

JEPAE

Design social infrastructure

- Steel pipe pile method
- Welding automation
- Factory automation



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About Us

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JEPAE

GREETINGS

Jepae is a industry specialized company with outstanding technology and production capacity. We are engaged in various industries ranging from architecture, machinery, and automation.

Jepae follows the social and economic paradigm centered on eco-friendliness, promotes the commercialization of eco-friendly civil engineering methods, and places value in technology development in the wireless business and safety and health fields based on the future industry group. We put efforts to develop new technologies and create values centered on the environment.

Jepae considers the highest level of safety and eco-friendliness, and intends to establish a foundation for a more productive and sustainable industrial group and promote innovation as the best professional industrial company.




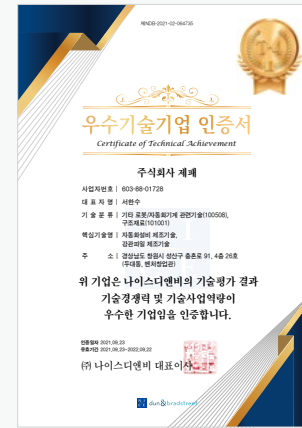

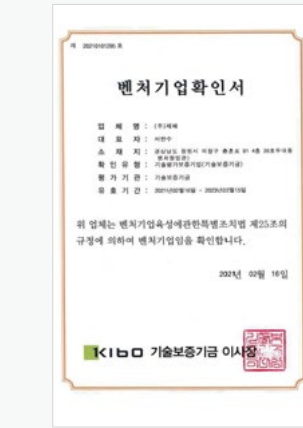



Executives and employees of Jepae

History

- **2021**
 - 12 Acquired root company confirmation
 - 09 Acquired ISO certification (9001, 14001, 45001)
 - 07 Registered as a partner of Crayon (Cryogenic Piping) and established a research department
 - 06 Registered as a partner of MANAKH in Saudi Arabia
 - 03 Registered as a partner of Able ENC (aluminum ship)
 - Signed an industry-academic cooperation agreement with Inje University
 - Signed an industry-academic cooperation agreement with Changwon Moonsung University
 - Achieved the first export of \$20,000 – Overseas (ALIVETEC, Japan)
 - 02 Registered with Smart Manufacturing Innovation Promotion Group
 - Completed certification and registration of Venture Business
 - 01 Signed an official overseas partnership with Saudi Arabia JK Global
 - The Korea Trade-Investment Promotion Agency (KOTRA)
- **2020**
 - 10 Registered as a partner of UAE GP Cloud
 - 04 Registered as a partner of ALIVETEC in Japan
 - 02 Established Jepae corporation



Certification Status

 <p>ISO9001(2021)</p>	 <p>ISO14001(2021)</p>	 <p>ISO45001(2021)</p>
 <p>Certificate Of Technical Achievement</p>	 <p>Root company confirmation</p>	 <p>Venture company confirmation</p>
 <p>R&D department certificate</p>	 <p>Factory Registration Certificate</p>	 <p>Patent certificate</p>

Steel Pipe Pile Method

- Field of Application
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- Comparative Analysis of Construction Methods
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- Heavy Equipment
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- Accessory



Field of Application

IWD Method

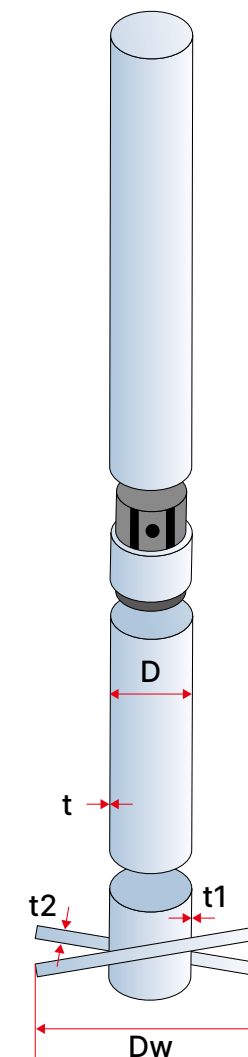
The importance and compulsory design of earthquake-resistant design due to earthquake damage is continuously being promoted, and as a vibration-resistance method, the most advanced Japanese-style construction method has been introduced and localized to prevent damage from earthquakes in advance.

