



# talos

technical  
specifications

	technical specifications	comments / measurements
<b>system dimensions (w x d x h)</b>	1,140 x 1,740 x 1,930 mm (44.8" x 68.5" x 76")	
<b>system weight</b>	680 kg (1,500 lbs)	max. floor load: 200 kg (440 lbs) castors // weight incl. crate: 950 kg (2,100 lbs)
<b>facility requirements – electric</b>	please see chart below	cable included (CEE7/7 -EU; NEMA5-15 -US; BS1363 -UK) – in case a different plug is required, please contact esmo semiconhandler works with US or EU power supply without having to change any settings  US electrical chiller has second power supply cable!

Config.	EU		US	
<b>Voltage</b>	230 V / 50 Hz single phase (CEE 7/7)		110 V / 60 Hz (Nema 5-15P)	
	Current cont. [A]	max (2s) [A]	Current cont. [A]	max (2s) [A]
<b>Standby</b>	1.2	1.2	2.5	2.5
<b>Ambient</b>	1.5	2.3	2.9	5.5
<b>Hot</b>	2.3	3.3	4.5	7.3
<b>LN2 chiller</b>	1.5	3.0	3.2	6.1

E-chiller (separate supply)	EU		US	
<b>Voltage</b>	230 V / 50 Hz single phase (CEE 7/7)		110 V / 60 Hz (Nema 5-20)	
<b>E-chiller</b>	7.7	8.0	14.8 (nom. cont.) – 18.0 (max cont.)	20.0 (starting/inrush)

<b>facility requirements – pneumatic</b>	compressed air: clean, dry - dew point -60 °C (-76 °F), oil-free, min. 6 bar (87 PSI) · max. 14 bar (203 PSI) max. consumption: 50 NL/min hot test operations, 170 NL/min LN2 (cold test operations incl. chamber purge) connection: FESTO quick coupling KD4-1/4-A or 3/8" NPT	50 NL/min for hot test 80NL/min for cold test with electric chiller 80 NL/min for cold test with LN2 heat exchanger (50 to 80 NL/min depending on performance requirements) 90 NL/min chamber purge (only with cold test)
<b>facility requirements – vacuum</b>	200 mbar (3 PSI) (absolute value) connection: FESTO quick coupling KS4-1/4-A or 3/8" NPT	only applies to talos without vacuum generator option – in case a vacuum generator option has been installed, no external vacuum supply will be provided
<b>facility requirements – LN2</b>	1.5 bar (22 PSI) to 4 bar (58 PSI) typical consumption (steady state): 3 l/h peak consumption: 8.5 l/h connection: nozzle Ø 12 x 25 mm or 3/8" NPT	only applies to LN2 heat exchanger option in case LN2 support pressure requirements exceed 4 bar (53 PSI), please contact esmo semicon up front
<b>handling materials</b>	from min. 2.5 x 2.5 x 0.5 mm (0.1" x 0.1" x 0.02") to max. 70 x 70 x 10 mm (2.76" x 2.76" x 0.4")	down to 1.0 x 1.0 x 0.4 mm (0.04" x 0.04" x 0.02") with vision alignment option (For detailed validation of device handling capabilities for your setup, please contact esmo semicon up front!)
<b>human/machine interface (HMI)</b>	15.6" multi-touch panel with esmo-customized HMI	
<b>tester interface</b>	RS232 · TCP/IP · GPIB optional	
<b>x/y/z/theta handling system</b>	4-axis portal plus extra contacting z-axis with thermal head positioning accuracy x/y/z = 0.05 mm (0.002")	
<b>handler parallelism</b>	single-/dual-/multi-site contacting	in special cases a higher parallelism option may be possible – please contact esmo semicon for clarification
<b>max. permanent contact force z1 "handling axis"</b>	115 N (12 kgf)	
<b>max. permanent contact force z2 "temperature axis"</b>	450 N (46 kgf)	800 N (82 kgf) on request (optional)
<b>index time (with pre-centering)</b>	10 s	temperature change or soak time not included typ. soak time 5 to 10 s for devices with a thickness of up to 1.5 mm (0.06")
<b>max. noise level</b>	< 65 dB	
<b>underlying standard</b>	CE	

