



# СОВОТ



20869 Plummer St. Chatsworth, CA 91311 Toll Free: 888-542-6374 (US only) Phone: 818-349-9166 I Fax: 818-349-7286 www.expandmachinery.com

# Machine tending made simple



# Mitsubishi Electric Collaborative Robot - ASSISTA

# Flexible. Customizable. Adaptable.

Expand Machinery, LLC - 20869 Plummer St. Chatsworth, CA 91311 – 1/31/2022 Phone 818-349-9166 | Toll Free 888-542-6374 (US only) | FAX 818-349-7286 | www.expandmachinery.com

# ASSISTA Collaborative Robot Product Overview

# ASSISTA

# Industrial Performance Built-In

### The MELFA ASSISTA is Mitsubishi Electric's newest robot

offering, specifically created to work in a cooperative environment. ASSISTA is a collaborative robot that can share a workspace with human interaction for a wide variety of applications. Easy control, programming, and connectivity provide operators with the skills they need to interact with this robot quickly and efficiently.



ASSISTA offers a wide variety of components Grippers, Fingers, Vision and other peripherals developed by an organization known as MELFA Robot Partners. These tools can easily be setup and configured for your application. ASSISTA can also be configured to move freely as a part of an AGV/AMR or as a mobile robot.

# **Truly Industrial – Truly Collaborative**

- Simpler and Easier
- Easy Control
- Easy Programming
- Easy Connecting

# **Teaching panel**

Move the robot to desired position and press the button. The position is stored in the robot program!

# Hand guiding

Just grab the robot in your hand and move it to the desired position

# LED ring

Clearly indicates when the robot is in collaborative mode

# Harmonic gearboxes

Standard, industrial-grade gearboxes used in all Mitsubishi Electric robots. Provide precision, durability and long life-time

# Rigid

The rigid, industrial-grade design allows reaching the same repeatability as standard robots

# Light Arm

Lighter arm make installation easier and improves safety

# **Slim Structure**

Slim arm design ensures safety for human operators

# **Internal wiring**

Simplifies tool wiring and improves safety

# **Next-gen motors**

New generation J5 servomotors provide safe human collaboration without additional torque sensors



Mitsubishi Electric Collaborative Robot - MELFA ASSISTA can share a workspace with humans. Simpler, Easier and more flexible. This robot will change your perception of what a "robot" is.



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Move easily with the operation buttons right on the robot.

The operating buttons on the robot arm provide you with easy control of ASSISTA and the no teaching pendant is necessary for the programming and teaching of the robot arm movements. The LED display on the robot arm presents the status of the robot for easy viewing.

You can create programs visually using intuitive operations with RT-Visual-Box. "Visual Programming" - This software allows operators to simply program this robot with a "train by demonstration" programming interface. This allows the robot arm positions and way-points to be easily set and adjusted.





### A Wide Variety of Components and Applications are Available.

ASSISTA offers a wide variety of components-Grippers, Fingers, Vision and other peripherals developed by an organization known as MELFA Robot Partners. These tools can easily be setup and configured for your application. ASSISTA can also be configured to move freely as a part of an AGV/AMR or as a mobile robot. (AGV - Automated Guided Vehicle, AMR - Autonomous Mobile Robot)

# Mitsubishi 3-Year Warranty

Mitsubishi Electric robots for machine shop use are **<u>warranted for 3-years</u>**, after being registered, with on-site parts and repair labor included, which also includes the service technician travel expenses.

# **TOTAL SUPPORT**

Automation experience from Mitsubishi Electric helps keep you running and growing Mitsubishi Electric stands ready to support and assist – <u>With decades of experience in</u> <u>automation</u>, Mitsubishi Electric Automation has the know-how to help optimize your production and assist in automating your manufacturing. Plus, with a 3-year robot warranty, and technicians who can service both robot and CNC, you can be sure your production will continue uninterrupted. Pick-and-place robots have been long accepted in the job shop machine-load/unload scenario. These robots are sized by their reach and payload. The robot reach needed is best determined by the all of the requirements of the manufacturing cell. The requirements are a function of the combination of where the incoming parts are sourced from, where the finished parts are going to be placed and the accessibility of the machines being loaded and unloaded, in addition to any additional labor saving operations that the robot may be required to perform.

