

JRT - A16 / A20

Jost's Electric Reach Truck



Since 1907

(AC Series)

- ENVIRONMENT FRIENDLY
- HIGH REACH
- UNMATCHED PERFORMANCE
- EASY OPERATION
- FAIL FREE SAFETY
- EASY MAINTENANCE

Basic Specification:

- 1 Capacity :- 1600 / 2000 kg @600 mm load centre
- 2 Lift height :- 4560 mm to 9860 mm
(For lift above 9860 mm, contact HO)
- 3 Reach :- 440 to 530 mm
- 4 Drive / Steering / Hydraulic :- 3 phase AC
- 5 Controller :- MOSFET CANBUS
- 6 Fork Tilt





Since 1907

JRT - A16 / A20

Josts Electric Reach Truck

Operators Area : Ergonomically convenient operator's area provides maximum operator's comfort. All controls are located at easily accessible reach. Ample leg room and Adjustable seat further enhances operator's comfort.

Electric Power Steering : Electric power steering system with adjustable steering wheel enables smooth operation while maneuvering in confined area. The steering unit, controls the steering action electrically through the steering motor. The motor is controlled by an intelligent controller by fetching the real time position of the drive wheel from various sensor inputs. The drive wheel gets automatically positioned to the home position (forward direction) during start of the truck.

Drive : The vehicle is driven by CAN communicated AC three phase induction drive motor of suitable rating with class 'F' insulation powered by suitable battery capacity. The vertical transmission drive system transfers the power to the PU drive wheel smoothly and efficiently.

Drive Control : Microprocessor based MOSFET controller enables smooth stepless acceleration, variable speed control and precise inching movement. The controller comes with self diagnostic feature which monitors the control system for fault diagnostic purposes. The controller also enables regenerative braking thereby saving energy and increasing the battery utilisation period.

Brakes : Automatic braking is enabled by regenerative braking when the operator removes his foot from the acceleration pedal. Service braking is effected by ergonomically located foot pedal which ensures faster braking with reverse torque. Parking brake is ensured by an electromagnetic brake which comes into action automatically either at very low motor rpm or at the time of power cut-off during EPC switch operation or when safety interlock foot switch is disengaged. Parking brake also prevents roll back over slope.

Wheels : The drive wheel as well as load wheels are of Vulkollan and Polyurethane material. The Vulkollan and Polyurethane wheels enables noiseless smooth ride with excellent grip on the operating surface.

Chassis and Canopy : The Chassis is fabricated from heavy steel plates for excellent rigidity and strength. The canopy is made of solid plates for rigidity and it protects the operator against the hazards of falling objects. The precise balancing loads in the chassis design ensures proper stability of the truck with raised load. The battery is housed in a movable battery tray which gets automatically latched with the chassis. For battery change operation, the lock can be manually released and the battery can be extracted out with reach operation.

Mast Reach Carriage : The mast reach carriage guide rail is integrated with the chassis and ensures smooth movement of the carriage during reach operation. The mast reach carriage is fabricated from quality steel plates and its movement is guided by two pairs rollers inside the guide rail track and one pair of roller moving over wear strip on the top of guide track. Additionally two pairs of side thrust rollers prevents side ways movement. The carriage is operated by a double acting reach cylinder. The Triple roller construction along with side thrust rollers configuration ensure smooth straight and stable movement of the carriage without any jerk.

Mast, Carriage and Fork : Options of triple masts for various lift heights are available depending on the applications. The external and internal mast are of J and I sections respectively and are reinforced with rigid tie bars to form a stable robust structure. The masts movements are guided by radial and axial mast rollers which ensure smooth and safe movement of the load. The load carriage is fabricated of quality steel plates and provided with the same configuration of radial and axial rollers for smooth movement within the mast. The "high free lift" for container and restricted ceiling height applications, is provided through center cylinder in the triplex mast. The twin mast lift cylinders are positioned behind the mast sections on either side for better visibility of the load. Hose burst valve at base of all cylinder assemblies act as a safety device in case of hose failure. Forged and heat treated forks sustain the load for prolonged work cycles. Heavy duty leaf chains with adequate factor of safety render the mast configuration fail free. Load back rest can be provided as an option. Hydraulic Side Shift mechanism is also provided as an additional feature as a standard.

