

BENCH machine line

The RWE models are the world wide most used machines. Three machine bases are available. From a simple model up to a high end PLC-controlled machine with a high resolution touch-screen display. The approved RUFF modular system covers 25 winding heads and 6 roller tables for almost all winding requirements. The machine has a strong design and with the wedge-shape of the machine enables an ergonomically operation for the worker.

BENCH machine line RWE

Models RWE-Basic, RWE-Global, RWE-Evolution

25 interchangeable heads

6 gear rack heads	RW 0 RW 3	RW 1 RW 4	RW 2 RW 4-V	
6 slider heads	RW 10 RW 30	RW 20 RW 40	RW 25 RW 40-V	
6 belt heads	RW 60-C RW 200	RW 100-C RW 200-V	RW 100 RW 300	
7 taping heads	RW 0/B RW 4/B	RW 1/B RW 200/B	RW 2/B RW 300/B	RW 3/B

6 interchangeable tables	RW 111 RW 222-L	RW 111-V RW 222-VL	RW 112 RW 332	
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Capability ranges

wire Ø monofilar	0,05 - 2,8 mm	tape size	4 - 25 mm
wire Ø bifilar	up to 2 x 1,8 mm	supply voltages	230 V / AC / 50 Hz / 16 A
finished core OD	5 - 500 mm	machine size	1100 x 700 mm
final hole	up from 1,5 mm	machine weight	approx. 95 kg
finished core H	up to 150 mm		

Model RWE-Basic

The RWE-BASIC is a simple machine. It is developed for the mass production of simple winding jobs. This machine is perfect for winding jobs, which allows some tolerances in the pitch. The RWE-BASIC is build with high quality components and enables

to produce high quality coils. The controller with numeric controll is easy to understand and simple to create winding programs.

controller	N.C. SIAX 110L - LCD display
winding head	servomotor
roller table	motor and inverter



Model RWE-Global

The RWE-Global is for standard winding applications. The new NC controller with touch screen panel is user friendly and it is very easy to understand. Just a few inputs are needed for create a winding program. All standard winding methods are available e.g.: Tape-/ Wire winding, Index, Reverse winding. Several winding sequences can be written in

one winding program. So for example different pitch and index etc. More than 200 programs can be saved on this control. All languages in Latin characters are available on this controller.

controller	5.7" monochrom touchpanel with 2 function buttons (start/stop)
language	all Latin characters
winding head	three-phase motor
roller table	servo motor



Model RWE-Evolution

The RWE-Evolution is the high end bench top toroidal winding machine base from RUFF. The new controller with innovative programming is user friendly and through the high resolution touch screen display it is simple to understand. Programs are saved in CSV-Format. Therefore, programs can be made externally by Excel. The Windows system allows own data management saved onto USB-Stick, or onto the CF-Card in a separate file on the machine. A central program management on an external PC (Server) is possible via Ethernet connection. Easy file structure can be created and every program can be reported with a text description. The machine can also be remote controlled by Ftp-connection.

Teleservice by our technicians via internet connection (Ftp-connection) for trouble shooting in the logic program. Update of PLC- and visual display software via USB-Stick, datas can be sent via E-mail.

operating panel	8" touchpanel with 4 function buttons
memory	Compact Flash 64 MB - 2 GB
system	Windows CE 5.0
language	Unitext (all characters)
interface	USB-connection, ethernet-interface 1x10/100 Mbit, RJ45, PS/2-interface, serial interface
PCI modul card	MC-CAN Dual Can Controller, hand control unit with 3 additional function buttons



Gear rack winding heads for the BENCH models

The gear rack winding heads are designed for precision layer winding with low built up factors. Typical applications are the production of variacs, potentiometers and transformer secondary windings. All the winding heads works with a robust gear rack and drive gear system, this allows the winding head to generate a large amount of torque which makes it suitable for large wire size. The wire is dereeled from the winding magazine via two guide rollers as it is layered on the core, the magazine itself is held back

under constant tension via the breaking system which is adjustable to suit each wire size. All gear rack winding heads can utilise two designs of magazines the „KN“ type has a quick opening facility and the „SN“ type which has a completely removeable section for taller cores. A range of narrow racks and multifilar wire guides can be supplied for reduced core I.D's and strip winding. Customised components for special applications can be supplied upon request.



winding head data	RW 0		RW 1		RW 2		RW 3		RW 4		RW 4-V	
	mm	inch/AWG	mm	inch/AWG	mm	inch/AWG	mm	inch/AWG	mm	inch/AWG	mm	inch/AWG
wire range	0,1-0,6	23-28	0,2-1,0	18-32	0,2-1,4	15½-32	0,4-2,12	12-26	0,4-2,36	11-26	0,4-2,8	9½-26
magazine diameter	72	2,83	130	5,11	210	8,26	220	8,65	340	13,39	340	13,39
finished core OD	25-150	1,0-6,0	25-150	1,0-6,0	25-350	1,0-14,0	25-350	1,0-14	60-500	2,4-20	60-500	2,4-20
finished core ID	11	0,433	13	0,51	17	0,70	25	1,0	25	1,0	29	1,14
finished height	35	1,37	50	1,96	80	3,15	100 (120)	3,93 (4,72)	150	5,9	150	5,9
max. winding speed rpm	230		250		240		150		80		80	
compatible roller tables	RW 222-L		RW 222-L, RW 222-VL		RW 222-L, RW 222-VL, RW 332		RW 222-L, RW 222-VL, RW 332		RW 332		RW 332	
compatible m/c bases	all RWE machine series		all RWE machine series		all RWE machine series		all RWE machine series		all RWE machine series		all RWE machine series	

