	201	-					
F 6	8.000 rpm	43 Nm	7 15	30°	SK 40	220	239	228	241	32	105	136	64	65
					HSK 63	230	249	238	251					
				45°	SK 40	210	226	216	227					
					HSK 63	220	236	226	237					
				60°	SK 40	196	207	201	208					
					HSK 63	206	217	211	218					
F 7	8.000 rpm	70 Nm	9 20	30°	SK 40	226	246	237	245	32	105	136	64	65
					HSK 63	236	256	247	255					
				45°	SK 40	215	231	224	231					
					HSK 63	225	241	234	241					
				60°	SK 40	200	212	207	211					
					HSK 63	210	222	217	221					
F 10	6.000 rpm	120 Nm	14 31	30°	SK 50	262	288	269	273	34	125	191	80	110
					HSK 100	296	322	303	307					
				45°	SK 50	250	271	256	259					
					HSK 100	284	305	290	293					
				60°	SK 50	231	246	235	238					
					HSK 100	265	280	269	272					
F 20	3.000 rpm	250 Nm	20 44	30°	SK 50	315	350	322	326	45	160	208	99	110
					HSK 100	349	384	356	360					
				45°	SK 50	300	328	306	309					
					HSK 100	334	362	340	343					
				60°	SK 50	275	295	279	282					
					HSK 100	309	329	313	316					
F 30	2.000 rpm	500 Nm	32 71	30°	SK 50	370	392	370	371	55	180	238	110	130
					HSK 100	404	426	404	405					
				45°	SK 50	350	368	350	351					
					HSK 100	384	402	384	385					
				60°	SK 50	320	333	320	321					
					HSK 100	354	367	354	355					

SPECIFICATIONS



Type	Specifications			Dimensions drive / machine interface ²			
	Max. speed	Max. torque	Weight ¹ [kg] [lbs]	SK / CAT / BT ³	W2	HSK Form A & C ⁴	W2
D 5	10.000 rpm	15 Nm	6 13	SK 40	185	HSK 63	195
D 6	8.000 rpm	43 Nm	9 20	SK 40	200	HSK 63	210
D 7	8.000 rpm	70 Nm	12 26	SK 40	215	HSK 63	225
D 10	6.000 rpm	120 Nm	18 40	SK 50	225	HSK 100	259
D 20	3.000 rpm	250 Nm	37 82	SK 50	290	HSK 100	324
D 30	2.000 rpm	500 Nm	50 110	SK 50	280	HSK 100	314

Type	Dimensions angular head						Dimensions output / tool holding system							
	W7	W8	W10	W11	W12	A	 ⁵	W3	 ⁵	W3		W3		W3
D 5	38	83	85	126	101	65	ER-16 A	60	ER-20	83	24-16	65	-	-
D 6	41	98	105	136	115	65	ER-20 A	75	ER-25	98	32-20	84	Ø 16	91
D 7	50	113	105	136	132	65	ER-25 A	85	ER-32	107	40-25	92	Ø 20	97
D 10	55	120	125	191	142	110	ER-32 A	90	ER-40	120	40-25	98	Ø 20	100
D 20	75	181	160	208	195	110	ER-40 A	122	ER-50	140	50-32	135	Ø 32	120
D 30	110	180	180	238	190	130	ER-50 A	130	ER-50	145	50-32	139	Ø 42	121

All dimensions in [mm].

¹ Weight referring to the machine interface

² Further machine interfaces see page 10

³ DIN 69871 / ISO 7388

⁴ DIN 69893 / ISO 12164

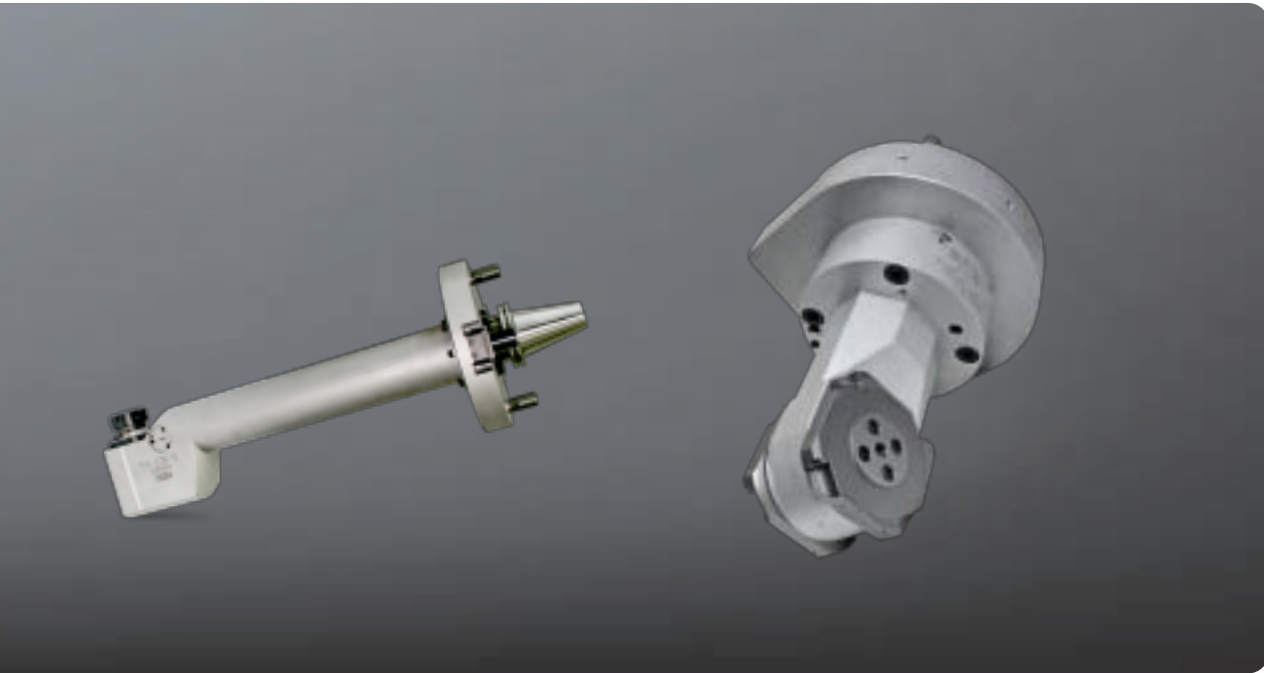
⁵ Collets - DIN 6499 / ISO 15488

All data in this brochure is as of 09/2017. Subject to technical modifications and misprints.

We provide design data in common 3D formats for our customers.

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