ORBITALUM

A cura di: Miss. Stefanie Reichle

Compact Power Supply ORBIMAT®

Compact Power Supply ORBIMAT®: Operator guidance with tactile top-class navigation

Easier to handle, more economical, more effective – TIG orbital electrode holders and welding heads with outstanding characteristics

One of the main focuses of the trade-show presentation by the pipe-processing specialist, Orbitalum Tools GmbH, based in Singen, was the new compact power supply ORBIMAT® 300 CA AVC/OSC for mechanized TIG orbital welding with a currently unique operating concept (MMS) and a whole series of other special technical features. In connection with the equally new and particularly functional open ORBIWELD TP AVC/OSC pipe-to-pipe electrode holders – even for pipe thicknesses of over four millimeters – or the new high-precision P16 AVC pipe welding head, the user is being offered an extremely innovative and economical welding system.

The operating concept for the power supply is quite different from the standard operating variants with a touchscreen available on the market: The operator guidance with a display and single-knob operation originates from the automotive manufacturing sector and has become tried and tested worldwide in the "information entertainment systems" in modern luxury vehicles. Orbitalum is also exploiting the tactile function of the push/rotary knob. For this purpose, the rotary knob is in bi-directional contact with the processor of the 300-amp power supply, which determines how the movement of the rotary knob feels: When moving between menu items, it feels like a roughly engaging cam switch with considerable rotary resistance, but when adjusting values and parameters, it feels like fine-tuning a transmitter on a receiver. The main advantage of this is that the gaze of the operator remains focused on the screen.

Other technical refinements of the ORBIMAT® CA include softkeys for essential, high-level and quick-action commands such as "Start/Stop". Compared to DOS systems, the operating system in use – RTOS (Real Time Operating System) – has the advantage that not even a direct, abrupt shutdown of the system will lead to any problems. This is particularly important for the operation of susceptible power supplies, such as on building sites. Compare to Windows – where the graphic presentation of the current screen window is important – RTOS always focuses on the steering and control of the welding process, which is ultimately crucial for the quality of the welding result; the optionally available BUP (Backup Pressure Control) control upgrade is also a new innovation. BUP regulates the pressure of the forming gas in the pipe on a sector basis, depending on the burner setting – this operation counteracts the gravity of the welding pool and so guarantees an all-round even seam. Moreover, the Flow Force function, which decisively shortens the work process through the use of sealed welding heads, is also unique on the market. Before the start of the welding process, inert gas is fed from the pressure reducer through a second duct for inert gas into the chamber of the welding head – and the undesired oxygen is rinsed out abruptly; the ORBIMAT® power supply automatically detects and takes into account for the course of the process any connected system components, from the sealed or open welding head with automatic control of the arc clearance (AVC = Arc Voltage Control) and/or the integrated oscillation of the burner (OSC = Oscillation) through to the oxygen analysis unit. In contrast to conventional orbital welding power controllers, the setting and controlling of the burner clearance with regard to the weld seam is carried out directly via the arc clearance, without the need for any time-consuming and possibly erroneous trial and error and usually without any further manual corrections.

The new open pipe-to-pipe electrode holders in the ORBIWELD TP AVC/OSC series offer outstanding features in terms of design and functionality: The drive motor is integrated in the electrode holder housing in contrast to conventional electrode holders, which provides a compact design without any protrusions that would be disturbing in practice. At the same time, this design reduces the weight of the unit. The 100 mm wire reel for holding the additional wire during TIG cold-wire welding is also mounted on the electrode holder housing. This prevents an irritating twisting of the wire during the joining process.

Underground welding on large-scale heat exchanger: With extreme precision and economy, the pipe welding head will produce several thousand weld seams that are as identical as two peas in a pod

Saldatura su un grande scambiatore di calore: con estrema precisione ed economia, la testa di saldatura di tubazioni produrrà diverse migliaiadi cordoni di saldatura che sono identici come due piselli in un baccello

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The clamping range of all three electrode sizes (TP 400: For exterior pipe diameters from 30 – 115 mm; TP 600: 70 – 170 mm; TP 1000: 120 – 275 mm) can be adjusted easily with the rotary knob across the entire respective rated range.

A unique feature of the Orbimatic electrode holders is the mode of action of the burner stroke (AVC): It is available to the full extent across the entire rated range. This is a priceless advantage compared to conventional market orbital electrode holders, as the electrode clearance to the pipe does not have to be adjusted manually every time that the exterior pipe diameters change. The maximum oscillation path of the burner is 20 millimeters.

The P16 AVC pipe welding head is also characterized by special design features intended to ensure easy handling combined with a high level of economy and functionality: Its water cooling is fed right to the TIG burner head, which ensures more precise working and consistent quality of the joining process, as well as extending the power-on time. The burner head can be pivoted freely by up to 30° – this function is valuable, for instance, on pipes that are entering tubesheets at an angle or in restricted spaces.

Another extraordinary feature is the cold-wire feed positioned directly on the rotary axis of the welding head, for holding 100 mm wire reels. Thanks to this ingenious trick, the wire runs evenly and without any twisting out of the nozzle and into the molten pool.

Orbitalum Tools GmbH in Singen, the market leader for machines and tools for orbital pipe processing, and Busecker Orbimatic GmbH, a specialist for orbital welding systems, were merged in 2009 to form the new company Orbitalum Tools GmbH. Thanks to the merger of the two companies and the resulting product range, Orbitalum Tools is extending its global market position for integral solutions in the industrial preproduction, installation, and maintenance of piping systems: From pipe cutting to the preparation of weld seams through to orbital welding – all from a single source. The brand name "Orbimatic" is still being retained by Orbitalum Tools GmbH for orbital welding equipment.