Magazine data base with wire length in meters: for wire length in feet, multiply by factor 3,28

magazine type	final hole diameter		final hole by biggest height		0,1	0,2	0,32	0,4	0,5	0,6	0,71	0,8	0,9	1,0	1,12	1,125	1,32	1,4	1,5	1,6	1,7	1,8	1,9	2,0	2,12	2,24	2,36	mm
	mm	inch	mm	inch	38	32	28	26	24	22½	21	20	19	18	17	16½	16	15½	15	14½	14	13½	13	12½	12	11½	11	AWG
0/10	11	0,433	15	0,59	90	26	12	7	4,6																			
11	12	0,472	18	0,708	128	36	17	9	6,4	4,5																		
12	13	0,511	19	0,748	140	40	19	11	7,1	5																		
16	18	0,708	22	0,866	326	96	45	26	17	12																		
18	20	0,787	25	0,984	390	111	52	30	20	14																		
22	24	0,945	29	1,142	661	188	88,5	51	33,6	23,8																		
1/10	13	0,511	18	0,708	178	51	24	14	9	6,4																		
11	15	0,59	20	0,787	240	68	32	18	12	8,6	6,2																	
12	16	0,63	23	0,906	337	96	45	26	17	12	8,8	7		5,7	5													
15	20	0,787	25	0,984	624	178	83	48	31	22	16	13	10	6,4														
18	22	0,866	28	1,102	894	254	120	69	45	32	23	18	15	11,2														
22	26	1,023	33	1,30	1462	416	195	112	74	52	38	30	24	18														
30	31	1,22	37	1,456	2297	654	307	177	116	82	60	47	39	31														
37	37	1,456	41	1,614	3040	865	407	234	154	109	79	62	51	39														
2/12	17	0,669	24	0,945		185	87	50	33	23	17	13	11	9,1														
15	18	0,708	26	1,023	237	111	64	42	30	21	17	14	11		9,6	8	7	6										
18	21	0,827	29	1,142	395	185	107	70	50	36	28	23	19	16	14		11,5	10										
21	24	0,945	31	1,22	544	256	147	97	68	50	39	32	26	22	19		15,8	14										
24	28	1,102	35	1,378	807	380	218	144	100	74	58	48	40	33	29		23	20										
33	34	1,338	40	1,575	1100	518	300	200	140	100	80	65	54	44	40		32	28										
40	40	1,575	60	2,362	1722	800	466	307	217	158	125	100	85	69	61		49	44										
60	60	2,636	75	2,953	3169	1353	858	558	392	285	226	179	147	118	95		85	76										
3/20	25	0,984	35	1,378			184	106	69	48	35	28	22	18	14		12											
25	28	1,102	38	1,496	314	181	118	83	60	47	38	31	25	22														
30	31	1,22	40	1,575	350	200	130	90	66	52	42	35	30	27		20		18										
35	33	1,30	49	1,929	509	294	191	134	100	77	61	50	40	35	30		26		23									
37	37	1,46	52	2,047	719	414	273	193	140	111	91	75	62	56	44		39		33									
45	40	1,575	53	2,087	760	439	286	200	146	115	92	76	63	57	45		39,5	34		30								
50	46	1,811	55	2,165	1077	622	405	284	206	164	130	106	85	76	62		55		48									
60	48	1,89	57	2,244	1217	703	457	321	233	185	147	120	96	86	70		62		54									
70	55	2,165	65	2,559	1460	844	549	385	280	222	176	144	116	104	84		75		65									
80	65	2,56	75	2,953	1993	1152	749	526	382	303	240	197	158	143	115		102		86									
90	77	3,031	80	3,149	2737	1582	1029	723	525	417	330	271	216	194	157		141		123									
100	100	3,937	100	3,937	4000	2330	1500	1060	774	615	480	400	320	260	233		203		132									
4/20	25	0,984	40	1,575			152	98	69	50	40	31	26	20		16		15		11,5								
30	28	1,102	45	1,772	264	170	120	87	69	55	45	36	29	26		29		26		23								
35	30	1,181	50	1,969	293	190	133	97	77	61	50	40	36	29		36		26		22								
40	35	1,378	60	2,363	435	283	200	144	115	90	74	60	51	43		60		51		38								
45	40	1,575	60	2,363	661	430	302	220	175	138	113	90	77	67		67		59		51								
50	45	1,772	62	2,441	850	554	389	282	224	178	145	118	100	86		76		66		58								
60	55	2,165	68	2,678	1050	685	481	350	277	220	180	145	117	105		94		82		73								
65	60	2,363	73	2,875	1316	856	600	437	347	274	225	180	146	131		117		102		90								
70	65	2,560	78	3,071	1490	969	680	494	394	312	255	205	166	150		133		116		103								
80	75	2,953	90	3,544	2128	1350	972	706	560	446	365	293	230	213		190		166		147								
90	85	3,347	98	3,859	2533	1647	1158	843	668	530	434	348	282	253		226		198		174								
100	110	4,331	130	5,119	3360	2180	1530	1100	886	700	575	466	393	340		300		260		230								
120	115	4,53	135	5,321	4622	3006	2112	1534	1218	966	790	635	514	462		412		360		318								

High speed slider winding heads for the BENCH models

The high speed winding heads are designed for random layer winding. Typical applications are the production of transformer primary windings and windings where large amounts of turns are required in a short production time. All of the winding heads works with a side slider which dereeles the wire from the edge of the winding magazine. The magazine itself is driven by precision made friction rollers which enhance the life of the magazine. As the wire comes off

the magazine it is guided between two wire guide plates before being placed on to the core. All high speed winding heads feature the quick action magazine opening facility and a range of „S“ type magazines can be supplied for taller section cores. Customised components for special applications can be supplied upon request.



winding head data	RW 10		RW 20		RW 25		RW 30		RW 40		RW 40-V	
	mm	inch/AWG	mm	inch/AWG	mm	inch/AWG	mm	inch/AWG	mm	inch/AWG	mm	inch/AWG
wire range	0,05-0,3	28½-44	0,08-0,7	21-40	0,08-1,0	18-40	0,1-1,0	18-38	0,1-1,0	18-38	0,3-1,12	17½-28½
magazine diameter	100	4	150	6	185	7,28	210	8,26	385	15,15	385	15,15
finished core OD	5-30	0,20-1,18	12-150	0,47-6,0	20-150	0,78-6,0	25-150	1,0-6,0	25-150	1,0-10,0	25-150	1,0-10,0
finished core ID	2,5	0,098	7	0,276	10	0,394	10	0,394	12	0,472	12	0,472
finished height	15	0,59	55	2,16	65	2,56	80	3,15	120	4,72	120	4,72
max. winding speed rpm	1800		1600		1600		1500		550		330	
compatible roller tables	RW 111		RW 111, RW 111-V, RW 222-L		RW 112, RW 222-L, RW 222-VL		RW 222-L, RW 222-VL		RW 222-L, RW 222-VL, RW 332		RW 222-L, RW 222-VL, RW 332	
compatible m/c bases	all RWE machine series		all RWE machine series		all RWE machine series		all RWE machine series		all RWE machine series		all RWE machine series	

