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PRE-INSTALLATION INFORMATION

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Pre-Installation Information

Overview

The purpose of this document is to provide complete information to both Haas Factory Outlets (HFO) and customers necessary to ensure a smooth and ef cient machine installation. Contact your Haas representative if you have questions beyond the scope of this guide.

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Pre-Installation Preparation

Haas Factory Outlet (HFO) Responsibility

• Ensure that the customer is provided with this document containing correct foundation, electrical and air requirements.

• Provide the customer with the date the machine will be shipped from the factory and the expected arrival date at their facility.

• Make sure that the customer has access to information on coolant, lubrication, anchoring, and certifications as required.

• Schedule an HFO service technician to be on site for the duration of the installation.

Customer Responsibility

• Before your new Haas machine arrives, you should review the machine dimensions and site requirements, and prepare your shop for the machine delivery.

• Ensure that a proper machine foundation is present and fully cured by the scheduled time of installation (see “Foundation Requirements” section for details).

• Ensure that all electrical and air requirements are met.

• Schedule the installation date and time with the riggers and notify your HFO of the schedule.

• If, after reading the guide, you have any questions or you are unsure of what is required contact your HFO for clarification.

Placement and Preparation

Foundation Requirements

Machines must be set on a solid, sound and stable, steel bar-reinforced concrete slab poured directly on the grade. In general, the 6" (150 mm) concrete floor of industrial buildings is suitable for machine placement.

• Concrete shall be 3,500 psi (240 bar) at 28 day strength. Concrete aggregate shall be 1" (25 mm) mix.

• Steel reinforcing shall be 40 ksi (2700 bar) tensile strength.

• The excavation shall be cut neat against undisturbed soil. Any loose material in the excavation shall be removed so that the concrete bears on the undisturbed natural soil. This will help to prevent settling.

• Consult an expert to ensure compliance with local building codes and regulations.

Exceptions to this foundation requirement are the EC-1600 series series machines. For optimal performance these machines should be placed on a 12" (300 mm) foundation. The same material requirements listed above apply.

Pre-Installation Information

Anchoring Overview

Anchoring is not required for proper performance of Haas machines, but is recommended for optimal machine performance. The Haas machine anchor kits are specifically designed for this purpose. They are not intended to satisfy building, seismic or stationary equipment installation. Such requirements should be provided by an expert.

It is strongly recommended that the EC-1600 series machines are anchored.

Refer to ES0095 for anchoring instructions and the Haas website for the anchoring footprint of your specific model. Please contact your Haas Factory Outlet to obtain the correct anchoring kit.

Machine Placement

Haas machines may be moved into position by either forklift or roller dollies and, for some machines, an overhead lifting crane. Refer to ES0246 for details on lifting a Haas machine. Please refer to the Haas website (www.haascnc.com) for specific machine weights. These can be found in the “Machine Dimensions” link on the page for each model.

For optimal machine performance, the following guidelines should be followed when determining the final machine placement location:

• Place the machine onto one continuous concrete slab.

• Keep the leveling feet of the machine at least 12" (300 mm) from the edge of the concrete slab.

• Pay attention to potential vibration influence from nearby machinery or other external sources.

• Do not place the machine on unstable surfaces such as asphalt, brick, wood or dirt.

• Check with your building engineer if you are placing the machine on floors other than the ground level.

• If anchoring the machine, the anchor holes will need to be pre-drilled.

Access to the electrical control cabinet must be available at all times. A minimum space of 3' (1 m) is required between the control cabinet and any obstacle. It is necessary to have this unobstructed area surrounding the machine for the safety and ease of daily operations.

Final leveling will be completed by an HFO service technician at the time of installation.

Options and Accessories Placement

Some Haas machines can be equipped with the following options and accessories. When determining the placement of a machine with these items, the following points need to be considered:

• Chip Conveyor - Requires room in which to install the conveyor and to remove it for periodic maintenance.

• Servo Bar 300 – Requires room on the spindle side of the machine.

• Dimensions for the chip conveyor and Servo Bar 300 can be found in the “Machine Dimensions” link on the page for each model on the Haas website (www.haascnc.com).

