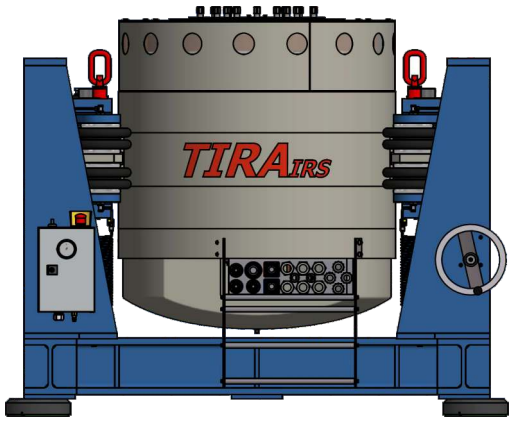
Vibration Test System TV 69410/AIT-480-IRS-420

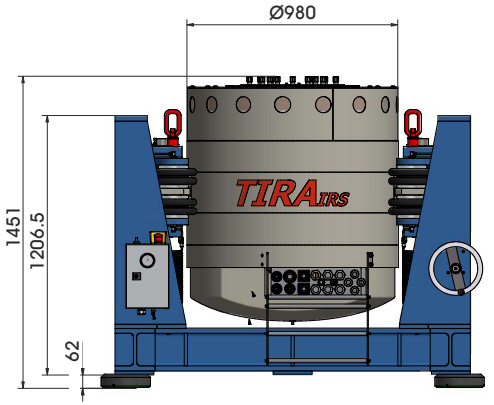
S 69410/AIT-480 (Example drawing) [inch]

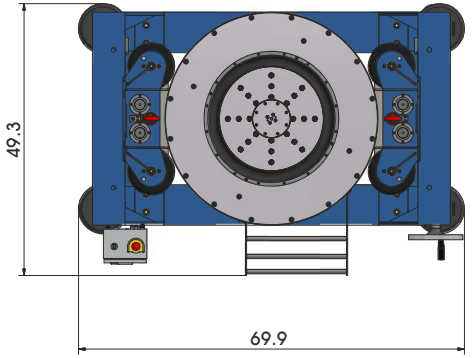
TECHNICAL PARAMETERS

Rated peak force $Sine_{pk}$/$Random^{1}_{RMS}$/$Shock_{pk}^{2}$	28,100/24,954/94,420 lbf
Frequency range	5 - 3,000 Hz
Main resonance frequency	>2,220 Hz
Max. displacement Sine/Random/Shock (Pk-Pk)[3]	2.5/2.5/3.0 inch
Max. velocity $Sine_{pk}$/$Random_{RMS}$/$Shock_{pk}$	79/79/217 inch/sec
Max. acceleration Sine/Random	200/165 g
Max. acceleration Shock (at payload)	3 ms: 200 g (330.7 lb) 6 ms: 160 g (330.7 lb)
Suspension stiffness	565 lbf/inch
Effective moving mass	138.9 lb
Max. payload	1,345 lb
Magnetic stray field[4]	< 1.5 mT
Armature diameter	18.9 inch
Required compressed air supply	Min. 600 kPa
Total mass	11,684 lb
Interlocks: Temperature, displacement, water flow rate, overcurrent, compressed air, conductance5,5	

1) Random force according to ISO 5344
2) Theoretical maximum shock value. Depends on payload, amplifier, shock and shock width
3) Impact by moving to static mass and frequency is possible
4) measured at 5.9 in. above armature inserts
For long-term tests, the load must be reduced to 80 %. Continuous operation at maximum load can cause damage.







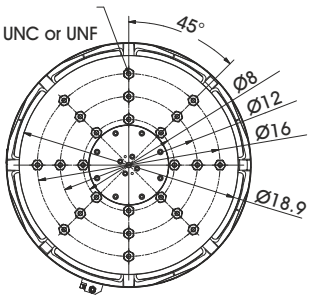
SCOPE OF DELIVERY, OPTIONS AND FEATURES OF THE SYSTEM

Scope of delivery:
Vibration exciter
Trunnion mount
with integrated vibration isolation (AIT)
Power amplifier
Field power unit
Cooling unit with integrated hydraulic unit
Connection cables (each 32.8 ft)
Water hoses with
self-sealing couplings (each 32.8 ft)
Hydraulic hoses with
self-sealing couplings (each 32.8 ft)
Compressed-air hose NW 7.2 (Standard)
(32.8 ft)