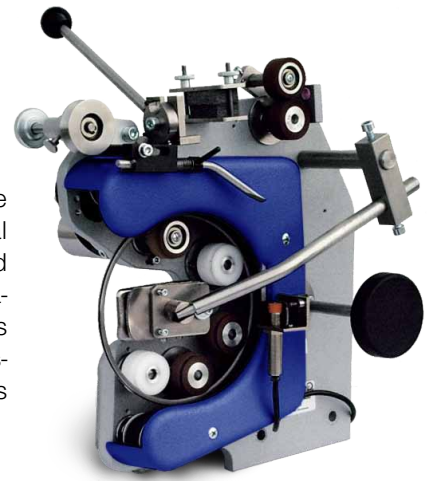
Magazine data base with wire length in meters: for wire length in feet, multiply by factor 3,28

magazine type	final hole diameter		0,05	0,08	0,10	0,15	0,20	0,25	0,30	0,40	0,50	0,60	0,71	0,80	0,90	1,0	1,06	1,12	mm
	mm	inch	44	40	38	34 ½	32	30	28 ½	26	24	22 ½	21	20	19	18	17 ½	17	AWG
10/2 (with inside slider)	2,5	0,098	60	25															
2,5	3,0	0,118	100	40	28	13													
3	3,5	0,138	140	60	40	19	11	7											
3,5	4,0	0,157	190	80	50	25	15	10	7										
4	4,5	0,177	280	120	75	35	22	14	10										
10/4,5 SG (with side slider)	5,5	0,236	166	66	43	20	12	7,9	5,6										
5 SG	6,0	0,276	211	84	55	25	15	10	7										
6 SG	7,5	0,295	260	110	80	35	22	15	10										
7 SG	8,0	0,315	368	150	100	48	28	18	13										
8 SG	9,0	0,354	500	200	130	63	37	24	17										
20/6	7	0,276		115	77	36	21	14											
8	10	0,394		280	190	85	50	34	24	14									
10	12	0,472		440	300	140	80	54	38	22	15	10							
12	14	0,551		650	430	200	120	80	56	33	22	15							
14	16	0,623		1300	860	400	240	160	110	65	43	30	23						
16	22	0,866		1950	1300	600	360	240	167	98	65	46	35						
20-S	25	0,984		3650	2430	1140	670	450	313	183	122	85	65						
25-S	30	1,181		4250	2840	1330	780	520	364	213	142	100	75						
30-S	35	1,378		6000	4000	1870	1100	730	514	300	200	140	107						
40-S	40	1,575		8800	5900	2740	1600	1080	750	440	295	205	156						
25/8	10	0,394		347	235	105	62	42	30	17									
10	12	0,472		545	372	175	99	66	47	27	18	12							
12	14	0,551		806	533	248	148	99	69	40	27	18	12	9					
14	16	0,623		1612	1066	496	297	198	136	80	53	37	28	22					
16	20	0,787		2418	1612	744	446	297	207	121	80	57	43	36	29				
20-S	25	0,984		4526	3013	1413	830	558	388	226	151	105	80	55	46				
25-S	30	1,181		5270	3512	1649	967	644	451	264	176	124	93	70	58				
30-S	35	1,378		7440	4960	2318	1364	905	637	372	248	173	132	79	66				
40-S	40	1,575		10900	7316	3397	1984	1339	930	545	365	254	193	96	82				
30/8	10	0,394			260	120	72	48	34	20									
10	12	0,472			410	190	113	75	53	30									
12	14	0,551			600	280	165	110	77	45	30								
14	16	0,623			1200	560	330	220	154	90	60	42	33	26	21				
16 (S)	20	0,787			1900	890	520	350	245	140	95	66	53	42	33	27			
20 (S)	25	0,984			3150	1470	865	578	405	235	158	110	84	63	53	45			
25 (S)	30	1,181			3895	2875	1110	726	521	300	200	140	100	80	66	54			
30-S	35	1,378			4530	2120	1245	830	580	340	225	158	121	90	75	63			
40-S	40	1,575			5650	2640	1550	1035	725	425	280	198	150	110	94	80			
50-S	50	1,969			8190	3940	2332	1527	1096	631	416	294	213	169	138	114			
40/10	12	0,472			740	360	210	140	100	60	40								
12	14	0,551			1150	560	330	210	155	90	60								
14	16	0,623			2310	1100	650	430	310	180	117								
16 (S)	20	0,787			3680	1770	1050	690	490	280	187	132	97	76	62	52			
20 (S)	25	0,984			5660	2720	1610	1060	760	435	290	204	150	117	96	80			
25 (S)	30	1,181			7060	3400	2010	1320	950	545	360	255	187	146	120	100			
30-S	35	1,378			8700	4070	2400	1580	1130	650	420	300	210	170	130	111			
40-S	40	1,575			11000	5100	3000	2000	1400	830	540	380	270	210	170	140			
55-S	50	1,969						2475	1430	930	650	475	377	299	245				
60-S	55	2,17						3171	1833	1192	838	608	483	383	314				
70-S	65	2,56						4258	2460	1600	1123	815	648	514	420	375	337		
100-S	75	2,95						6837	3951	2569	1805	1311	1041	824	676	602	542		

Flat belt winding heads for the BENCH models

The flat belt winding heads are designed for winding heavy wires into small internal diameters without the use of gear racks or side sliders. Typical applications are the production of chokes, filters and small transformer secondary windings. All of the winding heads work with a flat toothed belt which drives the magazine. The winding tension is varied by applying pressure on the smooth edge of the magazine where the wire is dereeled from. All of the belt winding heads feature a range

of robust split magazines together with the magazine quick opening device. For balancing type chokes there is a wire guide finger which aids in the production of equal start, finish windings. For the winding head type RW 300, „S“ type and „K“ type magazines can be supplied for taller section cores and transformer secondary windings. Customised components for special applications can be supplied upon request.



winding head data	RW 100		RW 200		RW 200-V		RW 300	
	mm	inch/AWG	mm	inch/AWG	mm	inch/AWG	mm	inch/AWG
wire range	0,2-0,9	21-32	0,3-1,0	18-28½	0,4-1,6	14-25	0,3-1,8	14-26
magazine diameter	97	3,8	145	5,7	145	5,7	210	8,27
finished core OD	5-35	0,2-1,58	16-150	0,63-6,0	16-150	0,63-6,0	35-150	1,38-6,0
finished core ID	3	0,12	5	0,197	6	0,236	8	0,32
finished core height	15	0,59	25	0,98	25	0,98	60	2,36
max. winding speed rpm	1100		1000		1000 (Ø 0,4 - 1,0 mm) 375 (Ø 1,1 - 1,6 mm)		600 (Ø 0,3 - 1,0 mm) 190 (Ø 1,1 - 1,8 mm)	
compatible roller tables	RW 111, RW111-V		RW 111-V, RW 112, RW 222-L		RW 111-V, RW 112, RW 222-L		RW 222-L, RW 222-VL	
compatible m/c bases	all RWE machine series		all RWE machine series		all RWE machine series		all RWE machine series	

