



DINSEO



# WIRE FEEDING SYSTEMS FOR WELDING APPLICATIONS

THE PRECISE  
DRIVE PACKAGE  
FOR DEMANDING  
MANUFACTURING  
PROCESSES

- ▶ Exact wire feeding
- ▶ Extremely short reaction times
- ▶ Modern drive concept
- ▶ Fully digitalized process control
- ▶ Detailed monitoring
- ▶ Maximum production reliability
- ▶ Robust
- ▶ Already very successfully in use in the automotive industry

# DEAR CUSTOMERS, DEALERS AND PARTNERS,

In today's rapidly evolving world, where efficiency and speed are critical factors in selecting manufacturing technology, the ability to stay competitive is paramount. Tight production schedules necessitate the swift manufacturing of parts to meet delivery deadlines.

Laser welding emerges as the superior choice in this regard, owing to its remarkable welding speed. Compared to conventional welding methods, laser welding can efficiently join components in significantly less time.

**When it comes to laser welding and brazing, our DINSE wire conveyor system has always been synonymous with speed and precision.**

Now, with our latest generation comprising control, drive unit, wire straightening unit, optional hot wire power source, and other components, we are taking a significant leap forward in terms of both speed and quality.

This advancement revolutionizes response times in laser welding and soldering, propelling us into a new era of manufacturing efficiency.

**What is the secret behind our exceptional performance?**

Introducing the new and improved DIX FDE-150 control unit, meticulously optimized compared to its predecessor, the DIX FDE-

100. Equipped with a powerful industrial PC and a multi-core processor, this cutting-edge control unit unlocks a world of possibilities.

One of its standout features is the unprecedentedly short response times it offers, ensuring swift and precise operations.

Signal runtimes exhibit remarkable reproducibility, guaranteeing consistency in performance. **In fact, the new system boasts response times that are four to five times faster than the previous iteration!** Moreover, the wire feed speed seamlessly follows the robot speed in real-time, enhancing efficiency and synchronization.

To enhance the user experience, our new control system comes complete with a range of modules and additional components. These additions empower users to tailor the system to meet their unique challenges and requirements.

We are thrilled for you to explore the vast possibilities offered by our wire feeding system for lasers. Our team is eagerly waiting to provide you with expert advice and guidance for your specific application.

## Jean-Marie Sandrock

Product Manager  
sandrock@dinse.eu



All suitable spare and wear parts can be found in our LASER product catalog.





- ① DIX LHZ 100 Torch Set
- ② DIX FD10xLS Front drive unit with water set
- ③ DIX VLSL 201 xx Supraliner
- ④ DIX WD 300 FD Wire feeder
- ⑤ DIX HW 300 PULS Hot wire power source and cooling module DIX CM 592 HW
- ⑥ DIX TR 150/300 Trolley
- ⑦ DIX FDE 150 Control unit

## QUALITY AND PERFORMANCE - WITHOUT COMPROMISE

### THE TOP CLASS SYSTEM FOR SOPHISTICATED PROCESSES

Complicated component geometries, weld seams in the visible area and special stability requirements demand the highest welding quality. This is where DINSE systems prove their worth.

Whether cold or hot wire: The use of filler wire provides decisive technological advantages in laser welding and soldering.

All system components of our modular wire feeding system are optimized for laser welding and soldering, perfectly matched to each other and have standardized interfaces as well as various connection options.

Torch head, torch set, drive unit, wire feeder, connection set, control unit, power source and cooling module are at the cutting edge of industrial technology, ensuring smooth production processes, perfect communication, fast signal conversion and detailed monitoring of the entire process.

# CONTROL UNIT DIX FDE-150

## CONVENIENT OPERATION AND CONTROL

The innovative control system with convenient touchscreen operation via the 7" color display regulates the complete hardware and software of the DINSE system. The extended process monitoring documents all relevant data.