Machine Electrical Specifications

	Machine Model	Spindle	HP (kW)	Continuous kVA (Peak)	Voltage Range/ Fixed Tap	Full Load Amps 3 Phase / (1 Phase)
Vertical Machining Centers	TM-1/1P to TM-3/3P	4,000 rpm Belt Drive 6,000 rpm Belt Drive	7.5 (5,6)	9 (14)	195-250	25 / (40)
					354-488	13*
	Mini Mill Mini Mill 2	6,000 rpm Belt Drive	7.5 (5,6)	9 (14)	195-250	25 / (40)
					354-488	13*
	Mini Mill 2 w/SMTC24	6,000 rpm Belt Drive	7.5 (5,6)	9 (14)	195-250	25*
					354-488	20*
	Super Mini Mill Super Mini Mill 2	10,000 rpm Belt Drive	15 (11,2)	14 (20)	195-260	40
					354-488	20
	40 Taper VF-1 to VF-12 (all) VM UMC (all)	8,100 rpm Inline Drive 10,000 rpm Inline Drive 12,000 rpm Inline Drive 15,000 rpm Inline Drive	30 (22,4)	28 (40)	195-260	80
					354-488	40
	40 Taper VF-1 to VF-12 (all) VM	8,100 rpm Gearbox 10,000 rpm Gearbox	20 (14,9)	14 (20)	195-260	40
					354-488	20
	50 Taper VF-3YT/50 to VF-12/50	7,500 rpm Gearbox 10,000 rpm Gearbox	30 (22,4)	28 (40)	195-260	80
					354-488	40
	DT-1	15,000 rpm Inline Drive	15 (11,2)	28 (40)	195-260	80
					354-488	40

* No single phase operation available.

See Page 8 for recommended service and wire size

Machine Electrical Specifications

	Machine Model	Spindle	HP (kW)	Continuous kVA (Peak)	Voltage Range/ Fixed Tap	Full Load Amps 3 Phase / (1 Phase)
Turning Centers	TL-1	2,000 rpm Belt Drive 3,000 rpm Belt Drive	12 (8,9)	9 (14)	195-260	25 / (40)
					354-488	13*
	TL-2	2,000 rpm Belt Drive 3,000 rpm Belt Drive	12 (8,9)	9 (14)	195-260	25 / (40)
					354-488	13*
	TL-3	1,800 rpm Belt Drive	18 (13,4)	14 (20)	195-260	40
					354-488	20
			30 (22,4)	28 (40)	195-260	80
					354-488	40
	TL-3B	650 rpm Gearbox	30 (22,4)	28 (40)	195-260	80
					354-488	40
	ST-10 ST-10Y	6,000 rpm Belt Drive	15 (11,2)	14 (20)	195-260	40
					354-488	20
	ST-20 ST-20Y	4,000 rpm Belt Drive	20 (14,9)	14 (20)	195-260	40
					354-488	20
	ST-20SS/SSY ST-25/25Y	3,400 rpm Belt Drive 5,000 rpm Belt Drive	30 (22,4)	28 (40)	195-260	80
					354-488	40
	ST-30SS/SSY ST-30/30Y/ w/ GBX DS-30/SS/SSY/Y	3,400 rpm Gearbox 4,000 rpm Belt Drive 4,500 rpm Belt Drive 4,800 rpm Belt Drive	30 (22,4)	28 (40)	195-260	80
					354-488	40
	ST-35/35Y ST-40, ST-40L ST-45, ST-45L	2,400 rpm Gearbox 1,400 rpm Gearbox	40 (30)	28 (40)	195-260	80
					354-488	40
	ST-40, ST-40L w/XP ST-45, ST-45L w/XP ST-50, ST-55	2,400 rpm Gearbox 1,400 rpm Gearbox	55 (41)	37 (68)	195-260	120
					354-488	60

*No single phase operation available.