Main Features

- High workability in narrow areas
- No drilling or curing required
- Reduction of noise and vibration
- Construction possible for 2 people per set
- Minimization of polluted water generation
- High workability of soft ground

Benefit

- Minimize complaints
- Reduced labor costs
- Material reuse
- Eco-friendly construction
- Minimization of process



Introduction to the field of application

We support the supply and construction of raw materials in various fields such as general construction and special purpose construction / plants, power generation facilities / energy transport facilities, etc. The field of construction can be expanded in various ways such as new construction / reconstruction / maintenance, and the scope of application can be broadly applied to the lower foundation construction of facilities other than buildings if necessary.



Plant Facilities



Pipeline



Residential Construction



Transmission Tower



Railroad



Bridge

Comparative Analysis of Construction Methods

As a new field of revolving penetration type steel pipe pile construction, it is a new concept construction technique that can be used for the foundation work of a wide range of buildings as it is possible to construct high-strength, medium-to-large-diameter steel pipes, unlike the current construction method that allows for small-diameter construction. be broadly applied to the lower foundation construction of facilities other than buildings if necessary.

Public method name	IWD Method	P.H.C Method	Helical Method
Summary	<ul style="list-style-type: none"> Attaching wings and protrusions to high-strength, medium-to-large-diameter steel pipe and drilling at the same time. Maximize bearing capacity with compression and tension forces with wings and pipes. 	<ul style="list-style-type: none"> Ground excavation with crane auger screw and drive device 	<ul style="list-style-type: none"> Attach multiple blades to small diameter steel pipe Securing bearing capacity through ground friction and tip support
Ground application	Clay, Sand, Weathering Table	Clay, weathering table	Clay, Sand, Weathering Table
Advantages	<ul style="list-style-type: none"> No drilling and grouting required due to smart heavy machine Increases frictional force due to rotational press-fitting, and secures strong support for horizontal force Large construction possible with medium and large piles There is no residual soil, and construction is possible even in the rain Eco-friendly with low noise and low vibration Easy to make into big data due to mobile implementation of construction data 	<ul style="list-style-type: none"> Drilling to the design depth Reinforcement of pile tip support and friction with cement Prevention of damage to the tip of the pile and the head 	<ul style="list-style-type: none"> Can be constructed only by combining specialized equipment and backhoe Ease of construction and shortening of construction period Eco-friendly construction method that is noise-free and vibration-free Can be installed at any angle
Disadvantage		<ul style="list-style-type: none"> Potential collapse of the pore wall when the sand gravel layer is drilled Hard weathering belts are difficult to drill Perforation causes peripheral relaxation Vibration and noise 	<ul style="list-style-type: none"> Because it is a small diameter, the bearing capacity of one piece is weak It is not possible to construct the ground with a deep support layer

Division	IWD	P.H.C	Micro	Helical
File specifications	267MM×8T×600φ×6M	500MM/15M	508MM/15M	159MM×8T×500φ×4M
Design load	120~200 ton	100~150 ton	50~150 ton	110~130 ton
Construction period	50~70%	100%	100%	50~70%
Total construction cost	80%	75%	100%	90%
	Small and medium-sized equipment	Large equipment	Large equipment	Small equipment
Strength	Securing seismic resistance, horizontal force, and bearing capacity	Weak in earthquake resistance and horizontal force	Weak bearing capacity by driving method	Weak bearing capacity due to the use of small pipes
Whether material loss	None	Dummy file occurrence	None	None
Required work space	1.2	4.0~	4.0~	1
Equipment	Rotary hydraulic heavy machine	Perforator+Hydraulic Driving+Crane+Mixer	Perforator+Hydraulic Driving+Crane+Mixer	Backhoe/Hydraulic Motor+Mixer
1 day construction	150~200M	200~300M	100~200M	200~300M
Depth ability	35M	30M	30M	20M
Process	Penetration → Connection → Head cleaning	Drilling → Casing → Grouting → Head cleaning	Drilling → Casing → Grouting → Head cleaning	Penetration → Connection → Head cleaning
By-product/waste	None	Occur	Occur	None
Vibration and noise	lowness	Somewhat high	Somewhat high	General
Surrounding ground influence	None	Occur	Occur	None