Options:
Different hole pattern of armature (different pitch diameter and/or thread inserts) at customers request
Thermo barrier (-40°F to +284°F)
Chamber leadthrough
Climatic chamber support kit
Remote control (Software)
ASM-Mode (Auto-Shutdown-Manager)
Cable/Hose extension
Factory acceptance test
ASG-K - Automatic Rotation System
ERD-Tool - Extended Remote Diagnostic Tool
AIT Resonance System
Low Degauss Kit

Features:
First induct ring shaker with complete closed loop water cooling, no additional blower needed, no spray cooling, reduced air moisture in the system
Vibration isolation < 3 Hz (AIT) (with option AITRS 2-3 Hz)
Fully automatic pneumatic load compensation
Low-friction hydrostatic bearing (Dual Bearing)
AIT fixable
Automatic centering of the AIT-System and the armature
Degauss kit to reduce stray magnetic field
Shaker-water circuit with overpressure
Automatic permanent monitoring of conductance
Integrated mains switch and line filter
Energy-saving-mode
4 Sigma peak current
Made in Germany
Servicehotline

24 Inserts metric M10 or M12
or
imperial 3/8-16 or 1/2-13 UNC or UNF



Armature (Standard)

TIRA GmbH Eisfelder Str. 23/25, 96528 Schalkau, Germany • Phone: +49 36766 280-0 • Fax: +49 36766 280-99 • Internet: www.tira-gmbh.de • Email: st@tira-gmbh.de

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Subject to modifications

TIRA Vibration Test Systems TV 69410/AIT-480-IRS-420

Vibration Test System TV 69410/AIT-480-IRS-420

TECHNICAL PARAMETERS Power Amplifier A 6 00 11 420 + Field power supply

Output power$_{RMS}$ [1]	220,000 VA
Frequency range	DC - 5 kHz
Voltage$_{RMS}$, max.	212 V
Current$_{RMS}$, max.[1]	2,000 A
Signal input voltage$_{PK}$	±10 V
Total Harmonic Distortion (at 70A$_{RMS}$, 200 Hz)	< 0.2 %
Signal to noise ratio	> 80 dB
Power supply - Amplifier (Standard)	3~ / N / PE 480 V±5% 60 Hz Direct connection (Terminal block)
Power supply - Field power supply (Standard)	3~ / N / PE 480 V±5% 60 Hz Direct connection (Terminal block)
Max. power consumption at 480 V	
Amplifier (incl. cooling unit)	370 kVA
Field power supply	40 kVA
Recommended fuse protection Amplifier (Standard)	500 A slow
Recommended fuse protection FPS (Standard)	125 A slow
Dimensions - Amplifier (W x H x D)	126.0 x 86.6 x 35.4 in.
Dimensions - Field power supply (W x H x D)	23.6 x 68.5 x 33.5 in.
Total mass - Amplifier	6,835 lb
Total mass - Field power supply	1,102 lb

Interlocks: Overload, Temperature, Displacement, Compressed air, Phase monitoring, Emergency stop, Water flow rate, Conductance

Features:
Mains switch and integrated line filter
Multiple switchable field levels (for energy-saving)
Field voltage/Field current variable according to customer spec.
4 Sigma peak current
Color-Touchscreen

1) Values in connection with vibration exciter S 69410



Amplifier



Field power supply

TECHNICAL PARAMETERS Cooling unit C 59412

Environmental conditions:	
Temperature	41 - 86 °F
Relative humidity	10 - 80 %
Energy transfer	max. 3 kW
Process water:	
Temperature	41 - 59 °F
Volume flow at max. supply temperature	5.9 cfm (for full extension)
Working pressure: supply - static	≤ 116 psi (≤ 800 kPa)
Working pressure: dynamic differential pressure	≥ 43.5 psi (≥ 300 kPa)
Dissipated heat flow	max. 110 kW
Nominal width of supply pipes	R 1 1/2 IT (1.57 in.)
pH value	7 ± 1
Dimensions of dirt particles	< 984 µin.
Water hardness (total/carbonate)	< 1.4 mmol/l / < 0.9 mmol/l (< 140 ppm / < 90 ppm)
Dimensions (W x H x D)	31.5 x 86.6 x 35.4 in.
Total mass	662 lb

Features:
Closed system --> No pollution and no water loss by evaporation
The system works with a higher pressure --> No cavitation interferences at the measuring signal
Manometers and flow meters at several places within the circuits
Integrated conductance monitoring and demineralisation
Fine filter with pollution monitoring
Reduction of water consumption at part load by controlling of the process water flow
Self-sealing couplings (free from leakage)
Optional: Hose length according to customer specs (up to 65 ft)
Optional: Monitoring of data, warnings and error messages at the PC



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