Hydraulic System : Hydraulic system is powered by AC motor of suitable capacity which drives the positive displacement high pressure external gear pumps and operates the hydraulic functions of lift, reach, tilt and side shift. The hydraulic functions are controlled by two manually operated joysticks, which signals the microprocessor. The actual operations are carried out through solenoid operated valves mounted in an integrated valve block. The pressure limiting valves in the valve block prevent excessive pressure overloads. A high performance filter system with suction line filter ensures clean oil supply. The hydraulic system is controlled by MOSFET controller to drive the motor at different speeds for precise flow of oils for the required application, thereby saving the battery power. This hydraulic motor operates only when the functional switches are operated and gets automatically switched off otherwise.

Instrumentation and control : A fully integrated LCD multifunctional display with fluorescent back light is provided at the front of the operator. The multifunctional display indicates information like Fault diagnosis, Battery level, Equipment speed, Operating hours and Service due time. The display also indicates the status of truck direction (forward / reverse) and neutral position. A parking signal is displayed when the parking brakes are in applied condition.

The truck can also be incorporated with additional display functions like Height indications, Pay load weight as an option; if these options are opted for.

The instrumentation and control panel also incorporates toggle switch for forward / reverse motion control and control of other accessories like lights, horns etc.

A Twin-Pilot control joysticks comprising two joysticks, each having two inbuilt progressive operations are located conveniently on the right hand side of the operator for the smooth and steady control on all four major hydraulic operations. Variable speeds of all functions can be achieved by controlled operation of the twin-pilot joysticks.

Maximum Safety : Apart from safety interlock foot switch, emergency power cut-off switch and emergency lowering valve, the truck comes with many inherent safety features during operation.

The speed of the truck reduces automatically while turning. Special electromagnetic switches are provided for lift cut off at maximum lift height and reduction of travel speed for lift above free lift limit.

The truck can also be incorporated with creep speed feature for inching the truck forward and reverse during stacking and retrieving operations.

Special electromagnetic sensors can also be provided to reduce reach and lift speed towards the end of cylinder stroke.

The fully automatic parking brake provides additional safety and ensures firm braking even in the absence of operator from the truck. The parking brake disengages only when the acceleration pedal is actuated.

Accessories & Attachments : The truck comes with head / tail / brake / reverse light and horn as standard. Beakon lights, Reverse buzzer can also be supplied as an option. All electrical accessories are of 12V system and powered through DC-DC convertor which prevents uneven draining of the battery and thereby ensure long battery life. The truck can also be supplied with extended forks on request.

Battery and Charger : The truck is supplied with suitable traction battery with lead acid cells and adequate capacity rating as standard for non intensive application. Optional higher capacity rating batteries can also be provided for more intensive applications.

Microprocessor based "constant current charger" of suitable ratings can be supplied, depending on the battery selection.