Magazine data base with wire length in meters: for wire length in feet, multiply by factor 3,28

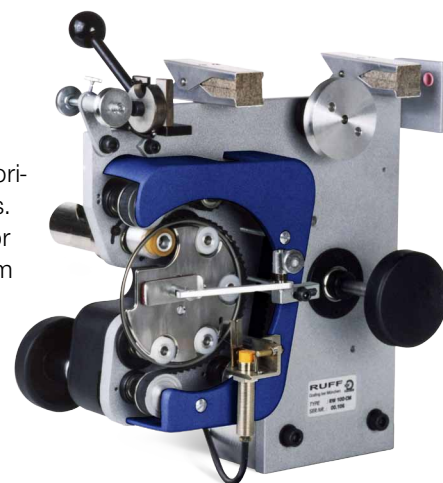
magazine type	fine hole min.		0,20	0,30	0,40	0,50	0,60	0,71	0,80	0,90	1,0	1,12	1,25	1,32	1,4	1,5	1,6	1,7	1,8	mm
	mm	inch	32	28½	26	24	22½	21	20	19	18	17	16½	16	15½	15	14½	14	13½	AWG
100/2	3	0,118	6	2,9																
2,25	3	0,118	5,7	2,7	1,5															
2,5	3,5	0,138	10	4,6	2,5															
3	4	0,158	14	6,6	3,8	2,5														
3,5	5	0,197	21	10	6	4	2,6	1,9												
4	5,5	0,217	28	13	8	5	3,5	2,5	2,4	1,9										
4,5	6	0,236	37	18	10	7	5	3	3,2	2,5										
5	6,5	0,256	46	22	13	9	6	4,5	3,4	2,7										
5,5	7,5	0,295	60	29	17	11	8	5,5	4,8	3,8										
6	8	0,315	77	36	21	14	10	7												
200/3	5	0,197		11	6,5															
3,5	5,5	0,217		15	8,5	5,5														
4	6	0,236		20	12	8														
4,5	6,5	0,256		30	17	11	8													
5	7	0,276		36	21	14	10	7	5	4										
5,5	7,5	0,295		47	27	18	12	9	7	6	5									
6	8	0,315		58	33	22	15	11	9	7	6									
6,5	8,5	0,335		75	42	28	19	14	11,9	9	8									
7	9	0,355		87	60	33	23	17	13	11	9									
7,5 (K)	10,5	0,413		115	66	43	30	22	17,5	14	11									
8	11	0,433		140	81	53	37	27	21	17	14									
200-V/4,2	6	0,236			8	5,3	3,7	2,7	2,1	1,7	1,4	1,1	0,9	0,8						
4,7	7	0,276			11	7,2	5	3,7	2,9	2,3	1,9	1,5	1,4	1,2						
5,1	7,5	0,295			14,6	9,5	6,7	4,8	3,8	3	2,5	2,1	1,8	1,6	1,4	1,3	1,1			
5,8	8,5	0,335			19,5	12,7	8,9	6,5	5,1	4	3,35	2,7	2,15	1,95						
6,3	9	0,355			25	16,2	11,4	8,3	6,6	5,2	4,2	3,4	2,78	2,5	2,2	1,9	1,7			
6,6	9,5	0,374			32,8	21,3	15	10,9	8,6	6,8	5,6	4,5	3,65	3,28	2,9	2,5	2,2			
7,0 (K)	10	0,394			39	25,6	18	13	10,4	8,2	6,7	5,4	4,38	3,9	3,5	3	2,7			
7,4 (K)	11	0,433			48	31,5	22,1	16	12,7	10	8,3	6,6	5,4	4,8	4,3	3,7	3,3			
7,8 (K)	11,5	0,453			65,5	42,6	29,9	21,7	17,2	13,6	11,2	9	7,3	6,5	5,8	5,1	4,5			
8,3 (K)	12	0,473			73,1	47,5	33,4	24,2	19,2	15,2	12,5	10	8,1	7,3	6,5	5,7	5			
8,6 (K)	12,5	0,493			91,8	59,7	41,9	30,5	24,2	19,2	15,7	12,6	10,2	9,1	8,2	7,1	6,3			
300/5	8	0,315		42	24	16	11	8	6,3											
6	9	0,355		62	36	23	16,5	12	9,5											
7	10	0,394		82	47	31	22	16	12,7											
8	11	0,433		92	54	36	25	18	15	12	10	8	6							
9	12	0,472		149	86	56	40	29	23	19	15,5	13	10	8	7					
10 (S) (K)	13	0,512		213	123	81	57	42	33	27	22,5	19	16,5	13	10	8	6,5	5	4	
11 (S) (K)	14	0,551		293	170	111	79	57	45	37	31	25	23	19	16	12	9	7	5	
12 (S) (K)	15	0,591		381	219	145	102	74	59	48	40	33	30	25	21	16	12	9	6,5	
13-S (K)	17	0,669		430	127	162	113	82	65	52	42	34	31	26	22	17	13	10	13	
16-S (K)	20	0,788		480	277	180	127	92	73	58	47	38	34	27	24	21	19	17	15	
20-S (K)	22	0,867		580	335	218	153	111	88	70	57	46	37	33	29	26	23	20	18	
30-S	24	0,945		770	440	290	200	150	117	90	75	60	50	40	38	30	24	21	19	
40-S	30	1,182		881	509	331	232	169	134	106	87	70	56	50	45	39	35	31	27	

model 300/5 - 300/13 = split type, model 300/10 - 300/20 = hinge type (K), model 300/10 - 300/40 = segment type (S)

Miniatur and multisystem winding heads for BENCH models

The multisystem winding heads are designed for winding fine wires onto small cores. It incorporates three proven winding systems on one head, this gives you the best winding solution possible for each specific application, and offers you the maximum production capability with a minimum cost. Typical applications are the production of

small pulse transformers, small primary windings and small chokes. The winding heads are designed for instant change over from one system to another and features a range of flat and round belts, side sliders and robust quick opening magazines.