Construction Procedure

Construction plan preparation

Consultation with the contractor (quality control, process management) according to the design plan Flat pile arrangement Foundation type pile core, number of cores



Material supply

According to the design drawing (steel pipe part) Steel pipe material, length, thickness, outer diameter



Field input

Depends on construction (steel pipe part) Steel pipe material, length, thickness, outer diameter



Medium-term investment

According to the construction design, it must be a medium term suitable for the length and outer diameter



Pile construction

According to the construction design, check the construction order and management figures



Construction result measurement

Checking the depth of the tip whether the depth of the tip has reached the support layer



Report writing

Construction record Attached photo Record of actual site after construction

Foundation subsidence restoration work



It is a new method to restore the foundation of a house or factory that has been tilted to its original state by using the revolving pipe method, and since vibration and noise are reduced by more than 70% compared to the existing restoration construction, follow-up management for construction (movement of residents and compensation for damage) You don't need it.

High Reliability

There is no risk of re-sinking because the foundation is raised and fixed directly with brackets using the reaction force of the pile.

Economical Construction

It is economical because piles of the required length are manufactured in a dedicated manufacturing plant in the required quantity according to the ground investigation. Since most of the work is carried out on the ground, the work proceeds safely and quickly, and the construction period is shortened, so it can be constructed at a low construction cost.

Vibration-free, Noise-free

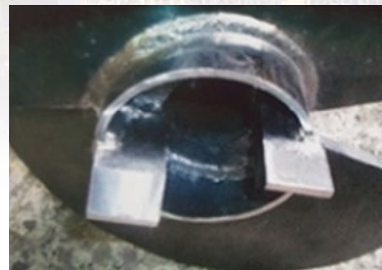
Since it is a vibration-free and noise-free construction method, it can be installed while living without harming neighbors. It also has no effect on the surrounding ground.



Steel Pipe Pile

Steel pipe pile shape and material

- Applicable pipe diameter: D101.6 ~ D457.2mm
- Tip blade diameter: D200 ~ D1,150mm
- Steel pipe material: SKT490, HU590 (Steel)



Steel pipe pile specifications

(mm)	(mm)	(m2)	5	10	15	20	25	30	35	40	45	50	55	60
101.6	200	0.023	3	6	10	13	16	20	23	26	30	33	36	40
	250	0.041	5	11	17	23	29	35	41	46	52	58	64	70
	300	0.063	8	17	26	35	44	53	62	71	80	89	98	107
114.3	250	0.039	5	11	16	22	27	33	38	44	50	55	61	66
	300	0.060	8	17	25	34	43	51	60	69	77	86	95	130
	350	0.086	12	24	36	49	61	73	86	98	110	123	135	147
139.8	300	0.055	7	15	23	31	39	47	55	63	71	79	87	95
	350	0.081	11	23	34	46	57	69	81	92	104	115	127	139
	400	0.110	15	31	47	63	73	94	110	126	142	158	173	189
165.2	350	0.075	10	21	32	42	53	64	75	85	96	107	117	128
	400	0.104	14	29	44	59	74	89	104	119	134	149	164	179
	450	0.138	19	39	59	78	98	118	138	157	177	197	216	236
	500	0.175	25	50	75	100	125	150	175	200	225	250	275	301