**OUR CONTROL DIX FDE-150 IS THE COMMUNICATION INTERFACE BETWEEN THE ROBOT CONTROL AND THE DINSE WIRE FEEDING SYSTEM.**



## THE RIGHT CONNECTION FOR EVERY SIGNAL:

Profinet, EtherCAT, EtherNet/IP, Profibus, analogue control

## TECHNICAL DATA

V Wire	0,3-24 m/min
Mains voltage	100/110/115/230 V <sub>AC</sub> 400/480/500 V <sub>AC</sub> 50 Hz - 60 Hz
Power consumption	160 VA
Power consumption	T 6,3 A
Protection class	IP 54
Dimensions (L / W / H)	690 / 404 (201) /440 mm
Weight	ca. 25 kg

# FASTER THAN THE REST PRECISE AS NEVER BEFORE!



## 4-5 TIMES FASTER RESPONSE TIME

- ✓ Increased productivity
- ✓ By far the fastest Industrial Ethernet technology



## HIGH REPRODUCIBILITY OF SIGNAL RUNNING TIMES

- ✓ Reduction of rework



## V-PROP CAPABLE

The wire conveyor speed follows the robot speed in real time

- ✓ Avoidance of welding defects and production scrap



## MULTI-CORE PROCESSOR

Powerful industrial PC instead of a conventional PLC control

- ✓ Fast signal processing



## INTERFACE FOR ALL FIELDBUS SYSTEMS

(optional analog control)

- ✓ Guaranteed compatible with your robot



## LATEST OPERATING SYSTEM (WINDOWS 10 IOT)

- ✓ Innovative and latest technology



## REMOTE MAINTENANCE

Remote access and maintenance possible from anywhere in the world

- ✓ Fast response times and avoidance of production downtime
- ✓ Access to the control possible at any time, without presence on site



## MODULAR CONSTRUCTION

Standard components expandable

- ✓ Future-proof and always up-to-date
- ✓ Savings potential - despite the latest technology



## INTEGRATED DINSE USV TECHNOLOGY

always keeps and backs up your parameters/data via HDD backup

- ✓ No data loss, even in the event of a hard shutdown or power failure
- ✓ Process reliability



## MONITORING

- ✓ Management, diagnostics, error evaluation and quality assurance in one tool



## HOT WIRE CAPABLE

- ✓ Compatible with your hot wire process

# TOUCHSCREEN

THE MICROPROCESSOR-BASED CONTROL SYSTEM CAN BE OPERATED INTUITIVELY AND CONVENIENTLY VIA THE 7" COLOR DISPLAY WITH TOUCHSCREEN.

Optimized functions and the clear display of all relevant data on the system status display allow easy programming and editing of all production parameters.

## CONVINCING FEATURES

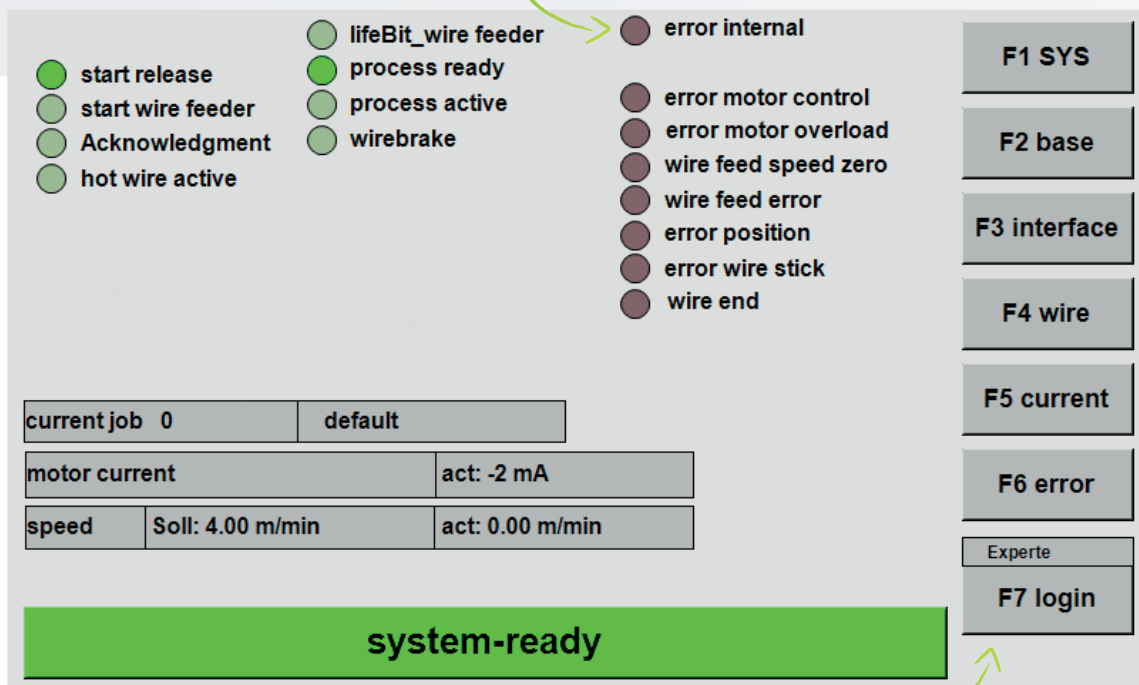
- ▶ Setting and editing of up to 256 jobs
- ▶ Comprehensible documentation of the processes
- ▶ Error display in plain text, error memory with analysis, remote maintenance function
- ▶ Creation and management of freely definable maintenance intervals
- ▶ Multiple controllers can be assigned station information via IP address assignment
- ▶ User interface in six different languages: German, English, French, Polish, Chinese and Japanese
- ▶ Four different user levels: user, service, expert, administrator

