

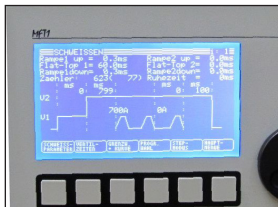


*ISQ20 Kompakt*

# ISQ Series

## Resistance Welding Control High-Frequency Inverter

The ISQ Series is designed to be used in combination with mechanical, pneumatical or motorised weld heads. It offers process control monitoring with MG3 and with the AWS3 Active Welding System. The AWS3 integrates the process control of all mechanical and electrical parameters, static and dynamic process monitoring, quality analysis with advanced SPC feature and datalogging. More details are available in the AWS3 Technical Data Sheet.



*Standard Display MFT1*



*Optional AWS3 Touchscreen Display with additional features*

### KEY FEATURES

- Compact design for optimal system integration
- Integrated process monitoring allows for quality control
- Short cycle times thanks to high output current
- Up to 20 kHz feedback for fast reaction to fluctuations in the weld process
- Optimum feedback thanks to current, voltage and power mode controls
- Additional force control via proportional valve

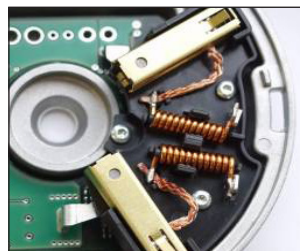
### TYPICAL APPLICATIONS



*Stranded Wire to Coil*



*Motor Fusing*



*Stranded Wire to Terminal*



## PRODUCT OVERVIEW

The MIYACHI PECO ISQ inverter series is available in four performance versions:

	ISQ20-3k	ISQ20-6k	ISQ20-10k	ISQ20-20k
<b>Performance range</b>	0,75 kA – 1,5 kA - 3 kA	6 kA	10 kA	20 kA
<b>Weld current type</b>	Controlled DC inverter current		AC or DC inverter	
<b>Features</b>	Inverter with integrated power on button, Performance and Control Electronics, voltage control cable und removable Display MFT1 (optional: AWS3-Display) and additional:			
	Compact version w/integrated transformer, voltage sensor cable		Separate DC- or AC-transformer	separate DC- oder AC-transformer, external main fuse and net filter
<b>Options</b>	19" plug-in unit ISQ20-MFC without main unit			

## TECHNICAL SPECIFICATIONS

Functions	ISQ20-3K and ISQ20-6K	ISQ20-10K and ISQ20-20K
<b>Control / control mode</b>	Current, voltage or power feedback control, independently adjustable independently for each pulse, APC (Active Part Conditioner) function and current, voltage, performance and energy limits	
<b>Programmable weld schedules / external weld schedule selection</b>	99 at single axis; 49 per head at dual axis	
<b># Of weld pulses</b>	1st and/or 2nd pulse, 2nd pulse can be repeated max 10 times (decrease adjustable down to 1% of 2nd pulse)	
<b>Weld pulse control</b>	Up slope, weld-time, down-slope, break time, impuls cycle	
<b>Current measurement</b>	Integrated toroidal coil (Rogowski coil)	external toroidal coil
<b>Voltage measurement</b>	Potential free, external connection (X10 axis/head 1; X11 axis/head 2)	
<b>Limit values</b>	Display with limit exceeding. upper and lower limit, time limit, welding energy limit with sensitive components (weld to limit)	
<b>Out of limit error message</b>	Text indication with limit and device errors; monitoring limits for U, I or P; + and – tolerance windows individually adjustable	
<b>Parts check</b>	Test pulse for part detection (pre-weld-check)	
<b>Operation</b>	One button toggle wheel, monochrome display, Optional: coloured AWS3 Display, Profibus or Ethernet IP	
<b>EU certification</b>	CE Compliant	
<b>Continuous sound pressure level</b>	The equivalent continuous sound pressure level rated A is below 70 dB. Sound pressure levels may vary depending on the welding material and the environmental conditions. If necessary consult an acoustic specialist.	