The robot payload is the total amount of weight the robot can pick up which includes the workpiece, grippers, fingers, adapters, and anything else necessary to manipulate the part to achieve the desired goals. This weight is calculated from a specific point on the front of the robot. The greater the distance away from this point the less weight the robot can handle. Allow us to examine your application and provide professional advice to ensure that you have a positive automation experience.

- Robots are good at **repetitive tasks** and applications that need to run 8 to 24 hours a day.
- Robots are good at **picking and placing parts** by efficiently moving them to and from the workholding and pallet. Unlike machine operators, robots **do not pace the machine** production output.
- Robots do not take breaks which means that the machine production pace is constant and predictable and the thermal conditions in the machine are constant which can provide for more **consistent parts sizes.**

Expand Machinery offers the extensive line of Mitsubishi Electric Automation robots to automate your part loading and unloading in low-to-high volume production applications. Mitsubishi Electric Automation's engineered solutions for machine tending are specifically created for ease of set up and use. They have done the engineering necessary so that you can start making parts soon after delivery. Manufacturing shops are always looking for ways to be more competitive and in these days, facing both a shortage of qualified labor and rising employee costs, it is an especially acute problem. A company's skilled employee talent must be leveraged to maximize production value, and not squandered on redundant tasks that could be handled far more efficiently by automation.

The go-to places to reduce part costs are labor efficiency and workpiece processing. Redundant part loading and unloading work is a poor use of labor, and a ripe opportunity to employ automation to control operating costs. If additional processes can be added to the work flow, utilizing the robot idle time, additional benefits can be realized. When the robot loader uses idle time to clean or dry parts or pass the workpiece through an inspection station, a marking station, a deburring station, or some other necessary step in the production cycle, valuable WIP time is saved as well as the labor to perform it. Robotic automation can also add to production capacity by taking advantage of currently unused nights and weekends. This is the type of thinking that is being used to justify the fast payback on the investment of precision industrial robots in the job shop. The example shown here is just \$7.16 per hour on a basic 40-hour week and, of course, the hourly cost is reduced for every additional hour of use.

Mitsubishi Electric Automation has a wide variety of robots and automation cells to meet today's demanding manufacturing applications and they all can be coupled with intelligent options like 3D vision, force sensing, seamless PLC integration, and the ability to operate in "collaborative applications".

# ASSISTA RV-5AS-D Machine Tending Robot \$59,990.00

FINANCE FOR \$0.00 DOWN \$1146 per month for 60-Months Subject to Credit Approval from Valley Financial Services

- Robot with Parts Table
- Teach Pendant
- 3-Year Mitsubishi Electric Automation robot system warranty -
- Includes Auto Door

Item		Unit	Specifications	
Туре			ASSISTA RV-5AS-D	
Environment			Oil mist specification	
Degree of freedom			6	
Install	ation posture		Floor mounted / ceiling mounted	
S	Structure		Vertical, multiple-joint type	
Dri	ve system		AC servo motor	
Position detection method			Absolute encoder	
Waist (J1)			480 (±240)	
Onertin	Shoulder (J2)		296 (±148)	
Operating Range	Elbow (J3)		300 (±150)	
Range	Wrist twist (J4)	deg	400 (±200)	
	Wrist pitch (J5)		240 (±120)	
	Wrist roll (J6)	-	400 (±200)	
	Waist (J1)		125	
	Shoulder (J2)		125	
Speed of	Elbow (J3)	Degree/	125	
motion	Wrist twist (J4)	second	300	
	Wrist pitch (J5)		360	
	Wrist roll (J6)		720	
Maximum composite speed		mm/sec	1,000	
Load		Rating	kg	
Load	Maximum	kg	5	
Position repeatability		mm	±0.03	
Ambient temperature		°C	0 to 40	
Mass		kg	32	
Protection specification Note6) Note7) Note8)	-	IP40 (standard) / IP45 (oil mist)	0.10	
Painting color		-	Light gray (Equivalent to Munsell: 0.6B7.6/0.2, PANTONE: 428C)	
External magnetic field		mT	Less than 10	
Power requirements		Kva	220VAC 3.5Kva 3-phase power required	