winding head data	round belt system RW 60-C		flat belt system RW 60-C		round belt system RW 100-C		flat belt system RW 100-C		side slider system RW 100-C	
	mm	inch/AWG	mm	inch/AWG	mm	inch/AWG	mm	inch/AWG	mm	inch/AWG
wire range	0,06 - 0,15	34½-42½	0,15-0,6	26-34½	0,07-0,5	25-41	0,15-0,71	21-34½	0,05-0,355	27-44
magazine diameter	60	2,4	60	2,4	97	3,8	97	3,8	99	3,9
finished core OD	5-14	0,2-0,55	5-14	0,2-0,55	5-35	0,2-1,3	5-35	0,2-1,3	8-35	0,3-1,3
finished core ID	1,6	0,062	2,0	0,79	2,5	0,098	3,0	0,118	7	0,276
finished core height	10	0,39	10	0,39	15	0,59	15	0,59	15	0,59
max. winding speed rpm	1800		1800		1800		1800		1800	
compatible roller tables	RW 111		RW 111		RW 111, RW 111-V		RW 111, RW 111-V		RW 111, RW 111-V	
compatible m/c bases	all RWE machine series		all RWE machine series		all RWE machine series		all RWE machine series		all RWE machine series	

Magazine data base with wire length in meters: for wire length in feet, multiply by factor 3,28

magazine type	final hole		0,05	0,06	0,071	0,08	0,09	0,1	0,112	0,125	0,132	0,15	0,18	0,20	0,25	0,3	0,355	0,4	0,5	0,6	0,71	0,80	0,90	1,0	mm
	mm	inch	44	42½	41	40	39	38	37	36	35½	34½	33	32	30	28½	27	26	24	22½	21	20	19	18	AWG
round and flat belt 60-C/1,2																									
	1,6	0,062		4,8	3,3	2,7	2,1	1,7	1,4	1,1	0,9	0,7													
	1,4	0,070		6,3	4,4	3,6	2,7	2,3	1,8	1,5	1,3	1													
	1,6	0,078		11,2	7,9	6,3	5	4,1	3,4	2,7	2,4	1,8	1,3	1,1											
	1,8	0,086		19,2	13,5	10,9	8,7	7,2	5,8	4,7	4,2	3,3	2,4	1,9	1,2	0,9									
	2	0,094		25,8	18,2	14,7	11,7	9,6	7,8	6,3	5,7	4,5	3,2	2,6	1,7	1,2	0,9	0,7							
	2,5	0,114		50,5	35,7	28,8	22,8	18,9	15,3	12,4	11,2	8,8	6,3	5,2	3,4	2,4	1,7	1,3	0,9	0,6					
2,8	0,125		75	52	42	33	28	22	17	15	12	9	7,5	5	3,5	2,3	2,0	1,3	0,9						
round and flat belt 100-C/1,8																									
	2,2	0,087			27	21	17	14	11	9	8	6													
	2,5	0,098			42	34	25	19	18	14	13	10	7,2	6	4	2,9									
	2,25	0,108			44	35	26	20	19	15	14	9,4	6,8	5,7	3,6	2,7	2	1,5							
	2,5	0,118			70	57	45	37	30	24	22	17	12	10	6,8	4,8	3,5	2,6							
	3	0,138				80	63	52	42	34	31	24	17	14,5	9,5	6,8	4,9	3,94	2,5						
	3,5	0,177				120	95	77	63	51	46	36	25	21	14	10	7,2	6	4	2,6	1,3				
	4	0,197				156	123	102	83	67	60	47	40	28	18	13	10,5	8	5	3,5	2,5				
	4,5	0,217				185	148	122	99	80	72	57	41	37	22	18	11	10	7	5	3				
	5	0,236				243	193	159	130	105	95	74	62	46	29	22	16,5	13	9	6	4,5				
side slider 100-C																									
	10/4,5-SG	5	0,217	166	116	82	66	52	43	35	28	25	20	14	12	7,9	5,6								
	5-SG	5,5	0,216	211	148	104	84	67	55	45	36	32	25	18	15	10	7								
	6-SG	7	0,276	260	185	130	110	84	80	56	45	41	35	23	22	15	10								
	7-SG	8	0,315	368	258	182	150	117	100	78	63	57	48	32	28	18	13								
	8-SG	9	0,355	500	350	148	200	158	130	107	86	77	63	56	37	24	17	14,5							
	9-SG	10	0,394	700	490	207	280	221	182	150	120	107	88	80	51	33	23,8	21,5							
	10-SG	11	0,433	1120	784	331	448	354	291	239	192	172	141	122	82	54	38	32,5							
	11-SG	12	0,472	1512	1058	447	604	478	393	323	260	232	190	133	111	72	51	42							
	12-SG	13	0,512	2192	1534	648	878	693	570	469	377	337	276	192	162	105	75	62							

Gear rack tapping heads for the BENCH models

These tapping heads work with a gear system similar to the gear rack winding heads but vary in one major way. That is as the tape is loaded on to the tape magazine it is also taped on to the core. A flat leather belt round the outside of the tape magazine controls the

taping tension and is infinitely variable. The tape is automatically cut when the correct length of tape is loaded for the complete operation. Customised components for special applications can be supplied upon request.

taping head data	RW 0/B		RW 1/B		RW 2/B		RW 3/B		RW 4/B	
	mm	inch/AWG	mm	inch/AWG	mm	inch/AWG	mm	inch/AWG	mm	inch/AWG
tape width	4-10	0,157-0,394	8-13	0,315-0,512	9-20	0,354-0,787	9-25	0,354-0,984	9-25	0,354-0,984
build up factor	+11	+0,433	+13	+0,512	+17	+0,669	+20	+0,787	+21	+0,827
magazine diameter	86	3,386	139	5,472	221	8,7	241	9,488	347	13,39
finished core OD	25-150	1-6	25-150	1-6	25-350	1-14	40-350	1,5-14	60-500	2,4-19,7
finished core ID	15	0,59	21	0,83	26	1,0	29	1,14	30	1,181
finished core height	35	1,38	50	1,97	80	3,15	100	3,94	150	5,9
max. taping speed rpm	230		250		240		150		80	
compatible roller tables	RW 222-L		RW 222-L, RW 222-VL		RW 222-L RW 222-VL RW 332		RW 222-L RW 222-VL RW 332		RW 332	
compatible m/c bases	all RWE machine series		all RWE machine series		all RWE machine series		all RWE machine series		all RWE machine series	



High speed tapping heads for the BENCH models

These tapping heads work with a special belt drive system which enable them to work without the use of gear racks: this allows the belt tapping heads to tape into smaller internal diameters at a higher speed. They all incorpo-

rates the RUFF quick action opening, closing system which reduces handling time. The taping operation is fully automatic and controlled from a foot switch.