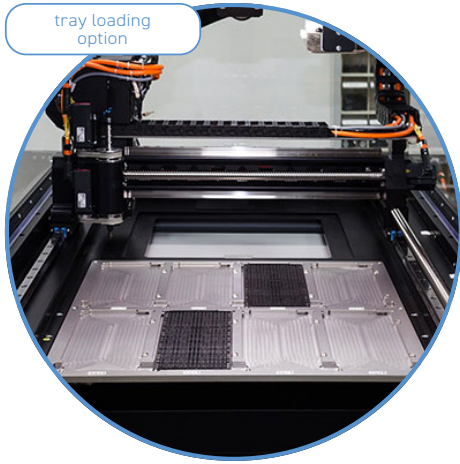
	technical specifications	comments / measurements
<b>thermal performance</b>	<i>Following temp-values are referenced to the plunger only! The achievable device junction temperature has a setup-dependent offset to the plunger temperature! The typical junction temperature examples given may vary in reality (depending on the setup).</i>	
<b>min. plunger temp. after 45 min.</b>	-64 °C (-83 °F) with electrical chiller option -75 °C (-103 °F) with LN2 heat exchanger option	typ. junction temperature -50 °C (-58 °F) with electrical chiller option // -55 °C (-67 °F) with LN2 heat exchanger option → plus optional plunger micro chamber about +5 °C (+41 °F) lower, i.e. up to -60 °C (-76 °F) cooling airflow: 80 l/min LN2 or electrical chiller
<b>max. plunger temp.</b>	+190 °C (+374 °F)	with an optional plunger micro chamber a junction temperature of up to +175 °C (+347 °F) can be achieved
<b>stability</b>	±0.5 °C (±33 °F) long-time test (heatsink)	junction temperature accuracy depending on calibration and setup (optimum calibration stability = accuracy)
<b>initial heat-up time</b>	< 2 min from +25 °C (+77 °F) to +175 °C (+347 °F) plunger temperature	measured with 3 x 3 QA standard plunger and +190 °C (+374 °F) system
<b>initial cool-down time, electric chiller system</b>	17 min from +21 °C (+70 °F) to -50 °C (-58 °F) plunger temp. 29 min from +21 °C (+70 °F) to -60 °C (-76 °F) plunger temp.	measured with 3 x 3 QA standard plunger
<b>initial cool-down time, LN2 system</b>	13 min from +21 °C (+70 °F) to -50 °C (-58 °F) plunger temp. 18 min from +21 °C (+70 °F) to -60 °C (-76 °F) plunger temp.	with 2 bar barrel and 1.5 m (59") supply tube measured with 3 x 3 QA standard plunger

tray loading option		
<b>loading</b>	JEDEC standard trays waffle pack (2" or 4") with waffle pack adaptor plate	JEDEC high-profile trays on request
<b>capacity</b>	max. 8 input/output trays · free input/output/BIN configurations	
<b>jamming rate (ambient/hot/cold)</b>	1 error per 8 h or less	one (1) jamming error at a maximum every eight (8) hours (esmo semicon internal QA acceptance criteria)
<b>weight</b>	7.3 kg (16.0 lbs)	
<b>dimensions</b>	677 mm x 710 mm x 12 mm (26.7" x 28.0" x 0.47")	

tube loading option		
<b>compatibility</b>	compatible with tape loading + dual-tray plate options	
<b>capacity</b>	max. 8 input tubes · max. 8 output tubes · free input/output/BIN configurations	
<b>handling materials (mm/inch.)</b>	max. tube dimensions 21 x 12 x 530 mm (0.83" x 0.47" x 20.87") max. device length: 17 mm (0.67") · metal + plastic tubes supported (tube-/device-specific tube loader/unloader conversion kit required)	for all tubes exceeding 460 mm (18.1"), a special front door will be required
<b>jamming rate (ambient/hot/cold)</b>	1 error per 8 h or less	one (1) jamming error at a maximum every eight (8) hours (esmo semicon internal QA acceptance criteria)
<b>weight</b>	loader: 5.3 kg (11.7 lbs) unloader: 4.6 kg (10.1 lbs)	

tape loading option		
<b>compatibility</b>	compatible with tray unloading + tape loading options	
<b>tape width</b>	each tape width requires a specific feeder module: tape modules available for tape widths of 8 mm (0.32"), 12 mm (0.47"), 16 mm (0.63"), 24mm (0.95"), 32 mm (1.26")	toolless module exchange with quick-release lock
<b>jamming rate (ambient/hot/cold)</b>	1 error per 8 h or less	one (1) jamming error at a maximum every eight (8) hours (esmo semicon internal QA acceptance criteria)
<b>lateral protrusion</b>	300 mm (11.81") without reel	