(mm)	(mm)	(m2)	5	10	15	20	25	30	35	40	45	50	55	60
190.7	400	0.097	13	27	41	55	69	83	97	111	125	139	152	166
	450	0.130	18	37	56	74	93	112	130	149	168	187	205	224
	500	0.168	24	48	72	96	120	144	168	192	216	240	264	288
	550	0.209	29	59	89	119	149	179	209	239	269	299	329	359
216.3	450	0.122	17	35	52	70	87	105	122	140	157	175	192	210
	500	0.160	22	45	68	91	114	137	160	183	205	228	251	274
	550	0.201	28	57	86	115	143	172	201	230	259	287	316	345
	600	0.246	35	70	105	141	176	211	246	282	317	352	387	423
	650	0.295	42	84	126	169	211	253	296	338	380	422	465	507
267.4	500	0.140	20	40	60	80	100	120	140	160	180	200	221	241
	550	0.181	26	52	78	104	130	156	182	208	234	260	286	312
	600	0.227	32	64	97	129	162	194	227	259	292	324	357	389
	650	0.276	39	79	118	158	197	237	276	316	355	395	434	474
	700	0.329	47	94	141	188	235	282	329	376	424	471	518	565
	750	0.386	55	110	165	221	276	331	386	442	497	552	608	663
	800	0.447	63	127	191	255	319	383	447	511	575	639	703	767
318.5	600	0.203	29	58	87	116	145	174	203	232	261	291	320	349
	650	0.252	36	72	108	144	180	216	253	289	325	361	397	433
	700	0.305	43	87	131	174	218	262	306	349	393	437	481	524
	750	0.362	51	103	155	207	259	311	363	415	467	519	570	622
	800	0.423	60	121	181	242	303	363	424	485	545	606	666	727
355.6	650	0.233	33	66	99	133	166	199	233	266	299	333	366	399
	700	0.286	40	81	122	163	204	245	286	327	368	409	450	491
	750	0.342	49	98	147	196	245	294	343	392	441	490	539	589
	800	0.403	57	115	173	231	289	346	404	462	520	578	635	693
	850	0.468	67	134	201	268	335	402	469	536	603	671	738	805
	900	0.537	76	153	230	307	384	461	538	615	692	769	846	923
406.4	700	0.255	36	73	109	146	182	219	255	292	329	365	402	438
	750	0.312	44	89	134	178	223	268	313	357	402	447	492	536
	800	0.373	53	106	160	213	267	320	374	427	481	534	588	641
	850	0.438	63	125	188	250	313	376	439	501	564	627	690	752
	900	0.506	72	145	217	290	362	435	508	580	653	725	798	871
	950	0.579	83	166	249	332	415	498	581	664	747	830	913	996
	1000	0.656	93	187	281	375	469	563	657	751	845	939	1033	1127



Heavy Equipment

- ① When constructing on a narrow and soft ground, it is often difficult to bring in and install a machine for foundation construction, so a small size and high-performance machine with mobility is required.
- ② The medium machine using the steel pipe rotation press-fit method is compact in size and is easy to construct on narrow and soft ground.
- ③ Although small in size, it realizes fast and efficient ground improvement with excellent maneuverability and maneuverability.
- ④ In addition, it is eco-friendly as it is possible to construct comfortably even in the area adjacent to a house due to low noise and low vibration.

Product LINE-UP

MSJ003-S	MSJ006-S	MSJ012-S	MSJ015-S	MSJ025-S
4.5~8.0 kN.m	6~40 kN.m	20~110 kN.m	15~139 kN.m	30~300 kN.m

Product Specification

Division	Unit	15-5SP	
Nominal dimensions			
Overall width(Max in transportation)	mm	2,490	
Crawler overall width	mm	2,590	
Crawler center to center distance	mm	1,990	
Crawler shoe width	mm	600	
Crawler overall length	mm	3,500	
Tumblers center to center distance	mm	3,035	
Ground clearance	mm	410	
Rear end radius	mm	2,362	
Overall length(Transportation)	mm	8,904	
Overall height(Transportation)	mm	2,788	
Performance of front-end attachment			
Auger mode	Low	kN-m	15-46
Rotation torque	High	kN-m	46~139
	Low	m/min	5
Rotation torque	High	m/min	31
	Low	kN-m	68.6
Driving (Push down)/Extracting speed	Low	m/min	0.5
Elevating speed	High	m/min	9
Mast			
Standard length			
Range of movement (with respect to vertical axis)	Forward	○	3
	Backward	○	90
	Leftward	○	3
	Rightward	○	3
Auger elevating stroke		mm	7,088
Winch			
Maximum lifting load		kN	9.8
Hoisting/Lowering speed		m/min	20
Wire rope			IWRC6×Fi(29) 12mm×30m