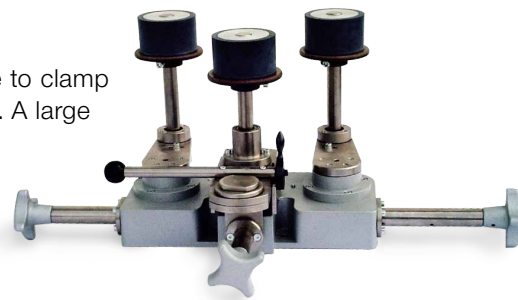
taping head data	RW 200/B		RW 300/B	
	mm	inch/AWG	mm	inch/AWG
tape width	4-10	0,157-0,394	6-18	0,237-0,708
build up factor	+9	+0,354	+11	+0,433
magazine diameter	154	5,9	215	8,46
finished core OD	16-250	0,63-5,9	25-350	1-13,8
finished core ID	13 bei 5 mm Band	0,512 with 0,157 tape	19 bei 8 mm Band	0,748 with 0,315 tape
finished core height	50	1,97	80	3,15
max. taping speed rpm	300		300	
compatible roller tables	RW 111-V RW 112 RW 222-L		RW 222-L RW 222-VL RW 332	
compatible m/c bases	all RWE machine series		all RWE machine series	
f.i.d calculation for all taping heads: tape width + build up factor = f.i.d required				



Roller tables for the BENCH models

RUFF supplies a choice of seven different interchangeable roller tables. Their main purpose is to transport the core when winding or taping operations are carried out. They are connected to the machine base and held with two or four fixing bolts which allow them to be changed in some minutes. Three rub-

ber rollers are infinitely adjustable to clamp any size of core within their range. A large of parallel and tapered rollers are available to suit individual winding requirements and special extension and designs can be supplied upon request.

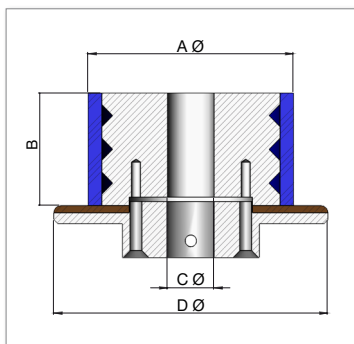


Combination possibilities between roller tables and winding heads

coil OD	head	0	1	2	3	4	4V	10	20	25	30	40	40V	100	100C	200	200V	300	300V	0/B	1/B	2/B	3/B	4/B	200/B	300/B
0,20-1,18 RW 111 5-30	inch							0,20-1,18	0,47-1,18					0,20-1,18	0,20-1,18											
	mm							5-30	12-30					5-30	5-30											
0,40-1,58 RW 111-V 10-50	inch								0,63-2,0					0,43-2,0	0,43-2,0	0,63-2,0	0,63-2,0								0,63-2,0	
	mm								16-50					11-50	11-50	16-50	16-50								16-50	
0,71-2,75 RW 112 18-70	inch									0,71-2,75						0,71-2,75	0,71-2,75								0,71-2,75	
	mm									18-70						18-70	18-70								18-70	
1,0-6,0 RW 222-L 25-150	inch	1,0-6,0	1,0-6,0	1,0-6,0	1,0-6,0				1,0-6,0	1,0-6,0	1,0-6,0	1,0-6,0	1,0-6,0			1,0-6,0	1,0-6,0	1,38-6,0	1,38-6,0	1,0-6,0	1,0-6,0	1,0-6,0	1,0-6,0		1,0-6,0	1,0-6,0
	mm	25-150	25-150	25-150	25-150				25-150	25-150	25-150	25-150	25-150			25-150	25-150	35-150	35-150	25-150	25-150	25-150	25-150		25-150	25-150
1,57-6,0 RW 222-VL 40-150	inch		1,5-6,0	1,5-6,0	1,5-6,0					1,5-6,0	1,5-6,0	1,5-6,0	1,5-6,0					1,5-6,0	1,5-6,0		1,5-6,0	1,5-6,0	1,5-6,0			1,5-6,0
	mm		40-150	40-150	40-150					40-150	40-150	40-150	40-150					40-150	40-150		40-150	40-150	40-150			40-150
2,4-10,0 RW 332 60-254	inch			2,4-10	2,4-10	2,4-10	2,4-10					2,4-10	2,4-10									2,4-10	2,4-10	2,4-10		3,5-10
	mm			60-254	60-254	60-254	60-254					60-254	60-254									60-254	60-254	60-254		90-254
3,15-14 RW 332-2 60-420	inch				2,4-16,5	2,4-16,5	2,4-16,5					2,4-16,5	2,4-16,5										2,4-16,5	2,4-16,5		
	mm				60-420	60-420	60-420					60-420	60-420										60-420	60-420		

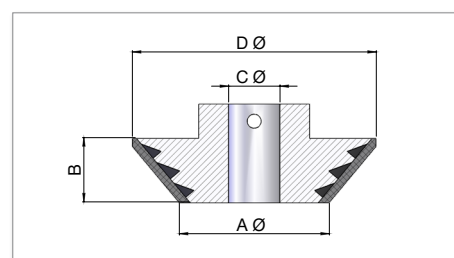
Standard core transport rollers for roller tables for BENCH machines

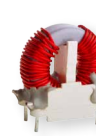
roller table type	A Ø mm	B Ø mm	C Ø mm	D Ø mm
RW 111	6	4	3	9
RW 111	8	5	3	11
RW 111	8	10	3	13
RW 111	9	20	3	18
RW 111-V	17	10	6	18
RW 111-V	17	15	6	23
RW 111-V	23	15	6	28
RW 112	35	20	8	43
RW 112	35	10	8	41
RW 222-L	45	20	12	55
RW 222-L	45	40	12	55
RW 222-L	75	20	12	85
RW 222-L	75	40	12	85
RW 222-L	90	20	12	100
RW 222-VL	65	40	17	80
RW 222-VL	65	60	17	80
RW 222-VL	75	40	17	85
RW 222-VL	75	40	17	100
RW 222-VL	90	20	17	100
RW 222-VL	90	40	17	100
RW 332	75	40	22	100
RW 332	90	40	22	100
RW 332	120	50	22	160 (200)
RW 332	140	50	22	160 (200)



Tapered core transport rollers for roller tables for BENCH machines

roller table type	A Ø mm	B Ø mm	C Ø mm	D Ø mm
RW 222-L	35	15	12	55
RW 222-VL	60	11	17	75
RW 222-VL	70	13	17	85
RW 222-VL	55	25	17	105
RW 332	70	13	22	85
RW 332	55	25	22	105