### STATUS

of the wire feeder, front drive, hot wire power source and cooling module

### ERRORS OR FAULTS

### INPUT SIGNALS



### CURRENT

### TARGET AND ACTUAL VALUES

for wire feed speed and hot wire current height (optional)

- F1 System settings
- F2 Basic settings (motor selection; jobs; scaling)
- F3 Interface settings

- F4 Wire parameters
- F5 Hot wire parameters
- F6 Error overview
- F7 User levels

# MONITORING

**BOTH THE HARDWARE AND THE SOFTWARE ARE CONTINUOUSLY MONITORED BY THE DINSE DIAGNOSTIC TOOL AND COMPARED WITH SPECIFIED TARGET VALUES.**

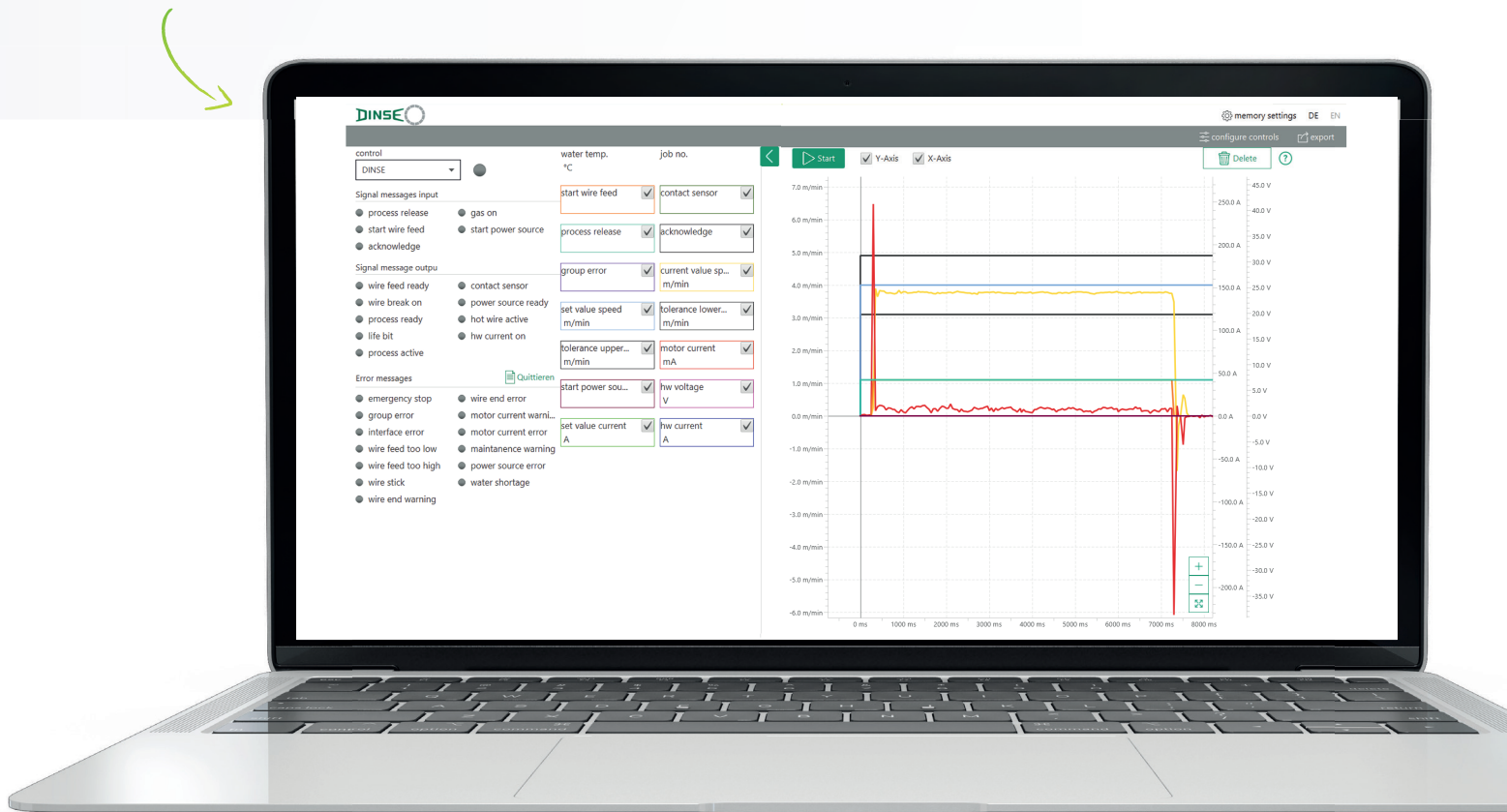
This allows irregularities to be detected at an early stage and potential sources of error to be eliminated in advance.