Technical Specification

Identification	1.1	Model	nos.	JRT A16	JRT A20
	1.2	Drive	type	AC 3 phase	AC 3 phase
	1.3	Operation	type	Seated	Seated
	1.4	Rated capacity at 4500mm Lift	Q=Kg.	1600	2000
	1.5	Load centre For rated capacity	c=mm	600	600
	1.6	Load distance (from load wheel to fork face retracted)	x=mm	205* / 115**	205* / 115**
	1.7	Load distance (from load wheel to fork face extended)	x1=mm	325	325
	1.8	Wheelbase	y=mm	1465	1465
	2.1	Service weight incl. battery (apx.)	Kg.	4390* / 4543* / 4690**	4490* / 4643* / 4790**
Identification	3.1	Wheels	type	Vulkollan / PU	Vulkollan / PU
	3.2	Wheel size,(Drive)	mm	350 x 140	350 x 140
	3.3	Wheel size,(Load)	mm	280 x100	280 x 100
	3.4	Wheels, front/rear(x=driven wheels)	nos.	1 x \2	1 x \2
	3.5	Track width, Rear (load wheels)	b11=mm	1125	1125
Basic Dimensions	4.1	Mast standard	type	Refer Chart	Refer Chart
	4.2	Overhead guard (cab) height	h6=mm	2160	2160
	4.3	Seat / Standing height	h7=mm	1000	1000
	4.4	Wheel arm height	h8=mm	320	320
	4.5	Overall lenght	l1=mm	2620* / 2710**	2620* / 2710**
	4.6	Length to face of fork	l2=mm	1470* / 1560**	1470* / 1560**
	4.7	Overall Width	b1=mm	1250	1250
	4.8	Fork dimensions	s/e/l=mm	40 / 100 / 1150	40 / 100 / 1150
	4.9	Fork carriage (class)	type	2B-2A	2B-2A
	4.10	Fork carriage width	b3=mm	830	830
	4.11	Width over forks (min. / max.)	b5=mm	280 / 700	280 / 700
	4.12	Distance between support arm	b4=mm	936	936
	4.13	Reach distance	l4=mm	530* / 440**	530* / 440**
	4.14	Ground clearance, under mast, laden	m1=mm	100	100
	4.15	Carriage Side Shift (right / left)	F=mm	100 / 100	100 / 100
	4.16	Ground clearance, @ center of wheel base (unladen)	m2=mm	55	55
	4.17	Turning radius (retract mast position)	Wa=mm	1700	1700
	4.18	Overall length	l7=mm	1850	1850
Performance	5.1	Travel speed, laden / unladen	Km/h	12	12
	5.2	Lift speed, laden / unladen	m/s	0.3 / 0.35	0.2 / 0.35
	5.3	Lowering speed, unladen / laden	m/s	0.15 / 0.2	0.15 / 0.2
	5.4	Service brake	type	Electromagnetic	Electromagnetic
Power	6.1	Drive motor rating S2 = 60 min.	kW	5.0	5.0
	6.2	Lift motor rating S2 = 15 min.	kW	8.0	9.0
	6.3	Steering motor S2 = 90 min	kW	0.7	0.7
	6.4	Battery voltage, nominal capacity	V/Ah	48/420@ - 48/540\$ - 48/700+	48/540@ - 48/700+
	6.5	Battery Charger (Three Phase-Automatic)	V/Ah	48/50 - 48/70 - 48/105	48/70 - 48/105
	6.6	Battery weight (Approx.)	Kg.	750 - 903 - 1050	903 - 1050
Others	7.1	Drive control	type	Mosfet / AC	Mosfet / AC
	7.2	Oil Volume hyd. Syetsm	lit.	32	32
	7.3	Sound level at driver's ear	db(A)	75	75
90° Stacking Aisle Width Including 200 mm Safety Clearance (Retract Mast Position)					
Aisle Width	8.1	Pallet Size 800x1200 cross/lengthwise (420Ah/540Ah)	mm	2750* / 2980*	2750* / 2980*
	8.2	Pallet Size 1000x1200 cross/lengthwise (420Ah/540Ah)	mm	2900* / 3015*	2900* / 3015*
	8.3	Pallet Size 1200x1200 cross/lengthwise (420Ah/540Ah)	mm	3065*	3065*
	8.4	Pallet Size 800x1200 cross/lengthwise (700Ah)	mm	2815** / 3060**	2815** / 3060**
	8.5	Pallet Size 1000x1200 cross/lengthwise (700Ah)	mm	2970** / 3100**	2970** / 3100**
	8.6	Pallet Size 1200x1200 cross/lengthwise (700Ah)	mm	3140**	3140**

Note : 1) * Refers to battery capacity of 48V / 420Ah and 48V / 540Ah.

2) ** Refers to battery capacity of 48V / 700Ah.

3) @ Refers to standard supplies upto 8060mm lift height.