Product Specification

Division	Unit	15-5SP
Diesel engine		
Maker		CUMMINS
Model		QSB4.5 Tier IV
Type	CARB Tier 4(f), EU Stage IV, U.S. EPA Tier 4(f)	
Rated output	kW/rpm	122/2,500
Maximum torque	kW/rpm	125/2,300
Fuel tank capacity	Liters	250
Hydraulic System		
Main Pump		
Type	Two variable displacement	
Max. discharge flow	pump+2gear pump	2×220L/min, 2×20L/min
Swing Motor		
Type		Axial-Piston Pump
Brake	Hydraulic locking automatically when the swing control lever is in neutral position	
Swing speed	min	24
Travel System		
Motor Type		2×Axial Piston, Two-Step Motor
Brakes		Hydraulic Disc Brake
Travel Shoes		46 each Side
Travel Speed	km/hr	0.7/3.0
Drawbar Pulling Force	kN	229
Gradeability	%	30
Ground Clearance	mm	350
Mass		
Total working mass	ton	17.5
Transporting mass (excluding drive rod and pile)	ton	14
Average ground pressure(total working mass)	kg	0.37

Accessory

Welding Machine



- Product Name: SAM (Moveable Orbital Welding Machine)
- Use: For welding steel pipe for construction (vertical welding)
- Fastening type: RAIL
- Driving method: Rack & Pinion / Button type
- Weight: 10kg
- Running speed: up to 1m/min
- Upward speed: up to 2m/min
- Welding method: CO2 & MIG / 600A

- Complete solution for wire feeding and tube sheet welding, titanium alloy tubing
- Dual gas protection to achieve perfect welding results
- Torch and water cooling cooling system to ensure longer operating time and effectively prevent inner tube oxidation

Pipe Connection Product



- Complete solution for wire feeding and tube sheet welding, titanium alloy tube
- Dual gas protection to achieve perfect welding results
- Water cooling cooling system to ensure torch and discrete operating time and effectively prevent inner tube oxidation