**MANAGEMENT, DIAGNOSTICS, ERROR EVALUATION AND QUALITY ASSURANCE**

combined in one tool

## PROCESS CONTROL IN PERFECTION

- ▶ all parameters freely programmable (e.g. wire speed setpoint m/min, wire speed actual value m/min, process release or hot wire voltage)
- ▶ monitoring of wire run, gas or water by connectable sensors
- ▶ extended process documentation of performance and consumption data for component monitoring
- ▶ absolute transparency through continuous motor monitoring, warning messages and error logs that can be read out via SD card
- ▶ external PC monitoring with freely selectable parameters can be used in online display



# FRONT DRIVE UNIT DIX FD 10x LS(-WB)

**MAXIMUM PRECISION: FRONT DRIVE, WIRE FEED SENSOR AND WIRE BRAKE ARE COMBINED IN ONE DYNAMIC UNIT.**

An innovative four-roll drive ensures even more powerful wire feeding.

The compact dimensions ensure a wide range of applications thanks to good component accessibility.

The integrated wire feeding sensor ensures precise wire positioning thanks to its exact measurement of distance.

The wire feeding is permanently monitored during the welding process.

A wire brake keeps the welding wire mechanically stable when the robot is moving and serves as an additional component to ensure reliability. This guarantees a consistent stick-out in any position for touch sensing.

**POWERFUL  
4-ROLL DRIVE**

**LOW-WEIGHT  
1,8 kg**

- ▶ Front drive, sensor and wire brake in one compact, robust unit
- ▶ Powerful, constant and precise wire feeding
- ▶ Opening and closing of the pressure system possible without readjustment

- ▶ Fast and tool-free replacement of spare and wear parts
- ▶ Easy to integrate
- ▶ Simple wire threading



# SUPRALINER DIX VLSL 201

## THE PERFECT COMPLEMENT: LOW-FRICTION CONVEYING OF WELDING WIRES WITH THE SUPRALINER

Instead of wire guide cores, the filler material slides over rollers, each of which is offset by 90°. This opens up a new dimension of uniform wire feeding - with significantly reduced amount of maintenance required.