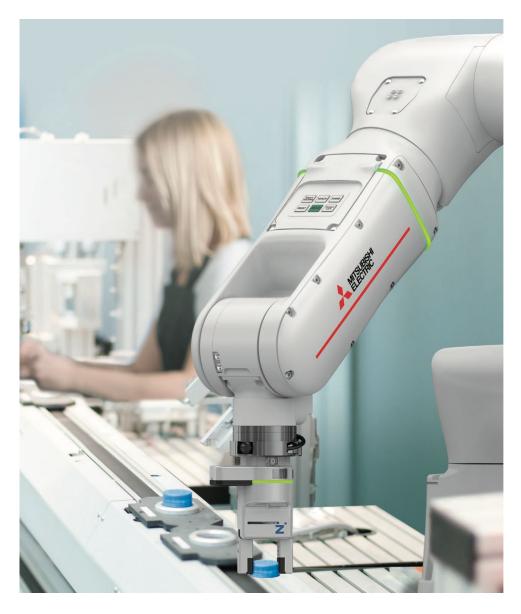
Note: Automatic door, automatic workholding, and end-of-arm tooling are required for a functional automated system.

The example shown here costs just \$7.16 per hour based on a basic 40-hour work week, and the rate is reduced for every additional hour of use.

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# List of Collaborative Robot Gripper Partners



For ease of integration and to speed up the process of getting the robot quickly integrated into your manufacturing cell Mitsubishi has partnered with many renown accessory providers, such as: Schunk Intec 211 Kitty Hawk Drive, Morrisville, NC 27560 919-572-2705 info@us.schunk.com Zimmer Group 1095 6<sup>th</sup> St. Ct. SE, Hickory, NC 28602 828-855-9722 info.us@zimmer-group.com Gimatic USA 28300 Euclid Ave., Wickliffe, OH 44092 216-535-4811 <u>sales@gimaticusa.com</u> Schmalz Inc. 5850 Oak Forest Dr., Raleigh, NC 27616 919-713-0880 <u>www.schmalz.com/en/</u> SMC, THK, On Robot Japan, and Yasojima also are gripper partners with Mitsubishi

# Training & Terms of Sale

<u>Warranty</u> – 3 full year parts and labor warranty on the robotic system will be provided by Mitsubishi Electric Automation.

Parts – Spare parts are available from Mitsubishi Electric Automation in Vernon Hills, IL to support your machine operation.

F.O.B. Point – Machines ship F.O.B. from Vernon Hills, IL, 60061.

<u>**Payment Terms**</u> – 30% down payment with your Purchase Order secures the machine. 60% is due prior to machine shipment, and the 10% balance is due after installation. **Or the machine can be financed with our approved lender**. Leases with \$1.00 buyout are available upon approved credit.

Purchase is governed by the Expand Machinery terms and conditions of sale.

# **UL & TÜV ELECTRICAL APPROVAL IS AN AVAILABLE OPTION**

Prices, lease payments and specifications are subject to change without prior notice.

#### **EXPAND MACHINERY TERMS & CONDITIONS OF SALE**

#### General Offer & Applicable Law

Products and services furnished by Expand Machinery (referred to herein as "Expand", "we", "us" and "our") are sold to you ("Customer") only on the terms and conditions stated herein. Notwithstanding any terms or conditions on Customer's orders, our performance of any contract is expressly made conditional on Customer's agreement to these terms and conditions of sale. We hereby reject any conflicting, different or additional terms and conditions proposed by Customer, unless otherwise specifically consented to in a writing signed by a duly authorized officer of Expand. To the extent that Customer attempts to place an order with us with open-ended terms (such as, but not limited to, without an end date that has been specifically agreed to in writing by an authorized representative of Expand or without a firm quantity commitment that has been specifically agreed to in writing by an authorized representative of Expand), such open-ended terms are specifically rejected by us and shall not be deemed to be part of any agreement or arrangement between us and Customer. Acceptance of any good or part thereof delivered by us or other assent by Customer to these Terms and Conditions of Sale (the "Terms") shall constitute an agreement to all of the Terms, including, without limitation, our limitations of warranty and liability. All contracts for the sale of products shall be construed under and governed by the laws of the State of California. All orders shall be subject to our acceptance.

#### Prices & Specifications

All published prices and specifications are subject to change without notice. Unless otherwise specified in writing, all quotations are firm and expire thirty days after the date thereof. Unless otherwise stated, all prices, published or quoted, shall be exclusive of insurance and any and all taxes and transportation costs. All deposits are non-refundable.