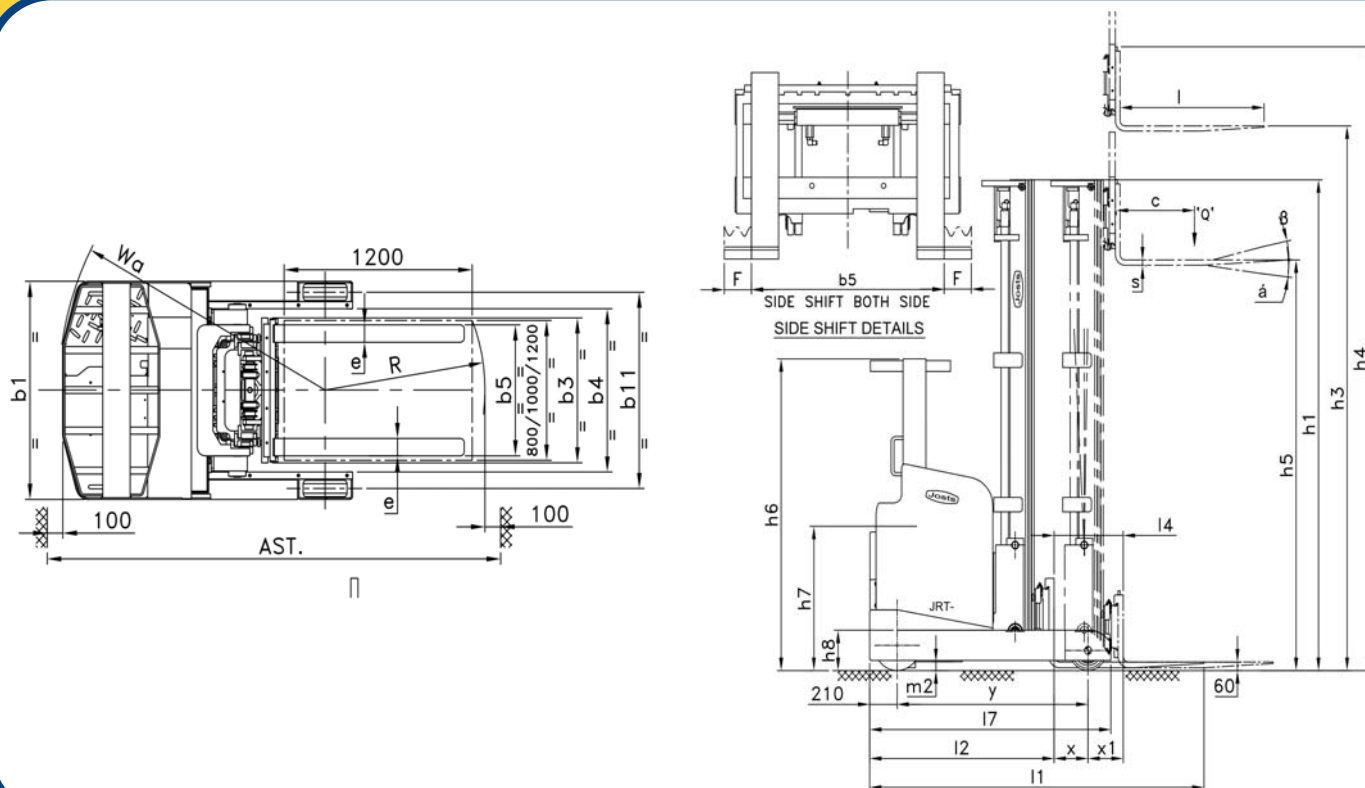
4) \$ Refers to standard supplies for lift height beyond 8060mm.

5) + Refers to optional on request as extra.

6) Dimensions indicated here are subject to variations of $\pm 20\%$ and performance within $\pm 10\%$. Service weight $\pm 75\text{Kg}$.

7) Right to make changes and technical improvements reserved. For any special requirements, Please contact Jost's HO.

Mast Standard >>> Residual Load Capacity Chart



Residual Capacity Chart					Fork Tilt JRT A16 Residual capacity			Fork Tilt JRT A20 Residual capacity		
Closed Mast Height h1	LIFT h3	High Free Lift h5*	Extended Mast Height h4*	Fork Tilt angle $\alpha \times \beta$	Battery (420Ah)	Battery (540Ah)	Battery (700Ah)	Battery (420Ah)	Battery (540Ah)	Battery (700Ah)
2200	4560	1710	5170	2° x 5°	1600	1600	1600	2000	2000	2000
2450	5160	1960	5770	2° x 5°	1400	1450	1550	1700	1800	1900
2750	5560	2260	6170	2° x 5°	1250	1300	1500	1550	1650	1800
2750	6060	2260	6670	2° x 5°	1100	1200	1400	1400	1500	1700
2900	6560	2410	7170	2° x 5°	1050	1150	1300	1300	1400	1600
3000	6860	2510	7470	2° x 5°	900	1100	1200	1200	1300	1500
3100	7160	2610	7770	2° x 5°	850	1050	1100	1100	1200	1400
3250	7460	2760	8070	2° x 5°	800	1000	1050	1000	1100	1300
3400	7760	2910	8370	2° x 5°	750	950	1000	900	1050	1200
3550	8060	3060	8670	2° x 5°	700	900	950	800	1000	1100
3700	8360	3210	8970	2° x 5°	-	850	900	-	950	1000
3850	8660	3360	9270	2° x 5°	-	800	850	-	900	950
4000	8960	3510	9570	2° x 5°	-	750	800	-	850	900
4150	9260	3660	9870	2° x 5°	-	700	750	-	800	850
4300	9560	3810	10170	2° x 5°	-	650	700	-	750	800
4450	9860	3960	10470	2° x 5°	-	600	650	-	700	750

Note:1) Residual Load Capacity (Load center 600 mm / Kg)

2) # - Refers to values that are only applicable for JRT A20 model.

3) * - Refers without load backrest.