### WIRE FEEDING UP TO 55 METER

Individually customizable and  
shortenable

- ▶ Ideal for highly dynamic movements
- ▶ No abrasion due to extremely low forces on the welding wire
- ▶ Low maintenance requirements due to low sliding friction
- ▶ Low weight
- ▶ Applicable for all types of wire, wire diameter:  $\varnothing$  0,8-1,6 mm
- ▶ Bending radius min.: 250 mm
- ▶ Quick release fastener ensures simple and quick assembly and exchange

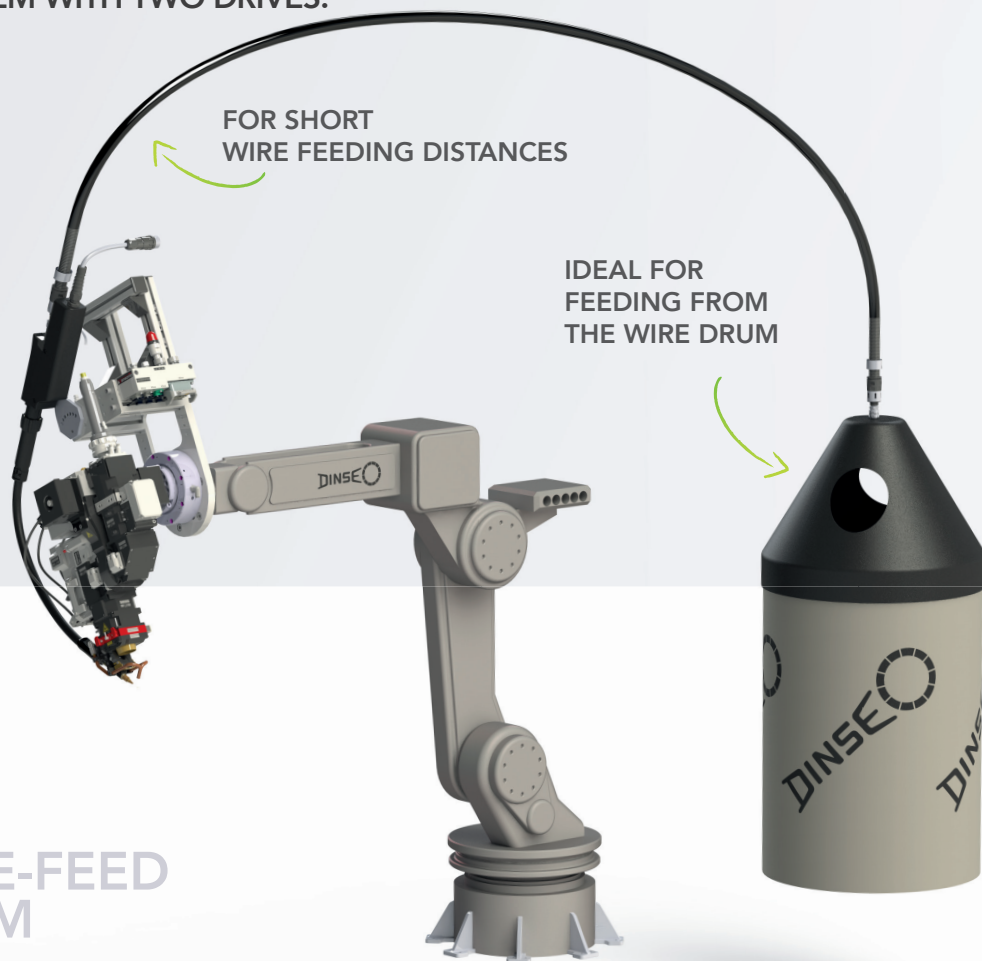
# WIRE FEEDING CONCEPTS

**DIFFERENT VARIANTS - ONE CLAIM:  
PRECISE WIRE FEEDING.**

**THE OPTIMUM SOLUTION IS OFFERED BY  
THE DINSE SINGLE-FEED WIRE FEEDING  
CONCEPT WITH ONE DRIVE OR THE PUSH-  
PUSH SYSTEM WITH TWO DRIVES.**

## THE PERFECT INTERACTION

DINSE wire feeding systems are flexible adaptable to spool holders, large spools and wire drums in various sizes. The DINSE wire feed system is cold and hot wire capable.



## SINGLE-FEED SYSTEM

In the DINSE SINGLE-FEED system, the wire is fed directly from the barrel to the workpiece by the powerful 4-roll drive of the FD 10x LS drive unit.