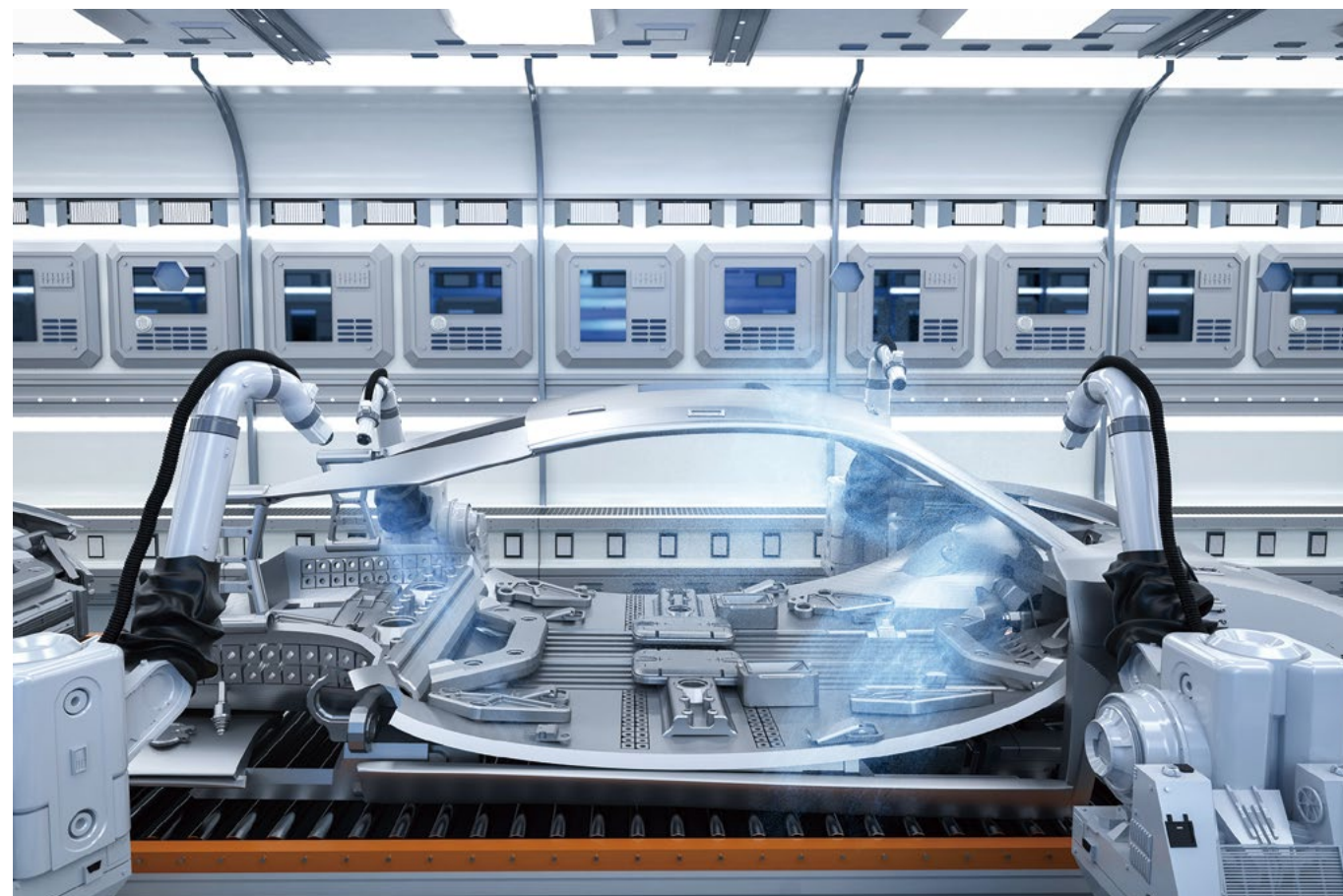


- It is designed in a structure that adds a sense of unity to the connection part and can increase the strength, so there is no deformation in any impact or distortion, and there is no play in the connection part.

Automation Equipment

Welding Automation Equipment

Factory Automation Equipment



Welding Automation Equipment

PIPE COASTER



This is a device that cuts the pipe cap and branch pipe or the slider, and it is a device that can work according to the desired model by saving the cutting data with a dedicated CAM program.

- Powerful performance and excellent handling ability
- Easy and precise cutting of joint welding without separate post-processing work
- Various models can be cut
- Touch screen method and P/C combination

MODEL		JP-COS5-600N	JP-COS5-800N	JP-COS5-1000N
MIN. PIPE DIAMETER		65A	65A	65A
MAX. PIPE DIAMETER		600A	800A	1000A
MAX. PIPE WEIGHT		Max. 2000Kg		
EFFECTIVE PIPE LENGTH		Max. 6000mm		
CUTTING PROCESS		OXYGEN & PLASMA		
AIR PRESSURE		5Kg		
TABLE HEIGHT		F.L +770mm		
CUTTING	GAS	Max. 100mm		
THICKNESS (STEEL)	PLASMA	100A : Max. 25mm / 200A : Max. 40mm		
TORCH BEVEL ANGLE	ANGLE	100A : ±60° / 200A : ±50°		
	ANGLE CONTROL	AUTO & MANUAL		
	DRIVING	AC SERVO MOTOR		
TORCH UP-DOWN	STROKE	Max. 750mm	Max. 950mm	Max. 1150mm
	SPEED	Max. 50mm		
	DRIVING	AC SERVO MOTOR		
CARRIAGE	TRAVEL STROKE	Max. 6300mm		
	TRAVEL SPEED	Max. 6m/min		
	DRIVING	AC SERVO MOTOR		

