

# SPIRAL WINDING MACHINE MODEL KWM-PSE

WITH AUTOMATIC PITCH CHANGE AND AUTOMATIC COOPER WIRE INSERTION FUNCTION.  
WITH LARGE DISPLAY WITH 5,5" MONITOR AND GRAPHICAL INFORMATION.

This automatic high speed winding machine is designed for continuous winding onto endless carrier material.

## FEATURES:

- Versatile applications
- Many standard accessories
- Non stop operation
- Virtually maintenance free
- PLC control
- Production data screen
- Programming with user friendly windows

## WINDING MATERIALS:

- Round or flat wire
- Copper, aluminium, chrome-nickel and more
- Wire diam. 0,015 – 0,40 mm, AWG 35 - 26
- Wire supply spools up to DIN 125 (250)
- Also tape wrapping

## CARRIER MATERIALS:

- Flat- or round carriers up to 8 (10) mm in size (larger on request)
- Steel, glass fibre, plastic, fabric, Nomex, cables etc.,
- Tube shaped materials
- Material supply spools up to DIN 400 (1000)
- Multi-strands from several supply cones

## INSERTION MATERIALS:

- Wire diameter up to 0,40 mm, AWG 26
- Up to 4 wires quadfil
- Supply spools up to DIN 160



## MACHINE SPECIFICATION

- Power supply: 230 Volt AC, 50/60Hz
- Motor power: 400 Watt
- Net weight: 140 kg
- Machine size: 3700 mm x 900 mm

## MACHINE CONSISTING OF:

- 1 machine base with stepper motor for pitch drive 0 - 4,0 mm per turn, servomotor for winding head drive up to 6.000 RPM, plexiglass security cover
- 1 winding nozzle and one insertion nozzle
- 1 PLC controller with 5,5 inch monitor
- 1 Signal lamp for operation status
- Memory capacity of 8 programmes with each 20 independent lengths
- Interface for PC
- Optional software for data exchange

## PROGRAMMING CAPABILITY

### PROGRAMMABLE WINDING DATA:

- Production quantity (No. of Products)
- Carrier material diameter
- Winding material Ohm Value with automatic pitch calculation
- No. of lengths with independent pitch
- Distance per length
- Pitch of turns per length
- Copper insertion per length
- Autostop per length
- Special functions per length (start, duration and end)

### PROGRAMMABLE MACHINE FUNCTIONS:

- Auto control of winding speed (acceleration, top speed and deceleration)
- Auto control of winding pitch (stepless 0 - 4,0 mm per turn)
- Auto control of wire tension (electromagnetic)
- Auto control of speed adjustment when pitch changes
- Auto Ohm control when resistance controller is used
- Auto copper wire insertion
- Auto carrier material brake control
- Auto winding material brake control

### PRODUCTION DATA DISPLAY:

- Current program No. and length No.
- Current winding speed (in RPM)
- Current winding pitch (in mm)
- Current wire tension value (in %)
- Current copper shooting
- Current Ohm control
- Current special function
- Current production quantity
- Programmed quantity reached

## ACCESSORIES

- KWM-PSE-Z02: Motorized take up with auto speed control
- KWM-PSE-Z05: Motorized take off with auto speed control
- KWM-PSE-Z13: Take off unit for copper insertion wire
- KWM-PLC-Z08: Resistance controller (tolerance +/- 1%)
- KWM-PSE-Z04: Resistance measuring unit up to 12 meters length
- KWM-PSE-Z01: Copper shooting device
- KWM-DET: Detection cutter for extruded cables



# TYPICAL INPUT AND PRODUCTION SCREENS

## INTRODUCTION SCREEN

Variabler Spiral Winder  
Type **KWM-PSE**

RUFF GmbH & Co. KG  
D-85567 Grafing  
Industriepark  
Tel. 0 80 92 / 70 57-0  
Fax 0 80 92 / 70 57-57



## PRODUCTION BASIC SCREEN

Production phase	Programme No.	1
Speed		rpm 5000
Distance		mm 1000
Product		Distances 20
Quantity		Products 100
Start F1	Stop F2	Data F3   Pitch F4   Brake F5   Quantity F6

## PROGRAMMING PRODUCT DATA

Programming phase	Programme No.	1
Product data	Distance No.	2
No. of distances	<input type="text" value="20"/>	
Dia. of carrier material	<input type="text" value="1.500"/> mm	
Dia. of winding material	<input type="text" value="0.200"/> mm	
Resistance of wire	<input type="text" value="100.0"/> Ohm/m	
Brake power	<input type="text" value="1000"/> pcs	
Next F1	Change Begin End	<input type="text" value="20"/> % <input type="text" value="80"/> %

## PRODUCTION PARAMETER

Production phase	Programme No.	1
Parameter	Distance No.	2
Total length	<input type="text" value="1000"/>	
Measuring Resistance at	<input type="text" value="2000"/> mm	<input type="text"/>
Cut at	<input type="text" value="2500"/> mm	<input type="text"/>
Special Function at	<input type="text" value="3000"/> mm	<input type="text"/>
Quantity Order	<input type="text" value="1000"/>	Actual <input type="text" value="555"/>
Start F1	Stop F2	End Stop F3   Extra F4   Return F6

## PROGRAMMING PITCH PER TURN

Programming phase	Programme No.	1
Winding data	Distance No.	2
<input type="checkbox"/> Select input	Pitch = 1 Resistance = 0	
Pitch per turn	mm <input type="text" value="2.500"/>	
Length of distance	mm <input type="text" value="1000"/>	
Select functions with 0 or 1		
<input type="checkbox"/> Shooting	<input type="checkbox"/> Ohm control	<input type="checkbox"/> Stop
<input type="checkbox"/> SF Begin	<input type="checkbox"/> SF Duration	<input type="checkbox"/> SF End
F1 Next		

## PRODUCTION PITCH CONTROL

Production phase	Programme No.	1
Pitch control	Distance No.	2
Total length	<input type="text" value="2000"/> mm	
Measuring resistance	<input type="text" value="2500"/> mm	
Measuring copper shoot	<input type="text" value="3000"/> mm	
Pitch	<input type="text" value="1.234"/> mm	
R-correction	<input type="text" value="20"/>	measure adjusted
Start F1	Stop F2	Hand F3   Up F4   Down F5   Return F6

## PROGRAMMING OHM VALUE

Programming phase	Programme No.	1
Winding data	Distance No.	2
<input type="checkbox"/> Select input	Pitch = 0 Resistance = 1	
Resistance	Ohm per m <input type="text" value="3000"/>	
Length of distance	mm <input type="text" value="1000"/>	
Select functions with 0 or 1		
<input type="checkbox"/> Shooting	<input checked="" type="checkbox"/> Ohm-control	<input type="checkbox"/> Stop
<input type="checkbox"/> SF Begin	<input type="checkbox"/> SF Duration	<input type="checkbox"/> SF End
F1 Next		

## PRODUCTION BRAKE DATA

Production phase	Programme No.	1
Brake	Distance No.	2
Brake	<input type="text" value="50"/> %	
Acceleration		
Consumption		
Change Begin	<input type="text" value="1000"/> %	Prod. <input type="text" value="20"/> %
End	<input type="text" value="80"/> %	
Regulation factor	<input type="text" value="100"/>	
Acceleration	<input type="text" value="100"/>	
Consumption	<input type="text" value="100"/>	
Start F1	Stop F2	Up F4   Down F5   Return F6