#### Transportation & Acceptance

We reserve the right to select the means of transportation and routing if we determine that Customer's instructions are unsuitable. Customer shall be responsible for all risk of loss and/or damage commencing upon delivery of the products to the transportation company at the F.O.B. point. Title to any products shall pass to Customer when products are delivered to the transportation company at the F.O.B. point. All products must be inspected by Customer immediately upon receipt and any claims should be filed with the transportation company when there is evidence of shipping damage, even if the damage is concealed. The furnishing of a product to Customer shall constitute acceptance of that product by Customer unless written notice of defect or nonconformity is received by us within ten-days of receipt of the product at Customers designated receiving address. We may repair or, at our option, replace defective or nonconforming parts after receipt of such notice of defect or nonconformity.

#### Performance

Delivery dates and production figures are approximate and are based on the prompt receipt by us of all information and materials we deem necessary. Failure to deliver within the time estimated shall not be a breach of contract on our part, and in no event shall we be responsible for, or Customer be entitled to, any damages of any kind whatsoever arising out of or relating to any such delay in delivery. Without limiting the foregoing, acceptance of any good or part thereof by Customer shall constitute a waiver of any and all claims for delay. We shall be excused for delay in delivery and/or may suspend performance of any contract for the sale of products and services without liability to Customer in the event and to the extent of a "force majeure" which shall include, without limitation, strike, lockout, riot, act of civil or military authority, war, riot fire, flood, storm, explosion, act of God, act of Customer, pandemic, quarantine restriction, government order, delay in transportation, accident, or subcontractor or supplier delays or other events beyond our control. We reserve the right to substitute suitable products, when we determine in our sole discretion that such substitution is necessary due to a force majeure. No order may be terminated by Customer without our prior written consent. Machines are not designed to conform to UL or OSHA Standards. It is Customer's sole responsibility to verify the electrical standards applicable to any machines purchased subject to these terms and conditions in their locality.

#### Warranty & Liability for Machine Sales

Our machines, including accessories and spare parts purchased and/or included with the machine sale, are guaranteed to be free from defects in workmanship for twelve months after the date of purchase, unless specified otherwise in writing. This warranty is effective only if the necessary information is provided: serial number of machine and nature of defect, and any part claimed defective is returned prepaid to us. No such return will be accepted unless we issue a returned material authorization (RMA) number. Upon its proper return to us, we shall repair or replace, at our option, the defective part. This warranty applies only if (a) our instructions as to installation, operation and maintenance have been completely followed; (b) the products have been used solely under normal operating conditions or procedures; (c) the products have been properly installed, operated and maintained and have not been affected by misuse, neglect or accident; (d) Customer has not attempted or performed (or caused to be attempted or performed) any type of repair or corrective work or modification without our prior written consent and (e) we shall have received written notice of any defect no later than thirty days after Customer first has knowledge of same. THIS WARRANTY IS EXPRESSLY IN LIEU OF, AND EXCLUDES ALL OTHER EXPRESS, IMPLIED OR STATUTORY WARRANTIES INCLUDING, BUT NOT LIMITED TO, WARRANTIES OF MERCHANTABILITY AND FITNESS FOR PARTICULAR PURPOSE, USE OR APPLICATION AND ALL OTHER OBLIGATIONS OR LIABILITIES ON OUR PART. The machine is not guaranteed to make specific parts. Customer is responsible for studying the machine's specifications to make its own determination that it can machine the desired parts. The remedy of repair or replacement, as provided herein, shall be the Customers exclusive remedy and will satisfy all our liabilities whether based upon contract, negligence, or otherwise. In no event shall we be liable for indirect, incidental, exemplary, punitive, special, or consequential damages of any nature whatsoever, including, without limitation, lost profits, loss of time or use of product, inconvenience, commercial loss, or injury or damage to persons or property, or failure of any good or part thereof to comply with any law.