Electrical data	ISQ20K-3	ISQ20K-6	ISQ20-10K	ISQ20-20k
<b>Supply voltage</b>	3x 400 VAC, ± 10%, PE; 3x 230 V (optional), ± 10%, PE ISQ20-MFC 19": non-heating 3 pole connector		3x 400 VAC, ± 10%, PE	
<b>Mains frequency</b>	50 - 60 Hz			
<b>Fusing</b>	with 400 V: 3x 16 A, delayed; with 230 V (optional): 3x 32A, delayed		3 x 32A, delayed	3 x 125A, delayed (external)
<b>Connection cable</b>	with 400 V: 4 x 2.5 mm <sup>2</sup> , with 230 V (optional): 4 x 4 mm <sup>2</sup>		4 x 6 mm <sup>2</sup>	4 x 50 mm <sup>2</sup> shielded
<b>Protection class</b>	IP30 ISQ20-MFC 19": depending on housing			
<b>Welding transformer</b>	internal for 3 kA	internal for 6 kA	External: DC: IT-60X AC: TRM3 14-9 V MT-40X-530	External: DC: IT-113 AC: upon request

Power data	ISQ20K-3	ISQ20K-6	ISQ20-10K	ISQ20-20k
<b>Connected load</b>	11 kVA	11 kVA	22 kVA	85 kVA
<b>Switching frequency</b>	max. 20 kHz	max. 14 kHz	1 – 10 kHz (AC) 1 – 5 kHz (DC) depending on primary current	
<b>Output frequency</b>	40 kHz	28 kHz	1 – 10 kHz (AC) 2 – 10 kHz (DC)	
<b>Fundamental frequency AC</b>	---	---	AC: 50 – 250 Hz	
<b>Rated power</b>	12 kVA	24 kVA	40 kVA (DC)	25 kVA (AC) , DC with IT 113: 75 kVA; dep on transformer

Power data	ISQ20K-3	ISQ20K-6	ISQ20-10K	ISQ20-20k
Max. weld current	3 kA with 5% d.r.	6 kA with 5% d.r.	10 kA with 8% d.r. DC only	20 kA with 15% d.r. DC only
Max. weld period	320 ms/pulse	320 ms/ pulse	640 ms/ pulse	
Min. weld period	0.7 ms		DC: 0,7 ms AC: 0,5 x impuls frequency	
Rated output current	2 kA with 11% d.r.	3 kA with 20% d.r.	depending on transformer	
Min. terminal voltage	4 V with 3 kA	4 V with 6 kA	DC: 4 V with 10 kA AC: dep on transformer	DC with IT 113: 3 V at 25 kA; AC: dep on transformer
Max. open-circuit voltage	10 V	10 V	DC: 10 V AC: dep on transformer	DC: 11 V AC: dep on transformer

Interfaces	ISQ20K-3	ISQ20K-6	ISQ20-10K	ISQ20-20k
Secondary connections	CU-rails, 2 x M8 internal thread		Depending on transformer	
Analog inputs	pressure sensor for proportional valve			
Analog outputs	proportional valve control			
Digital interface	via D-Sub-9 socket; welding data output in ASCII-compatible printing format			
Binary interface inputs	start, quick stop, pressure switch, proximity switches, pressure sensor			
Binary interface outputs	a.o. stepping contact, counter, set point deviation, closing stroke, welding pressure, air valves			

Operation Mode	ISQ20-3k and ISQ20-6k	ISQ20-10k	ISQ20-20k
Cooling	forced air ventilation, temperature controlled	Transformer water cooled	Inverter and transformer water cooled
Moisture	40 – 70 %, not condensating		
Ambient Temperature	0 - 40° C		

## WEIGHT & DIMENSIONS

	ISQ20-3k	ISQ20-6k	ISQ20-10k	ISQ20-20k
Weight inverter	approx 33 kg	approx 43 kg	approx 20 kg (without transformer)	approx. 31 kg, (w/o transformer etc)
Dimensions inverter (BxHxW)	216 x 420 x 480 mm 216 x 420 x 550 mm (including projection) ISQ20-MFC-19": 482 x 174 x 315 mm			
Weight transformer	---	---	IT-60X: approx 16 kg TRM3: approx. 45 kg MT-40X-530: approx. 63 kg	IT-113: approx 25,5 kg
Dimensions transformer (BxHxW) in mm	---	---	TRM3: 360 x 150x 185 IT-60X: 284 x 110 x 170 MT-40X-530: 732 x 92 x 235	IT-113: 420 x 125 x 230



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