BENDING M/C



Pipe Bender Equipment used to bend pipes at arbitrary angles

- Made with sturdy one-piece frame
- Manufactured in a creep type for easy mold mounting
- Angle digital control
- Easy operation by the operator
- The working state is uniform by the sequence circuit method

MODEL		JP-BD 65	JP-BD 100	JP-BD 150
MAX.TUBE DIAMETER		15A~65A	65A~100A	100A~150A
EFFECTIVE TUBE LENGTH		6,000mm	6,000mm	6,000mm
BENDING	ROTATE	190°		
	SPEED	20°/Sec	15°/Sec	7.0°/Sec
	CENTER	F.L+1141mm	F.L+1091mm	F.L+1368mm
	RADIUS	Min:2.5D, Max:3D		
FORMER		1-STEP		
PRESSURE DIE BOOSTER		HYDRAULIC		
HYDRAULIC PUMP MOTOR		7.5Kw (11Kw)	15Kw (18.5Kw)	22Kw
AMOUNT HYDRAULIC OIL		400Liter	500Liter	700Liter
CONTROL		1 CYCLE AUTO (SEMI AUTO)		
TOTAL ELECTRIC POWER		7.5Kw	18Kw	25Kw
MACHINE	LENGTH	6,700mm	6,895mm	8,200mm
	HEIGHT	1,200mm	1,316mm	1,570mm
	WIDTH	1,250mm	1,325mm	2,785mm
	WEIGHT	5,500Kg	7,500Kg	13,000Kg

FACING M/C



Processing equipment for improving and processing the pipe end into a desired shape

- Various pattern shapes available
- Easy operation and convenience
- External groove (grooving) machining
- Excellent durability and simplicity
- CNC control/precise work

MODEL		JP-CBV 600	JP-CBV 800
WORKABLE PIPE DIA		Ø150~600mm (6"~24")	Ø350~800mm (8"~32")
PLATE FACE DIAMETER		Ø600mm	Ø800mm
BITE HOLDER FOR BEVELING/FACING		1EA/1EA	1EA/1EA
SPINDLE RPM		40~200RPM	40~200RPM
SPINDLE MOTOR CAPACITY		7.5Kw	11Kw
MANUAL FEED		4mm/rev	4mm/rev
VISE CLAMPING RANGE		Ø150~600mm (6"~24")	Ø200~800mm (8"~32")
CENTERING ADJUST BY MANUAL		±5mm, 2mm/rev	±5mm, 2mm/rev
SIZE	LENGTH	2500mm	2600mm
	WIDTH	2400mm	2700mm
	HEIGHT	2050mm	2050mm
CENTERING HEIGHT		1250mm	1250mm
NET WEIGHT		8000Kg	10000Kg

CUTTING M/C



Equipment to cut 45° and 90° elbows to the required angle

- Control device and angle can be easily adjusted by touch method, and fast cutting operation is possible.
- Smaller working space compared to the existing · product rotation method, so space utilization is high
- Automatic optimization, internal digestion

MODEL		JP-ECM 600N
CUTTING CAPACITY		200~600A
LOADING CAPACITY		600Kg
CHUCK CLAMPING METHOD		MANUAL BY HANDLE
CHUCK TILTING	METHOD	WORM REDUCER BY GEARED MOTOR
	ANGLE	0~90°
	SPEED	1.5~5°/SEC
	CONTROL	MANUAL
TABLE ROTATION (CUTTING)	METHOD	WORM REDUCER BY GEARED MOTOR
	ANGLE	±360°
	SPEED	Max.32mm/sec
	CONTROL	MANUAL
MACHINE	LENGTH	2,500mm
	HEIGHT	3,600mm
	WIDTH	1,400mm
	WEIGHT	2,400Kg