See Page 8 for recommended service and wire size

Machine Electrical Specifications

	Machine Model	Spindle	HP (kW)	Continuous kVA (Peak)	Voltage Range/ Fixed Tap	Machine Full Load Amps 3 Phase / (1 Phase)
Horizontal Machining Centers	EC-400 EC-400PP EC-500	8,000 rpm Inline Drive	20 (14,9)	14(20)	195-260	40
					354-488	20
		12,000 rpm Inline Drive	30 (22,4)	28 (40)	195-260	80
					354-488	40
	EC-1600 EC-1600ZYT	6,000 rpm Gearbox 10,000 rpm Gearbox	30 (22,4)	28 (40)	195-260	80
					354-488	40
Office Machines	OL-1	6,000 rpm Belt Drive	7.5 (5,6)	4 (7)	195-254	(20)
	OM-1A OM-2A	30,000 rpm Belt Drive	5 (3,7)	4 (7)	195-254	(20)
Routers	GR-510 GR-712	10,000 rpm Belt Drive	15 (11,2)	14 (20)	195-260	40
					354-488	20
		5,000 rpm Belt Drive	20 (14,9)	14 (20)	195-260	40
					354-488	20

*No single phase operation available.

See Page 8 for recommended service and wire size

Electrical Notes

• The preceeding requirements are guidelines. The electrical power supplied to the machine must comply with all local codes and ordinances. A licensed electrician must make the connection from the main breaker to the machine.

• Most machines require three-phase power, which may be either wye or delta type. The power source must be grounded: leg or center leg for delta; neutral for wye.

• A separate earth ground is required for three-phase power. Conduit type ground will not be sufficient.

• All phases must be balanced and voltages must be within ±10%.

• Some machines alternately allow single-phase power to be utilized (see previous pages). In these instances, the supplied power must be 240 VAC ±6%.

• A phase converter should only be used if no other method will work. While the machine may function properly, there is the possibility that the phase converter may keep it from achieving advertised power.

• A factory installed high voltage (380-480 VAC) internal transformer is available on most models. The exception is for the XP spindle option on ST-40/45s, for which there is an external, floor mounted, isolated transformer only for the US and Canada. For all other regions an external isolated transformer must be sourced locally.

• Refer to the Haas website (www.haascnc.com) for the location of the electrical input to the control cabinet. This is found in the ”Machine Dimensions” link on the page for each model.

Additional Power Requirement (TSC/HPC 1000)

• The optional 1000 psi (69 bar) through spindle/high-pressure coolant system requires separate, customer supplied 3-phase power (230V @ 20A or 480V @ 10A).

Recommended Service and Wire Size

• Discuss your specific power requirements with your HFO representative.

• The electrical service provided to the machine should be based on the machine’s full load amps rating from the previous chart. The next-size-up industrial grade breaker should be used based on the local codes and regulations.

• The wire size recommendations below are based on wire lengths up to 100 feet (30 meters). Please consult local electrical codes regarding lengths greater than 100 feet (30 meters).

• The recommended wire size is based on the machine’s full load amps rating. Refer to the chart below.

Machine Full Load Amps	Recommended Wire AWG
13 Amp to 25 Amp	#10
40 Amp	#8
80 Amp	#4
100 Amp	#2
120 Amp	#1/0

WARNING!

A separate earth ground wire of the same conductor size as the input power must be connected to the chassis of the machine. This ground wire is required for operator safety and proper operation. This ground must be supplied from the main plant ground. A local cold-water pipe or ground rod cannot be used to supply this ground.

The current requirements shown reflect the circuit-breaker size internal to the machine. This breaker has an extremely slow trip-time. It may be necessary to increase the external service breaker size by 20-25% for proper operation. See electrical requirements in this document.

Compressed Air Requirements

Air Pressure

Your machine requires an air supply at a minimum pressure and volume to operate correctly. Refer to the chart below. Refer to the Haas website (www.haascnc.com) for the location of the air inlet. This is found in the ”Machine Dimensions” link on the page for each model.

The required input air line size is 3/8" ID (10 mm). If you plan to use a quick coupler, use a 3/8" (10 mm) coupler for the 3/8" (10 mm) air hose.

NOTE: If you make auxiliary air connections, they must be on the input (unregulated) side of the air filter/regulator or air shutoff valve.