This system design is suitable for wire feeding of CuSi, steel and stainless steel wires ( $\varnothing$  0,4 – 1,6 mm). Thanks to the few components required

in the process, this wire feeding concept is cost-effective and easy to maintain - with highly precise wire feeding.

PUSH-PUSH TECHNOLOGY

WIRE FEEDING UP TO 55 METERS

WIRE FEEDER DIX WD 300 FD Supporting PUSH-operation for wire feeding over long distances

THE ADJUSTABLE TORQUE OF THE FORCE-CONTROLLED ADDITIONAL MOTOR (SLAVE) MAKES IT POSSIBLE TO PRECISELY CONTROL THE REQUIRED FEED FORCE. THIS PROVIDES THE FLEXIBILITY TO ADAPT TO DIFFERENT MATERIALS, WIRE THICKNESSES OR WORKING CONDITIONS

THE FRONT, SPEED-CONTROLLED MOTOR IN THE DIX FD 10X LS(-WB) DELIVERS EXACTLY THE REQUIRED AMOUNT OF WIRE (MASTER)

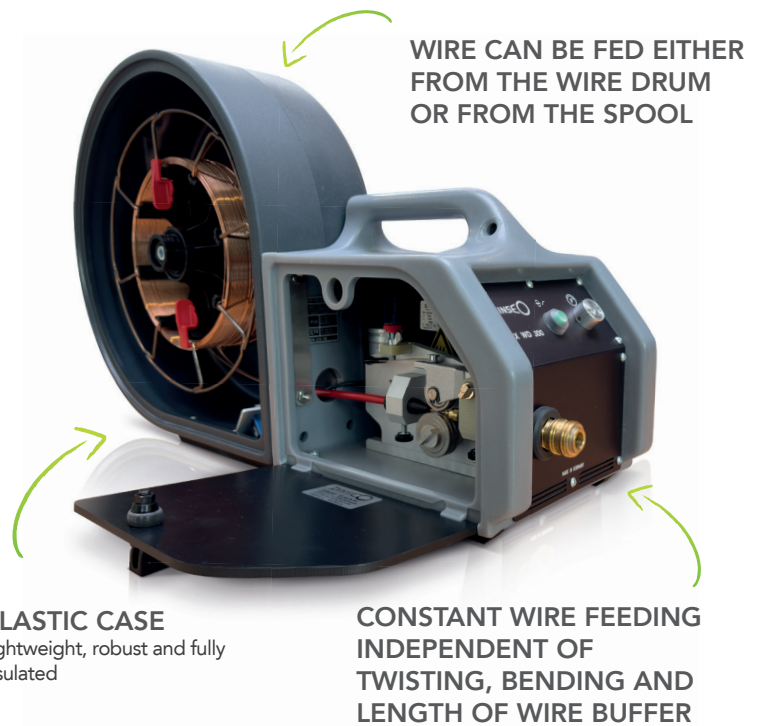
The DINSE PUSH-PUSH system operates with two completely decoupled drive units, thus ensuring wire feeding to the front drive as required. Synchronization of the two drive units is not required.

This wire feeding concept is particularly suitable for soft wires, such as aluminum.

WIRE BUFFER TECHNOLOGY INCLUDED

Guarantees a gentle wire feed with less effort on the front drive.

With the DINSE wire buffer technology, there are no delays in the feeding process.



