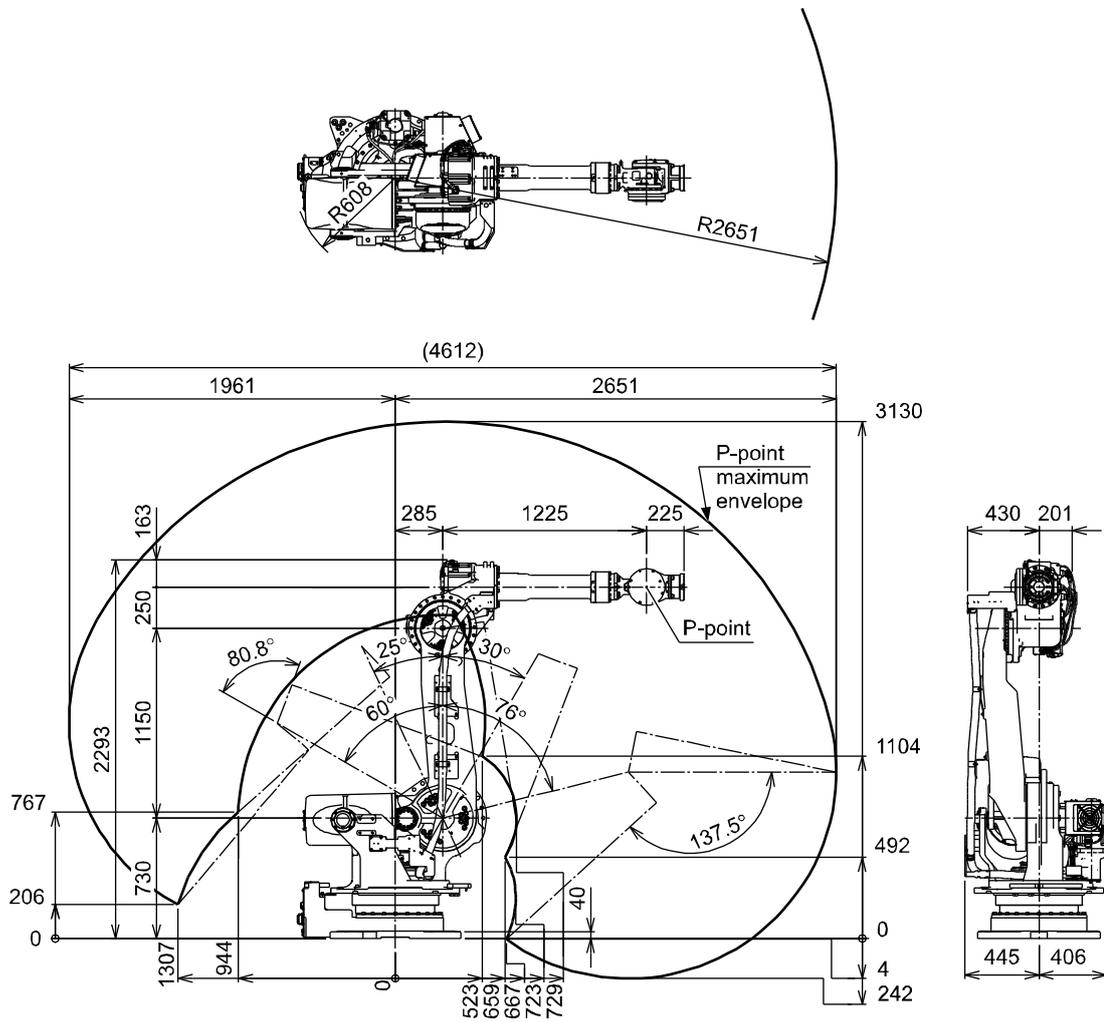# 1. Manipulator (MOTOMAN-PH130F)

(1) Dimension Diagram

・MOTOMAN-PH130F (Standard)

(2) Manipulator Specifications[Note1]

・MOTOMAN-PH130F (Standard)