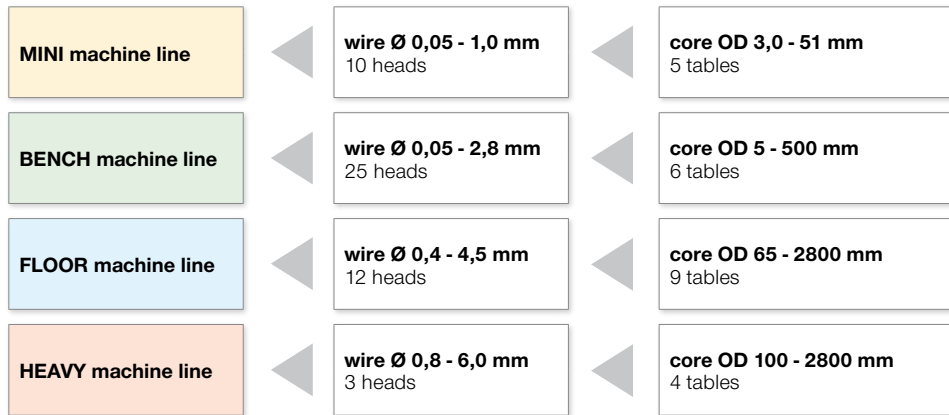
kleine Spulen mit Feindraht small coils with fine wire bare core size mm turns x Ø wire size mm wound coil size mm machine base roller table winding head + magazine	 6,7 x 6,7 x 4,8 37 x 0,20 7,3 x 1,9 x 5,3 MINI RW 111-MINI (F.B.) RW 60-MINI + 1,6	 7 x 3,2 x 3 150 x 0,08 bifilar 7,4 x 2,3 x 3,6 MINI RW 111-MINI (R.B.) RW 60-MINI + 1,6	 6,2 x 4,4 x 5,3 150 x 0,08 trifilar 7,4 x 2,3 x 3,6 MINI RW 111-MINI (R.B.) RW 45-MINI + 1,8	 6,6 x 3 x 2,9 1 layer x 0,112 bifilar 7,2 x 2,5 x 3,5 MINI RW 111-MINI (R.B.) RW 75-MINI + 1,8	 8 x 3,75 x 3,7 30 x 0,35 9,1 x 2,7 x 4,5 MINI RW 111-MINI (F.B.) RW 75-MINI + 2,0	 10,5 x 4 x 4,8 200 x 0,125 bifilar 11,2 x 3,1 x 5,5 MINI RW 111-MINI (R.B.) RW 75-MINI + 2,0
kleine Spulen mit Feindraht small coils with fine wire bare core size mm turns x Ø wire size mm wound coil size mm machine base roller table winding head + magazine	 9,5 x 4,8 x 3,2 61 x 0,18 x 37 x 0,3 10,8 x 2,9 x 4,6 MINI RW 111-MINI (F.B.) RW 100-MINI + 2,0	 13,5 x 7,8 x 2,8 580 x 0,1 14,5 x 5,5 x 4 MINI RW 111-MINI (S.S.) RW 100-MINI + 4,5	 16 x 4 x 8 1 layer x 0,1 16,5 x 2,9 x 9 RWE RW 111 (I.S.) RW 10 + 2,0	 16 x 8,5 x 6 800 x 0,3 18 x 5 x 8,9 RWE RW 111 (F.B.) RW 100-C + 2,5	 12 x 6 x 4,5 30 x 0,4 13 x 4,3 x 5,5 MINI RW 111 (F.B.) RW 100-C + 2,0	 15,5 x 9 x 5,5 17 x 0,5 bifilar 16 x 7 x 7 RWE RW 111-V RW 100 + 3,0
kleine Drossel und Filter mit dickem Draht small chokes and filters with heavy wire bare core size mm turns x Ø wire size mm wound coil size mm machine base roller table winding head + magazine	 13 x 7,7 x 8,5 23 x 0,8 16,8 x 4,2 x 10,5 RWE RW 111-V RW 100 + 3,0	 24 x 13 x 7 20 x 1,6 28,5 x 8,5 x 11,5 RWE RW 112 RW 200-V + 4,7	 20,5 x 12,5 x 6,5 35 x 1,15 24 x 6 x 11,5 RWE RW 112 RW 200-V + 4,2	 38,5 x 19,8 x 8,2 2 layer x 0,8 40,5 x 17 x 11 RWE RW 222-L RW 1 + 1/11	 40 x 24 x 15 11 x 1,32 trifilar 44 x 20 x 18 RWE RW 222-L RW 2 + 2/13	 33 x 17,5 x 11,5 100 x 1,0 39 x 9 x 18 RWE RW 112 RW 200-V + 6,3
kleine Drossel und Filter mit dickem Draht small chokes and filters with heavy wire bare core size mm turns x Ø wire size mm wound coil size mm machine base roller table winding head + magazine	 47 x 24 x 18,4 130 x 1,2 bank wound 55 x 9 x 28 RWE RW 222-VSO RW 300-V + 8,2	 38,2 x 25 x 16,4 3 sectors each 11 x 1,8 47 x 17 x 21 RWE RW 112 RW 200-VS + 7,4	 4 x 2,0 x 1,6 36 x 0,1 bifilar MINI RW 35-D-RO RW 111-D	 47 x 24 x 18,4 95 x 1,8 58 x 10 x 29 RWE RW 222-VSO RW 300-V + 8,2	 53 x 28 x 18 each sec. with 3 layers with bank wound x1,8 60 x 16 x 27 RWE RW 222-VSO RW 300-V + 9	 51 x 30 x 23,5 32 x 2,5 58 x 24 x 30,5 RWE RW 332-SO RW 3-V + 3/25
stromkompensierte Drossel balancing chokes bare core size mm turns x Ø wire size mm wound coil size mm machine base roller table winding head + magazine	 15,5 x 8 x 6 each sector 20 x 0,3 16,1 x 7,2 x 6,5 RWE RW 111-V (F.B.) RW 100-C + 2,5	 13,5 x 6 x 5,5 each sector 12 x 0,5 15 x 5 x 7 RWE RW 111-V (F.B.) RW 100-C + 2,5	 19 x 9 x 10 each sector 20 x 0,4 20 x 8 x 12 RWE RW 111-V RW 100-C + 4,0	 25 x 14 x 8 each sector 20 x 0,8 28 x 10 x 11 RWE RW 112 RW 200-V + 4,7	 26 x 14 x 10 each sector 9 x 1,4 30 x 10,5 x 14 RWE RW 112 RW 200-V + 5,1	 34,5 x 15 x 15 each sector 68 x 0,9 39 x 8,5 x 21 RWE RW 112 RW 200 + 5,0
kleine Sonderspulen small coils special bare core size mm turns x Ø wire size mm wound coil size mm machine base roller table winding head + magazine	 13 x 7,5 x 5 7 x 0,355 litz wire 15,3 x 6 x 6,6 RWE RW 111-V RW 100 + 3,0	 22,6 x 6,5 x 12 55 x 0,16 RWE RW 111-V (R.B.) RW 100-C + 2,0	 16,5 x 7 x 21,5 1 sector x 0,25 RWE RW 111-V (F.B.) RW 100-C + 2,5	 17 x 7 x 18,5 each sector 19 x 0,3 18 x 6 x 19,5 RWE RW 111-V (F.B.) RW 100-C + 2,5	 18 x 16 x 2,8 1 layer x 0,25 precision wound 18,8 x 14,6 x 3,5 RWE RW 222-L RW 0 + 10,0	 22 x 15,8 x 4 each sec. 1 layer prec. wound x 0,125 22,5 x 14,9 x 4,4 RWE Segment holder RW 0 + 10,0
Netztrafos power transformers bare core size mm turns x Ø wire size mm wound coil size mm machine base roller table winding head + magazine	 175 x 55 x 15,5 primary 3 layers x 0,9 180 x 48 x 21 RWE RW 222-VSO RW 30 + 30/1 6	 120 x 65 x 68 secondary 3 layers x 1,32 126 x 55 x 74 RWE RW 332 RW 4 + 4/50	 47 x 30 x 50 primary progressive/wound x 0,335 50 x 24,5 x 55 RWE RW 222-VL RW 25+14	 81 x 44 x 26 primary 1500 x 0,315 83 x 40 x 30 RWE RW 222-VL RW 25+14	 84 x 39 x 31 secondary 90 x 1,32 87 x 36 x 33 RWE RW 222-VL RW 300 + 10/K	 sample of power transformer View or primary winding interlayer taping with copper foil and secondary winding