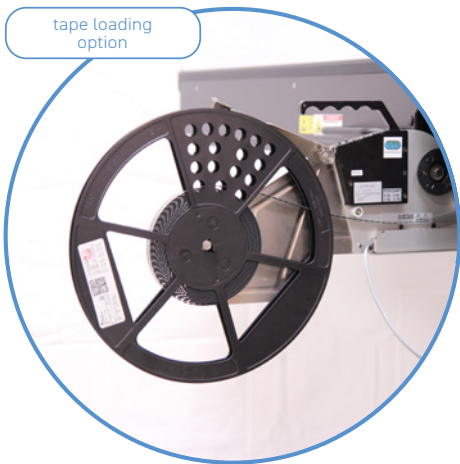
vision alignment option		
<b>compatibility</b>	compatible with tape loading + tray/waffle pack loading/unloading options	specific tray plate required
<b>package types</b>	leadless devices without calibration/modification	for leaded devices a customized vision task will be required
<b>jamming rate (ambient/hot/cold)</b>	1.5 x 1.5 mm to 5 mm x 5 mm (0.06" x 0.06" to 0.20" x 0.20"): 1 error per 8 h or less 1 mm x 1 mm to < 1.5 mm x 1.5 mm (0.04" x 0.04" to 0.06" x 0.06"); 1 error per 1 h or less	one (1) jamming error at a maximum every eight (8) or one (1) hour(s) respectively (esmo semicon internal QA acceptance criteria)
<b>device sizes</b>	1 x 1 x 0.4 mm to 5 mm x 5 mm (0.04" x 0.04" x 0.02" to 0.20" x 0.20")	



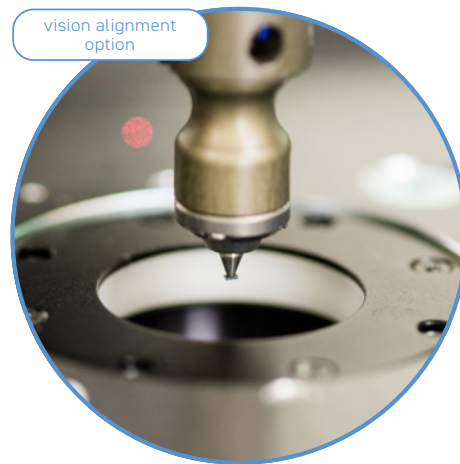
tray loading option



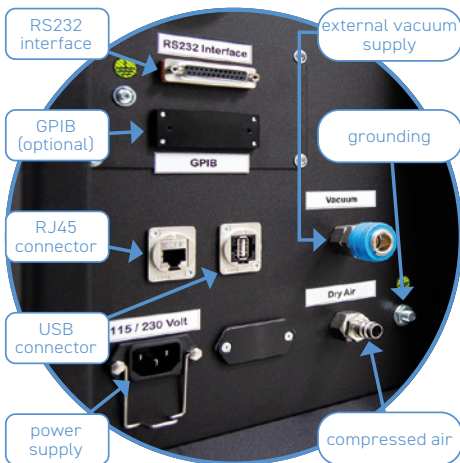
tube loading option



tape loading option



vision alignment option



RS232 interface

GPIB (optional)

RJ45 connector

USB connector

power supply

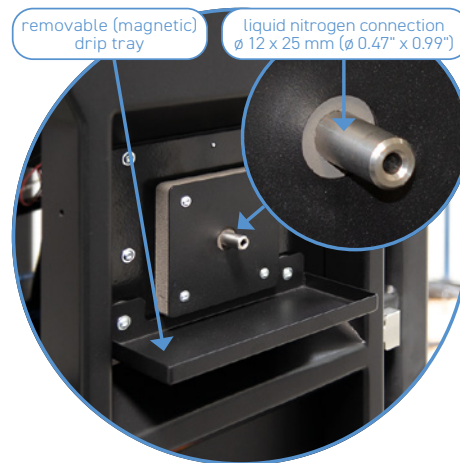
external vacuum supply

grounding

Vacuum

Dry Air

compressed air



removable (magnetic) drip tray

liquid nitrogen connection  
ø 12 x 25 mm (ø 0.47" x 0.99")

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