Air Flow (minimum requirements)

Machine Series (Includes all of the models in each series)	**Minimum Requirement**	**Minimum Air Pressure**
OL, OM	2 scfm (28 L/min)	80 psi (5.5 bar)
EC Series	9 scfm (255 L/min)	100 psi (6.9 bar)
All other machines	4 scfm (113 L/min)	80 psi (5.5 bar)

**If incoming air pressure is higher than 135 psi (8.6 bar), you may need to supply an air-pressure regulator.*

Air Requirements Notes

• The air requirements should be supplied by a minimum 2 hp (1.5 kW) compressor with at least a 20-gallon (75 L) tank, rated for continuous duty.

• Your compressor needs to be capable of 2 hp (1.5 kW) for each machine it is attached to (e.g, an installation of 5 machines requires a 10 hp (7.5 kW) compressor)

• The Auto Air Gun, Tool Air Blast, pallet changers, and other options can each consume an additional 6 scfm (170 L/min). If you use these options during other pneumatic operations (such as tool changes), your air flow will need to increase to operate the machine properly

Lubricant Table for Haas Machine Components

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Introduction

This document gives the recommended lubricant type and capacity for Haas machine components. If the specifications are the same, you can use lubricants that are not in this document.

If a lubricant is not available, use the Mobil Hot line. You can also search the ExxonMobil Distributors to find the nearest Mobil source.

note: The lubricants in this table are for all Haas machines from 1988 to present.

Lubricants

Hydraulic Systems

Component	Primary Mobil Lubricant Type	Alternate Mobil Lubricant Type	Capacity
	Spindle Gearbox		
40-Taper (VMC)	SHC 627	SHC 625/626	51 oz (1.5 L)
50-Taper (VMC)	SHC 627	SHC 625/626	34 oz (1.0 L)
50-Taper (HMC)	SHC 627	SHC 625/626	85 oz (2.5 L)
Lathes (with oil pump)	SHC 627	SHC 625/626	85 oz (2.5 L)
SL Gearbox	SHC 625	SHC 626	81 oz (2.4 L)
	Spindle Gearbox 16DP-C		
50-Taper (VMC)	SHC 627	SHC 625/626	102 oz (3.02 L)
50-Taper (HMC) (without oil pump)	SHC 634	SHC 630	102 oz (3.02 L)
Lathes (without oil pump)	SHC 634	SHC 630	102 oz (3.02 L)
	Lathe Turret		
ST-10/15 Turret Gearbox	DTE 24	--	128 oz (3.79 L)
ST-20/45 Turret Gearbox	SHC 007	XHP 221	14 oz (410 mL)
ST Face Gear	CMP	--	Coat
SL Turret Gearbox	DTE 24	--	128 oz (3.79 L)
SL Face Gear	Red-l	SHC 007	Coat
ST Turret Piston	CMP	--	Coat
EC1600 4th Axis Brake	DTE 24	--	117 oz (3.46 L)
EC1600 Indexer Brake	DTE 24	--	70 oz (2.1 L)
HPU: Lathe ST-30 and smaller	DTE 24	--	8 gal (30 L)
HPU: Lathe ST-30BB and larger	DTE 24	--	10 gal (38 L)
HRT110 Brake	DTE 24	--	7.6 oz (0.22 L)
HRT450 Brake	DTE 24	--	17 oz (0.50 L)
HRT600 Brake	DTE 24	--	17 oz (0.50 L)
40 CF Counter Balance (Height = 23.0"/ 584	DTE 24	--	64 oz (1.9 L) (Pump