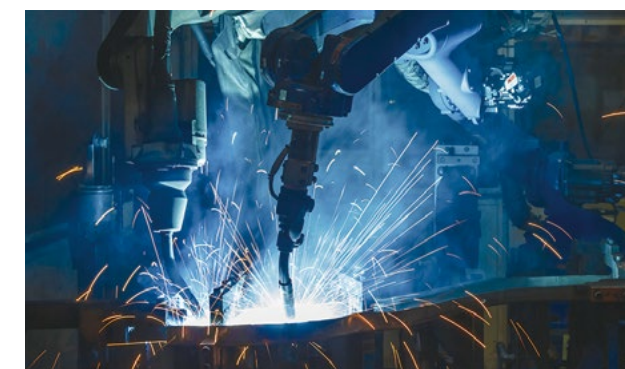
Factory Automation Equipment

FA is a technology that automates processes within a factory from product design to manufacturing and shipment. We aim to reduce energy and improve productivity and quality by introducing robots to unmanned processes and automating production management.

Line Automation Equipment



Welding Automation Equipment



Inspection and Measurement Automation



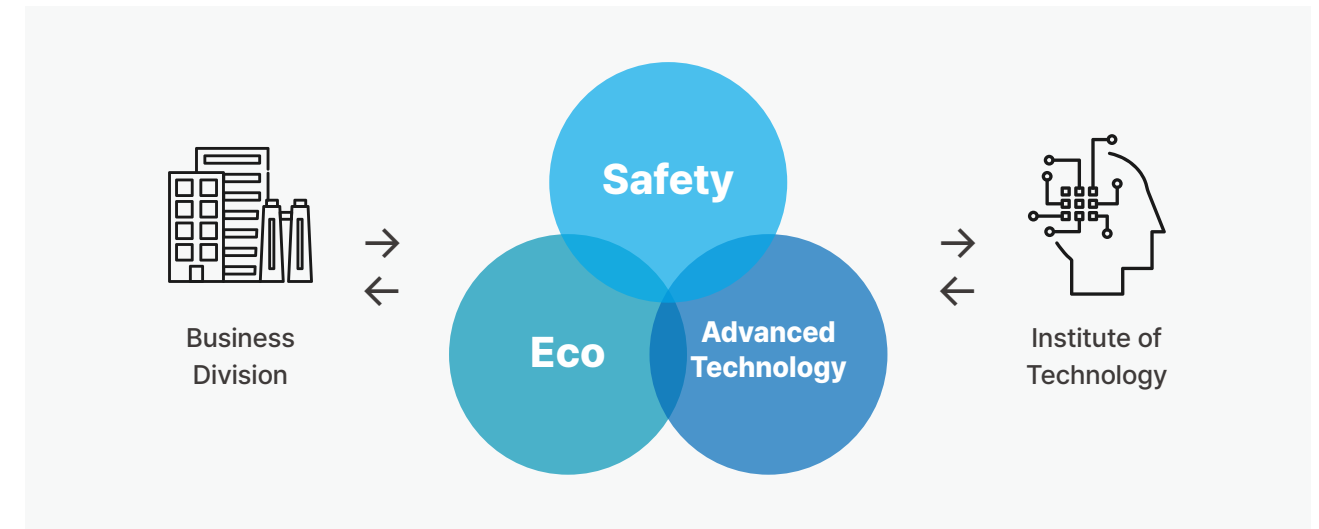
JEPAE's
R&D Center

Conquest that considers the environment and safety creates the future of cutting-edge technology.

We design and manufacture research and development equipment in the form of government projects through corporate research institutes and industry-university cooperation to suit the purpose.

In order to establish a technological system, ZEPAE is conducting various R&D and national projects to secure its own technology through prototype production and continuous R&D.

In order to establish manufacturing infrastructure and infrastructure, we will establish a production system by preparing a production base by introducing a variety of specialized manpower and manufacturing facilities.



Research Field



Steel pipe pile construction method in basic civil engineering field

Japanese technology localization project



Build factory automation

Smart Factory



Build welding automation

Smart Factory

Ship sawmill business

FRP → aluminum, Fossil energy
 → Electric energy



Robot automation system

Smart Factory



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