#### Warranty & Liability for Accessory & Spare Part Sales

Accessories and spare parts purchased after the original machine sale are guaranteed to be free from defects in workmanship for 90-days after the date of purchase, unless specified otherwise in writing. This warranty is effective only if the necessary information is provided: original date of purchase and nature of defect, and any part claimed defective is returned prepaid to us. No such return will be accepted unless we issue a returned material authorization (RMA) number. Upon its proper return to us, we shall repair or replace, at our option, the defective part. This warranty applies only if (a) our instructions as to installation, operation and maintenance have been completely followed; (b) the products have been used solely under normal operating conditions or procedures; (c) the products have been properly installed, operated and maintained and have not been affected by misuse, neglect or accident; (d) Customer has not attempted or performed (or caused to be attempted or performed) any type of repair or corrective work or modification without our prior written consent and (e) we shall have received written notice of any defect no later than thirty days after Customer first has knowledge of same. THIS WARRANTY IS EXPRESSLY IN LIEU OF, AND EXCLUDES ALL OTHER EXPRESS, IMPLIED OR STATUTORY WARRANTIES INCLUDING, BUT NOT LIMITED TO, WARRANTIES OF MERCHANTABILITY AND FITNESS FOR PARTICULAR PURPOSE, USE OR APPLICATION AND ALL OTHER OBLIGATIONS OR LIABILITIES ON OUR PART. The machine is not queranteed to make accessing to constitue in accessing to constitue to prevent the same time to constitue to the same of the PART. The machine is not guaranteed to make specific parts. Customer is responsible for studying the machine's specifications to make its own determination that it can machine the desired parts. The remedy of repair or replacement, as provided herein, shall be the Customers exclusive remedy and will satisfy all our liabilities whether based upon contract, negligence, or otherwise. In no event shall we be liable for indirect, incidental, exemplary, punitive, special, or consequential damages of any nature whatsoever, including, without limitation, lost profits, loss of time or use of product, inconvenience, commercial loss, or injury or damage to persons or property, or failure of any good or part thereof to comply with any law.

#### Indemnity and Hold Harmless

Customer agrees to indemnify, defend, and hold us harmless from any claims, liability, costs, expenses, obligations or losses incurred in connection with the sale, operation or use of any product, good or part which is the subject of this sale, including, but not limited to, unattended use of the equipment, bodily injury or death or any fire or other calamites resulting from Customer's use of any machine sold hereunder whether any such claims, liability, costs expenses or losses are suffered by Customer or any third party. Customer shall assume the sole responsibility and all risk for any and all loss, damage, or injury (including death) to any and all persons (including, without limitation, to employees and agents of Customer and us) and to all property in connection with the performance of its obligations hereunder or any act or omission of Customer, and shall indemnify, defend, and hold us harmless from and against any and all claims, liabilities, expenses (including, without limitation, attorneys' fees), fines, penalties, damages, and economic losses of whatsoever nature associated therewith, except for such claims, liabilities, etc. caused by our gross negligence or willful micconduct of Seller.

Compliance with Manuals, Instructions and Good Safety Practices: Compliance with Laws Customer shall be responsible for ensuring compliance by its personnel and others given access to any products in Customer's possession or control with all operating and maintenance manuals and instructions provided by us or any of our distributors and with other normal safety, operation and maintenance practices commonly observed in the industry. Compliance with local, state or federal laws, codes, directives or regulations relating to the products and their use is the sole responsibility of Customer, and we make no warranty or representation with respect thereto.

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#### Terms of Payment

All payments for products released and shipped on approved credit accounts shall be due in full thirty days from the date of invoice. Past due balances shall be subject to a service charge of 1.5% per month or, if lower, the highest rate permitted under law. Partial shipments will be billed as made and payments therefore are subject to the above terms. All deposits are non-refundable. We may cancel or delay delivery of products or services in the event Customer fails to make prompt payment therefore or in the event of arrearage in Customers account. To secure the full and prompt payment and performance of any and all debts, liabilities, agreements, covenants, warranties, obligations, and amounts from time to time now or hereafter owing by Customer to us and/or to any of our affiliates (the "Obligations"), Customer, in consideration of our obligations hereunder, and for other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, grants to us, for ourselves and as agent for each and all of our affiliates (as the case may be, the "Secured Party) a continuing first priority security interest in and lien against any good or part thereof tendered for delivery to Customer by us or any of our affiliates, together with any and all additions, accessions and replacements thereto and proceeds and products thereof, whether now owned or existing or hereafter acquired or coming into existence (collectively, the "Collateral"). Customer agrees that any good or part thereof tendered for delivery by us or any of our affiliates will be used primarily for business purposes. Customer irrevocably appoints Secured Party as Customer's attorney-in-fact with full authority to take any action and to prepare, execute and/or file any instrument that Secured Party deems necessary to carry out the terms herein and to perfect, and maintain the perfection of, Secured Party's lien against and first priority security interest in the Collateral. Customer agrees to pay any and all costs and expenses in conne