4) Extended Back Rest height would be = $h4 + 500$.

5) The load backrest is suitable for racking level height of 1200 mm.

6) For racking level height below 1200 mm contact Jost's H.O.

Features & Benefits



Since 1907

JRT A16 / A20 is powerful and energy efficient reach truck with advanced AC technology suitable for indoor and warehousing applications. JRT A16 / A20 comes with excellent Power and Performance with safety, durability and faster travel with maximum operator's comfort as prime priority and comes with features and benefits like

Performance and Operator Comfort :

- Capacities of 1600 / 2000 kg @ 600 mm load centre
- Lift H = heights from 4560 to 9860 mm
- Triple AC motors synchronised by advanced microprocessor based MOSFET controllers
- The truck incorporates a unique platform of CANBUS communicating controllers
- Simple and smooth controls , electro-hydraulic power steering, large graphic display enables stress- free operation
- Adjustable steering wheel enables fatigue free operation while maneuvering in confined area
- Adjustable seat and ergonomically convenient operator area provides maximum operator's comfort

Automatic Center positioning of drive wheel at start:

- Perfect fit for busy operations
- Ideal arrangement of components for easy maintenance
- Better sensing devices, integrated controllers and informative LCD display enhances operational performance
- Special combi-switches for controlling motion and other accessories
- Twin-pilot control joysticks for smooth control of all four hydraulic operations
- Automatic Center positioning at start

Energy Consumption :

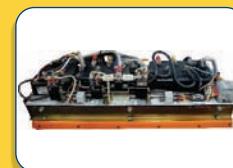
- Lower operating cost due to lower battery consumption
- Longer battery life due to efficient work cycles

Standard LCD Display information :

- Fault diagnosis
- Battery Level
- Equipment speed
- Operating hours (total time)
- Service due time
- Status of truck direction (forward / reverse) and neutral position
- Parking signal



Powerful AC Motors



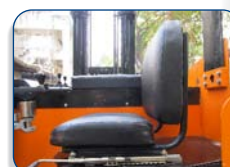
Controllers



CanBus Control



Control Display



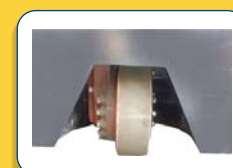
Adjustable Seat



Adjustable Steering



Creep Speed



Automatic Center Position



Control Joysticks

Features & Benefits

Enhanced Safety :

- Low center of gravity design provides Robustness, Stability and Safety
- Enhanced operational safety due to safe inter connectivity
- Emergency power cut-off switch and Emergency lowering valve enables enhanced safety during operation
- Dead Man switch (Safety interlock switch) ensures - "NO OPERATOR – NO OPERATION"
- Automatic reduction of speed during turning
- Regenerative braking for smooth braking
- Electromagnetic brakes (optional) on load wheels for safer operation at higher lifts
- Load back-rest for safe handling load of different sizes
- Turtle switch for Creep speed operation.



**Safety
Interlock Control**



**Emergency
Lowering Valve**



Camera and Display Monitor

Choose the Features

Standard (S*) / Optional (O#) offerings:

AC – Drive Motor	S*
AC – Hydraulic Pump Motor	S*
AC – Steering Motor	S*
180 degree Steering	S*
Side Shift	S*
Electromagnetic disc brake	S*
Key access System	S*
Adjustable steering wheel	S*
Adjustable Seat	S*
Twin Joysticks Operations	S*
Regenerative Braking	S*
Reduce speed during turning	S*
CAN-BUS System	S*
Emergency stop button	S*
Two point Seat Belt	S*
LED light on Drive Side	S*
LED light on Load Side	S*

Choose the Features

Standard (S*) / Optional (O#) offerings:

Beacon Lamp	S*
Load Wheel Cover	S*
Load wheel Brake	S*
Load backrest	S*
DC-DC converter	S*
Lift height restriction	S*
Reverse Buzzer	S*
Dead Man Switch	S*
Emergency Lowering Valve	S*
Operator Presence	O#
Tower Lamp	O#
Battery rollers	O#
Battery changing trolley (Stationery)	O#
Bio-metric access system along with key	O#
Wire mesh on overhead guard	O#
Lift height indicator	O#
Wireless camera with monitor	O#

Note: (1) S*- Standard items, O#- Optional items are available on request as optional extra.

* For any special requirement, please contact Jost's marketing department. • Dimensions indicated here are subject to variations of $\pm 20\text{mm}$ and performance within $\pm 10\%$. • Right to make changes and technical improvement reserved.