F.L. = Flat belt, R.B. = Round belt, S.S. = Side slider, I.S. = Inside slider

How to find your ideal machine

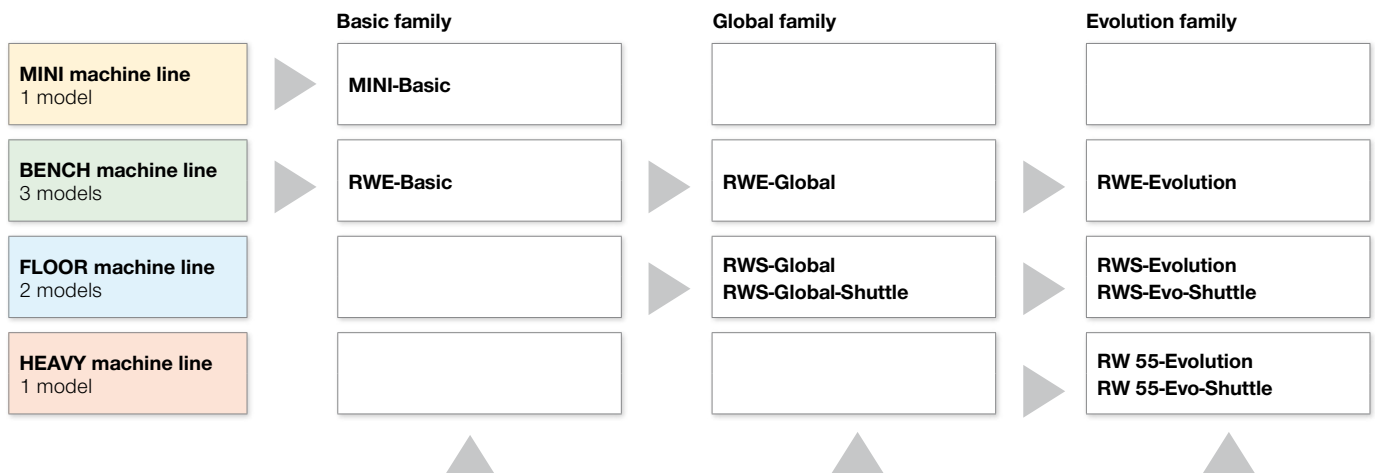
Step 1

Select the suitable machine line: RUFF offers four different machine lines and each machine line is extremely flexible with it's own head and table changing system. Following graphic enables you to select the suitable machine line for your application. Please check wire range and core OD range.



Step 2

Select the suitable machine model: RUFF offers different machine families. Following overview of models enable you to select your machine. Please check the characteristics:



drives	roller tables with stepper motor winding heads with servo motor		roller tables with servo motor winding heads with motor and inverter		roller tables with servo motor winding heads with servo motor
controller	N.C. SIAX 110L		N.C. SIAX 80 monochrom touch screen		N.C. IPC EL870 touch screen
display	LCD-Display		5.7" monochrom touch screen		N.C. IPC EL870 touch screen 8" touchpanel with 4 funktion buttons, USB-connention, ethernet interface, PS/2 interface, RJ45, serial interface language, unitext (all characters e.g. Cyrillic etc.)
programming	simple programming, user friendly controller		simple programming, user friendly controller with touch screen monitor		programming for sophisticated winding applications with industry-PC controller; clear text touch screen with graphical display and automatically winding program calculation
applications	all standard winding jobs		all standard winding jobs		all standard jobs and special resp. hi tech winding applications

Step 3

Select the suitable winding head. Following is an overview of available winding heads. Please compare your winding application with the technical specification of the heads in the RUFF product catalogue:

MINI machine line	wire 0,05 - 1,0 mm 10 heads, 5 tables						
direct, multisystem and miniature winding heads	RW 35-D direct winding head	RW 35-MINI miniature winding head	RW 45-MINI miniature winding head	RW 60-MINI miniature winding head	RW 75-MINI multisystem winding head	RW 100-MINI multisystem winding head	RW 200-MINI multisystem winding head

BENCH machine line	wire 0,05 - 2,8 mm 25 heads, 6 tables						
gear rack heads	RW 0	RW 1	RW 2	RW 3	RW 4	RW 4-V	
slider heads	RW 10	RW 20	RW 25	RW 30	RW 40	RW 40-V	
belt heads	RW 60-C	RW 100-C	RW 100	RW 200	RW 200-V	RW 300	
taping heads	RW 0/B	RW 1/B	RW 2/B	RW 3/B	RW 4/B	RW 200/B	RW 300/B

FLOOR machine line	wire 0,4 - 4,5 mm 12 heads, 9 tables						
gear rack heads	RW 33	RW 44-1	RW 44-1V	RW 45	RW 45-V	RW 45-380	RW 45-EH
taping heads	RW 33/B	RW 44/1B	RW 45/B	RW 45-380/BU			

HEAVY machine line	wire 0,8 - 6,0 mm 3 heads, 4 tables						
gear and taping rack heads	RW 55	RW 55/B	RW 55/BU				