

ELECTRIC PNEUMATIC IN OUTDOOR APPLICATIONS



The Electric Pneumatic forklifts are designed for a wide variety of applications. In their standard configurations, they are designed for general use outdoors in fair to moderate weather conditions. Various electrical and electronic components on the forklift meet specific IP (Ingress Protection) enclosure ratings according to the European IEC 60529. Additionally, their sealed electrical connectors prevent water intrusion and corrosion. Toyota's Electric Pneumatic Forklifts are carefully tested for water intrusion both with and without a cab enclosure. These standardized tests included severe rainfall and high pressure wash down tests that are conducted on all Toyota Material Handling IC and electric forklifts worldwide.

WEATHER PROTECTION

Toyota is now offering Electric Pneumatic Forklifts with a weather protection package (B30F) as standard. Weather protection includes:

- Increased protection for drive and pump motors
- Special drive unit protector to protect against spray and splash water
- Rubber boot covers on the tilt cylinders and power steering cylinder
- Fully oil charged lift cylinder
- Sealed mast rollers
- Mast chain special grease
- Epoxy paint on the mast and load backrest
- Rust treatment on various parts



The increased protection for the drive and pump motors on B30F can lead to increased operating temperatures in some heavy-duty applications resulting in temporary restricted performance until the motor temperature returns to normal. For applications that do not require the protection against the weather, the weather protection package can be deselected.

* Images sourced from Toyota Material Handling Europe

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OUTDOOR APPLICATION OPTIONS - HEAVY WEATHER

For all outdoor applications, including those with continuous use in humid environments and/or heavy rain conditions, the steel cabin provides an extra level of water ingress protection and is now being provided as a standard. The fully enclosed cabin also has been fully tested to Toyota standards conducted on all cabin designs, both IC and Electric, for water intrusion.

Like the weather protection package, the steel cabin can be deselected for applications that are primarily indoor or stored indoors.



OUTDOOR WINTER APPLICATIONS

For outdoor applications that will experience cold temperatures below 15°F (-9.4°C), Toyota recommends the cold storage feature (B30B) by TSDR. This feature provides extra features to protect the truck, including:

- Low temperature grease
- Low temperature hydraulic oil
- Low temperature seals
- Heated display
- Low temperature hoses

With this feature, the forklift is designed to operate in cold conditions down to -22°F (-30°C) for periods not exceeding 30 minutes per hour. This feature conflicts with the standard weather protection package and therefore requires a TSDR at this time. For normal applications that don't require the weather protection package, the cold storage feature can be ordered without a TSDR.

As a reference, see the option code by weather condition below.

Weather Condition	Feature	Code
Fair to Moderate Weather	Weather Protection Package	Standard B30F
Cold temperatures below 15°F (-9.4°C)	Cold Storage	B30B
Humid Environment and/or Heavy Rain	Steel Cabin with Doors	Standard H02A
Humid Environment and/or Heavy Rain	Canvas Cabin	H02B

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ELECTRIC PNEUMATIC STORAGE

For all outdoor applications, TMH recommends storing the Electric Pneumatic Forklifts in a weather protected building or enclosure when either charging or not in use.

IEC PROTECTION LEVELS

For more detailed information on the IEC electrical protection levels for motors and electrical components, please reference the below table and guide. Further information can be found on the IEC's website here: <https://www.iec.ch/ip-ratings>

48v 8FBM16/18/20T (3-4k)	STD (w/ B30F)	w/out B30F
Drive motor	IP43	IP20
Pump motor	IP43	IP20
Traveling/material handling controller	IP65	IP65
Main controller	IP65	IP65
Armrest card	IP34	IP34
Dashboard	IP65	IP65
24 volt fuse card	IP55	IP55
Fuse box	IP66	IP66

8FBM16/18/20T coming fall 2021

80v 05-8FBM20/25/30/35T (4k-7k)	STD (w/ B30F)	w/out B30F
Drive motor	IP43	IP20
Pump motor	IP43	IP20
Traveling/material handling controller	IP65	IP65
Main controller	IP65	IP65
Armrest card	IP34	IP34
Dashboard	IP65	IP65
24 volt fuse card	IP55	IP55
Fuse box	IP66	IP66

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80v 05-8FBM40/45/50T (8k-11k)	STD (w/ B30F)	w/out B30F
Drive motor	IP43	IP43
Pump motor	IP43	IP20
Traveling/material handling controller	IP65	IP65
Main controller	IP65	IP65
Armrest card	IP34	IP34
Dashboard	IP65	IP65
24 volt fuse card	IP55	IP55
Fuse box	IP66	IP66

80v 9FBM60/70/80T (13.5-17.5k)	STD (w/ B30F)	w/out B30F
Drive motor	IP54	IP20
Pump motor	IP54	IP54
Main controller	IP65	IP65
Armrest card	IP34	IP34
Dashboard	IP65	IP65
Traction logic unit	IP65	IP65
Pump logic unit	IP65	IP65
Steering motor	IP54	IP54
Steering controller	IP65	IP65

9FBM60/70/80T coming fall 2021

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IEC Ingress Protection (IP) Ratings Guide

IP

SOLIDS		LIQUIDS	
1	Protected against solid foreign objects of 50 mm (2") dia. and greater	Protected against vertically falling water drops	1
2	Protected against solid foreign objects of 12.5 mm (1/2") dia. and greater	Protected against vertically falling water drops when enclosure tilted up at 15 degrees	2
3	Protected against solid foreign objects of 2.5 mm (3/32") dia. and greater	Protected against spraying water	3
4	Protected against solid foreign objects of 1.0 mm (1/32") dia. and greater	Protected against splashing water	4
5	Dust-Protected	Protected against water jets	5
6	Dust-Tight	Protected against powerful water jets	6
		Protected against the effects of temporary immersion in water	7
		Protected against the effects of continuous immersion in water	8
		Protected against high pressure and temperature water jets	9

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