WIRE CAN BE FED EITHER FROM THE WIRE DRUM OR FROM THE SPOOL

PLASTIC CASE Lightweight, robust and fully insulated

CONSTANT WIRE FEEDING INDEPENDENT OF TWISTING, BENDING AND LENGTH OF WIRE BUFFER

# TORCH HEADS

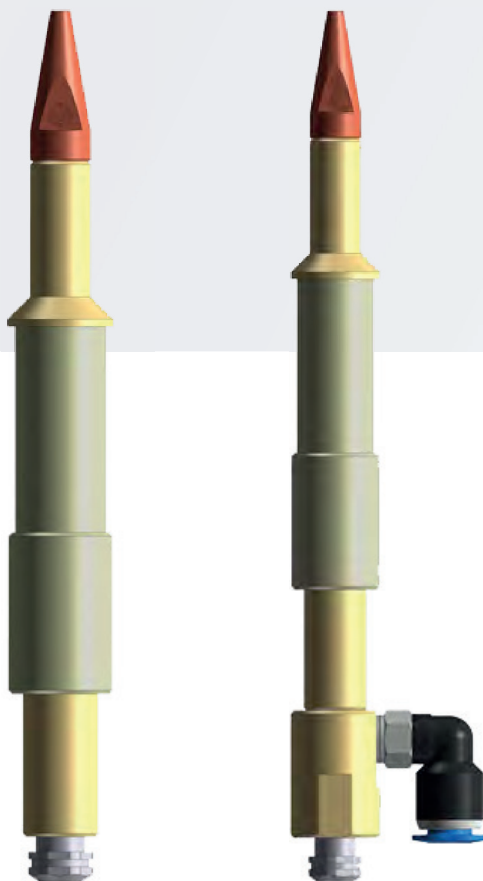
**COMPACT DESIGN, LIGHT WEIGHT AND PRECISE WIRE GUIDING - OUR TORCH HEADS COMPLETE YOUR DINSE WIRE FEEDING SYSTEM.**

Thanks to them, the wire is optimally fed to the welding process.

Our torch heads are available for both cold and hot wire applications. The cold wire version is optionally available for processes

with or without externally supplied shielding gas. The hot wire version is available with gas supply and cooling.

Gas and cooling liquid are fed separately to the feed body here.



**DIX LH 100 AW**  
Gas cooled,  
without integrated  
shield gas guidance



**DIX LH 100 SB**  
Gas cooled,  
with shield gas guidance



**DIX LH 100 SW**  
Gas cooled, integrated  
shield gas guidance with  
gas nozzle



**DIX LKTZ 50 X**  
Liquid cooled, single-cir-  
cut cooling system

# HOT WIRE POWER SOURCE DIX HW 300 PULS

MAXIMUM FLEXIBILITY IN ALL PARAMETERS: THE DIX HW 300 PULS IS PERFECTLY SUITED FOR ALL DC HOT WIRE PROCESSES.

**CURRENT RANGE**  
5 - 300 A

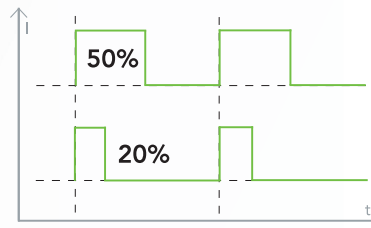
**VARIABLE VOLTAGE LIMITATION**  
14 - 60 V

**PULSE FREQUENCY**  
from 0,5 - 2.000 HZ

**BALANCE SHIFT**  
between 10% and 80%



OUTPUT  
VOLTAGE  
LIMITABLE



Example of balance setting  
at 50% and 20%

The hot-wire power source has a large number of freely selectable parameters. Thus, for heating the wire, pulse frequency, pulse width and pulse height can be set separately from each other and according to individual requirements.

At any time the line energy is controlled. This ensures an absolutely stable process.

**COOLING MODULE**  
**DIX CM 653 HW**

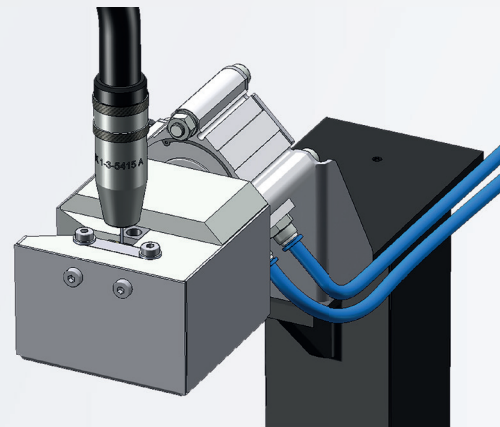
In the optional cooling module, the cooling process is monitored by the integrated temperature sensor and flow meter.

# ACCESSORIES FOR THE PERFECT WELD SEAM

Well thought-out details that make the difference: With our numerous add-on options, your wire conveyor system can be even better adapted to your individual requirements.