mm)			strokes needed = 93)
80 CF Counter Balance (Height = 36.0"/ 914 mm)	DTE 24	--	96 oz (2.8 L) (Pump strokes needed = 140)
110 CF Counter Balance (Height = 42.0"/ 1070 mm)	DTE 24	--	96 oz (2.8 L) (Pump strokes needed = 140)
	Linear Guide / Ball Screw		
Bijur Oiler (1988-on)	SHC 625	SHC 626	128 oz (3.79 L)
Pneumatic Grease-Gun Cartridge (High-Pressure)	XHP-221	--	14 oz (0.41 L)
Reservoir Restrictor Flow and Equal Length Grease	Mobilith SHC 007 P/N 93-1933	--	Approximately 32 oz (58 cu-in or 0.95 L)
Haas Liquid Grease	HLG, Haas P/N 93-2196 (not a Mobil product)	(Emergency substitute) 140 wt Non-Synthetic Gear Oil	Approximately 32 oz (58 cu-in or 0.95 L)
Toolroom Lathe	SHC 460	Synthetic Grease with NLGI grade of 1.5 or 2	2 full strokes monthly
Toolroom Mill	SHC 460	Synthetic Grease with NLGI grade of 1.5 or 2	2 full strokes monthly
Gantry	SHC 460	Synthetic Grease with NLGI grade of 1.5 or 2	2 full strokes monthly
	Live Tooling		
Live Tooling (3k)	SHC 627	SHC 629	5.9 oz (0.17 L)
Live Tooling (6k)	SHC 625	DHC 627	5.9 oz (0.17 L)
	Manual Tailstocks		
HTS (All)	Moly Grease	--	1 full stroke every (6) months
	Minimum-Quantity Lubrication		
Minimum-Quantity Lubrication	Tap Magic Eco-Oil Cutting Fluid (not a Mobil product)	--	16 oz (0.47 L)
Minimum-Quantity Lubrication	Tapmatic Natural Cutting Fluid (not a Mobil product)	--	16 oz (0.47 L)
	Pneumatic Tailstocks		
HPTS (All)	Moly Grease	--	1 full stroke every (6) months
	Rotary		
HA5C(SB)	SHC 627	SHC 629	10 oz (0.3 L)
HA5C 2	SHC 627	SHC 629	20 oz (0.6 L)
HA5C 3	SHC 627	SHC 629	30 oz (0.9 L)
HA5C 4	SHC 627	SHC 629	40 oz (1.2 L)
HRC210	SHC 625	SHC 626	30 oz (0.9 L)
HRTA5	SHC 627	SHC 629	14 oz (0.41 L)
HRTA6	SHC 627	SHC 629	26 oz (0.77 L)
HRT110	SHC 625	SHC 626	1.2 oz (35 mL)
HRT160	SHC 627	SHC 629	14 oz (0.4 L)
HRT160-2	SHC 627	SHC 629	28 oz (0.8 L)
HRT210	SHC 627	SHC 629	26 oz (0.77 L)

HRT210-2	SHC 627	SHC 629	52 oz (1.5 L)
HRT210HS	SHC 627	SHC 629	26 oz (0.77 L)
HRT210SHS	SHC 625	SHC 626	26 oz (0.77 L)
HRT310	SHC 627	SHC 629	96 oz (2.8 L)
HRT320FB	SHC 627	SHC 629	58 oz (1.7 L)
HRT450	SHC 627	SHC 629	104 oz (3.08 L)
HRT600	SHC 627	SHC 629	180 oz (5.3 L)
TR110	SHC 625	SHC 626	1.2 oz (35 mL)
TR160	SHC 634	--	51 oz (1.5 L)
TR160Y	SHC 634	--	51 oz (1.5 L)
TR160-2	SHC 634	--	74 oz (2.2 L)
TR210	SHC 634	--	81 oz (2.4 L)
TR310	SHC 634	--	338 oz (10.0 L)
TRT160	SHC 634	--	40 oz (1.2 L)
TRT210	SHC 634	--	122 oz (3.61 L)
T5C: HRT210 + HA5C	SHC 634/627	SHC 629	26 oz (0.77 L) / 10 oz (0.3 L)
T5C-2: HRT210 + HA5C 2	SHC 634/627	SHC 629	26 oz (0.77 L) / 20 oz (0.6 L)
T5C-3: HRT210 + HA5C 3	SHC 634/627	SHC 629	26 oz (0.77 L) / 30 oz (0.9 L)
T5C-4: HRT210 + HA5C 3	SHC 634/627	SHC 629	26 oz (0.77 L) / 40 oz (1.2 L)
VR-8 / VR-11	SHC 634	--	346 oz (10.2 L)
	Cam Box for the Side-Mount Tool Changer		
Vertical	Mobilgear 600 XP220	SHC 627	192 oz (5.68 L)
Horizontal	Mobilgear 600 XP220	SHC 627	256 oz (7.57 L)
	Spindle		
Mill	SHC 625	SHC 626	128 oz (3.79 L)
Lathe	SHC 625	SHC 626	128 oz (3.79 L)

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