Item	Model	MOTOMAN-PH130F
Type		YR-1-06VXF130-A00
Structure		Vertically Articulated
Degree of freedom		6
Payload	Wrist	130 kg
	On U-arm	30 kg
Repeatability [Note2]		±0.2 mm
Range of motion	S-axis (turning)	-180° - +180°
	L-axis (lower arm)	-60° - +76°
	U-axis (upper arm)	-80.8° - +197°
	R-axis (wrist roll)	-360° - +360°
	B-axis (wrist pitch/yaw)	-130° - +130°
	T-axis (wrist twist)	-360° - +360°
Maximum speed	S-axis	2.27 rad/s, 130°/s
	L-axis	2.27 rad/s, 130°/s
	U-axis	2.27 rad/s, 130°/s
	R-axis	3.75 rad/s, 215°/s
	B-axis	3.14 rad/s, 180°/s
	T-axis	5.23 rad/s, 300°/s
Allowable moment [Note3]	R-axis	735 N•m (75 kgf•m)
	B-axis	735 N•m (75 kgf•m)
	T-axis	421 N•m (43 kgf•m)
Allowable inertia [Note3]	R-axis	45 kg•m^2
	B-axis	45 kg•m^2
	T-axis	15 kg•m^2
Approx. mass		1500 kg
Protected structure		Body: IP54, Wrist part: IP67
Paint color		YASKAWA blue
Power requirements		7.5 kVA
Noise [Note4]		72 dB or less
Way of mounting		Floor-mounted
Adaptive controller		YRC1000
Manipulator cable		Standard: 5 m, maximum: 30 m

Note1: SI units are used in this table. However, gravitational unit is used in ( ).
Note2: Repeatability conforms to ISO 9283.
Note3: Please refer to "(3) Allowable Load for Manipulator Wrist" for the allowable moment and
  allowable inertia.
Note4: This is a value of the A load equivalent noise level measured according to ISO11201 (EN31201).
  <Measuring conditions>
    1. The maximum load and speed are used for measurement.
    2. Measurement position
      • Measurement height: 1.2 to 1.5 m above the floor
      • Distance from the target object to the measuring instrument: 400 mm from P-point maximum envelope

(3) Allowable Load for Manipulator Wrist

(3-1) Allowable Wrist Load

The payload of the wrist axis is a maximum of 130 kg, including the mass of the grip.

This section describes allowable values and conditions.

Because there are limitations on the moment as shown in the following table "Allowable Wrist Load", the following conditions must be met.

Axis	Moment N·m (kg·m) *	GD²/4 Total Moment of Inertia kg·m²
R-axis	735 (75)	45
B-axis	735 (75)	45
T-axis	421 (43)	15

* ( ): Gravitational unit

When the volume load is small, refer to the moment arm rating shown in the following "Moment Arm Rating". The allowable total moment of inertia is calculated when the moment is at the maximum. Contact your YASKAWA representative beforehand when only the moment of inertia is created, or when the load moment is small while the moment of inertia is large. Also, when the load is combined as a force not a mass, contact your YASKAWA representative.
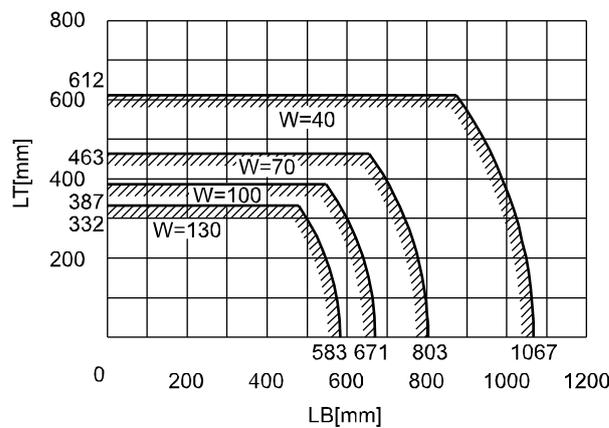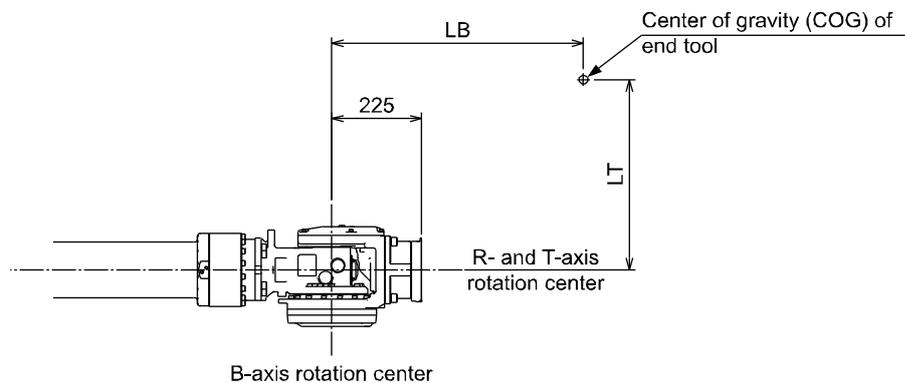
(3-2) Detailed Diagram of Wrist Axis

When mounting an attachment, it is recommended that the attachment is mounted inside the fitting so that the alignment mark can be viewed.

Fitting depth of inside and outside must be 8 mm or less.