## WIRE CUTTER WCU 700

- ▶ Specially developed for laser welding applications
- ▶ High TCP repeatability due to clamping of the wire during the cutting process
- ▶ Before cutting, the welding wire is clamped exactly above the interface to avoid bending of the welding wire
- ▶ Precise cutting process even with hard and thick wires



### 1 PROFILE ROLL SET FD RSL-XX

- ▶ Two captive lock nuts for toolless profile roll change
- ▶ Fully compatible

### 2 ADAPTER SET AS-CD

- ▶ Easy to install, fixed connection
- ▶ Consistent constants (decoupled forces on tactile laser head)
- ▶ No torsion

### 3 CONNECTION SET CS-S

- ▶ Made of metal, extremely robust
- ▶ Perfect for wire feeds that have to withstand extraordinary loads

### 4 PRESSURE SYSTEM FD 100 PS A-X

- ▶ Profiled pressure rolls
- ▶ For aluminum welding wires  
Ø 1,0 mm - Ø 1,6 mm

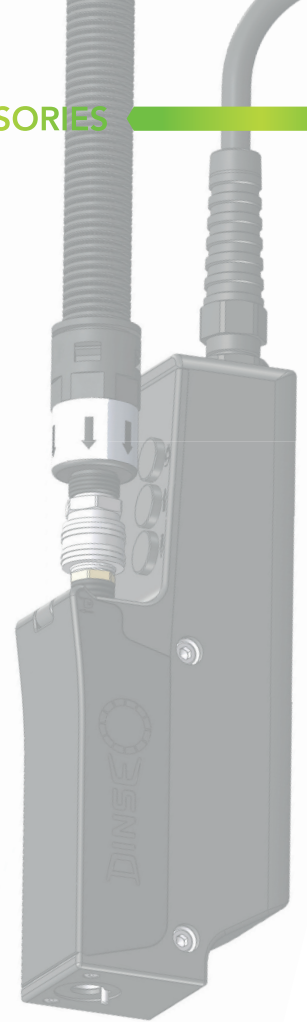
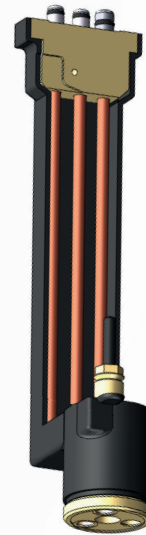
## 2 SEPARABLE WATER SET FD 100 AST-HW / FD 100 WAST-X

- ▶ Division into water set and torch set
- ▶ Quick replacement, without disassembly of the trim and vice versa
- ▶ Significantly increased serviceability

1



2



3



## 1 WIRE STRAIGHTENING UNIT DRE 360 S

- ▶ Particularly compactly designed
- ▶ Optimally protected against welding splashes and dust
- ▶ Universal flange construction
- ▶ Modular design allows almost any number of wire straightening units to be connected to each other
- ▶ Straightening units can be arranged at any angle to each other
- ▶ The housing protects the straightening unit from dirt for a long service life
- ▶ Adjustment screws secured by anti-rotation protection

## 3 TROLLEY DIX TR 150/300

- ▶ Specially developed for laser applications
- ▶ Mobile use due to castors, two castors with double locking device for safe stand
- ▶ Struts, columns and shelves infinitely adjustable
- ▶ Suitable connection sets for power supply



## PROVEN IN PRODUCTION

Whether you need a highly rigid chassis, flawless seams in visible areas, or weld seams with exceptional load capacity, look no further than the DINSE wire feeding system designed specifically for laser applications. Our system not only meets but exceeds the highest demands in automated production.


- ▶ Cold and hot wire applications
- ▶ Welding and brazing
- ▶ Electron beam processes (TIG and laser applications with filler wire)
- ▶ Coating with the aid of various laser optics
- ▶ Rapid prototyping processes
- ▶ Production of new alloys

## FLEXIBILITY FOR THE HIGHEST DEMANDS

- ▶ Processing of unalloyed and low-alloyed steels
- ▶ Welding of high alloy steels, nickel-based and aluminum alloys
- ▶ Soldering of surface coated materials
- ▶ Brazing of mixed joints between different materials
- ▶ Soldering and cladding of wear resistant coatings



DINSE is your dependable partner for the entire welding process. Contact us and schedule an appointment for consultation today. Together with you we will find the best solution for your application.

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