#### Arbitration

All disputes under any contract concerning products sold to Customer pursuant to these terms and conditions that are not otherwise resolved between Customer and us shall be resolved through mandatory and binding arbitration to be conducted in Los Angeles, California and in accordance with the Judicial Mediation Arbitration Service (""JAMS") strictly in accordance with the terms of the contract, these terms and conditions and the substantive laws of the State of California, before a single arbitrator knowledgeable in the subject matter of the dispute selected in accordance with the process by registered mail, return receipt requested or by any other manner provided by the laws of the State of California and hereby waive any claims or defenses based on venue or forum non conveniens. Any related arbitration award will be final, conclusive and binding upon the parties and any judgment thereon may be entered and enforced in any court of competent jurisdiction. To the extent reasonably practicable, all disputes of a similar subject matter relating to more than one contract between any one Customer and us concerning products sold pursuant to these terms and conditions shall be consolidated into a single arbitration proceeding.

#### Attorneys' Fees

Should any legal action or arbitration be brought for the enforcement of these terms and conditions, or due to any alleged dispute, breach, default or misrepresentation in connection with any provisions herein, the non-prevailing party shall pay all reasonable attorneys' fees, expert witness fees and other costs and expenses, as well as arbitration costs and recoverable court costs, incurred by the prevailing party in any such action or proceeding and any action to enforce a judgment (including bankruptcy representation) and any appeal, in addition to such other relief, as may be granted to the prevailing party by the arbitrator or, if applicable, a court.

#### Fire Waiver

Customer shall be solely responsible for the appropriate use of the products, including, without limitation, the machining of certain metals that use oil as the cutting and cooling medium which can provoke the ignition of oil mists, fillings, chips or parts of a machine which could cause considerable damage to a machine and its surroundings. By accepting the products sold hereunder, Customer assumes this risk and is hereby required to use best efforts to avoid such incidents and to limit any potential risk or exposure to life and property arising therefrom. For the avoidance of doubt, we are not responsible for any fires on the machine.

#### Assignment

Customer's assignment of its order, or of any interest thereof or of any right of Customer against Expand or obligation of Customer to Expand, without our prior written consent, shall be void and shall entitle us to cancel such order and to obtain from Customer any applicable cancellation charges. We may assign our rights and/or obligations relating to Customer's order(s) to Expand upon notice to, but without the necessity of the consent of, Customer.

I have read and agree to the Expand Machinery Terms and Conditions for the Sale.

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# CREDIT APPLICATION

Fax completed form to 818.349.9166 or email to accounting@expandmachinery.com



# **Company Information**

COMPANY NAME				
ADDRESS				
CITY			STATE	ZIP CODE
COMPANY PHONE		COMPANY FAX		
COMPANY EMAIL		COMPANY WEBSITE		
DATE COMPANY ESTABLISHED	COMPANY TAX ID NUMBER	ANNUAL SALES	- 1	NO. OF EMPLOYEES

# Owner(s) Information

### Owner 1

FIRST NAME	LAST NAME	PERCENT OF 0	OWNERSHIP
HOME ADDRESS			
СІТҮ		STATE	ZIP CODE
PHONE	SOCIAL SECURITY NUMBER		

### Owner 2

FIRST NAME	LAST NAME	PERCENT C	OF OWNERSHIP
HOME ADDRESS			
CITY		STATE	ZIP CODE
PHONE	SOCIAL SECURITY NUMBER		

# Equipment Information

EQUIPMENT DESCRIPTION	
PURCHASE PRICE	VENDOR NAME

# Bank Reference

BANKNAME	BANK CONTACT	BANK ADDRESS		
BANK PHONE	ACCOUNT NUMBER			
Submission of this application by each individual named above authorizes Expand Machinery, LLC, Inc. and its agents and affiliates, to conduct inquiries regarding the undersigned's business operations and individual and business credit histories as it may deem necessary. This may include, without limitation, requesting credit reports, contacting banks and secured lenders, lessors and trade creditors for references.				
SIGNATURE		DATE		

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