



HELPING THE **ROBOT** DO THE JOB



ROBOTIC PERIPHERALS
AT A GLANCE

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ISO 9001:2008

ROBOT LOAD LIMITER

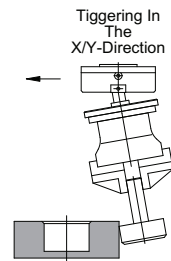
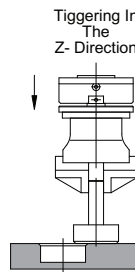
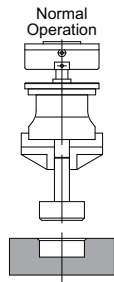
Collision protection during assembly.

The Robot Load Limiter protects the Robot, Tooling and the Part in case of collision by decoupling and sending a “Stop” signal to the Robot Controller. The built-in sensor is very sensitive and can detect 0.002” displacement. The “Trip Point” can be adjusted by adjusting the air pressure, thus making the Robot Limiter very rigid (80psi) during fast Robot movements and softer (20psi) when necessary. In case of collision and decoupling, the ULS unit will reset automatically, due to the built in springs and overtravel limit pins, upon removal of the crash condition.



ULS/ULD Series (without/with manifold)

| Model | Payload | | Z Deflection | | X/Y Deflection | Max. Rotation | Weight | |
|---------|---------|---------|--------------|--------|----------------|---------------|--------|--------|
| | kg | [lbs.] | mm | [in.] | | | kg | [lbs.] |
| ULS-60 | 2.0 | [4.4] | 11.0 | [0.43] | 8° | 360° | 0.33 | [.7] |
| ULS-80 | 4.0 | [8.8] | 11.9 | [0.47] | 10° | 360° | 0.57 | [1.3] |
| ULS-100 | 8.0 | [17.6] | 13.6 | [0.54] | 12° | 360° | 0.83 | [1.8] |
| ULS-125 | 12.0 | [26.5] | 11.9 | [0.47] | 10° | 360° | 1.53 | [3.4] |
| ULS-160 | 20.0 | [44.1] | 14.5 | [0.57] | 7° | 360° | 3.65 | [8.0] |
| ULS-160 | 20.0 | [44.1] | 15.0 | [0.59] | 5° | ±20° | 3.60 | [7.9] |
| ULS-200 | 55.0 | [121.3] | 9.5 | [0.37] | 4° | 360° | 7.20 | [15.9] |
| ULS-250 | 80.0 | [176.4] | 16.0 | [0.63] | 5° | 360° | 16.10 | [35.5] |
| ULS-300 | 120.0 | [264.6] | 25.0 | [0.98] | 6° | 360° | 25.20 | [56.2] |



LATERAL COMPLIANCE “X-Y” DEVICE

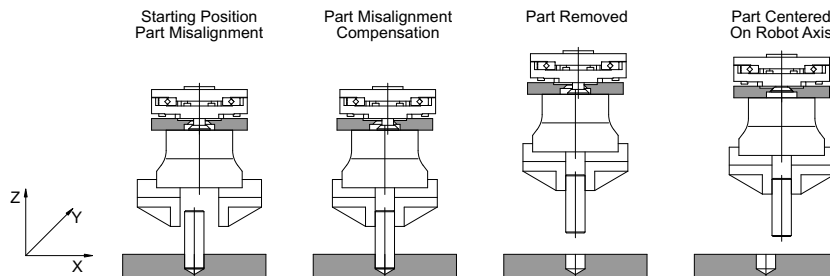
Compensates for part misalignment during assembly.

The Lateral Compliance Device provides compensation for misalignment in X-Y axis with no rotation or Z axis compliance. Almost “free floating” due to very low friction forces of the roller bearings supports. Usually used with “Z-Axis” compliance or Remote Center Compliance, to facilitate insertion at assembly, palletizing, or machine load-unload. If shocks are to be expected, the use of an ULS Robot Overload Limiter is advised. The locking cylinder centers the tool plate and secures the unit during Robot rapid movement.



KA Series

| Model | Payload | | Misalignment Compatability X/Y -mm | Weight | | Height | | Diameter | | |
|--------------|---------|---------|------------------------------------|--------|--------|---------|-------|----------|---------|-------------|
| | kg | [lbs.] | | kg | [lbs.] | mm | [in.] | mm | [in.] | |
| KA-65 | 0.5 | [1.1] | 1.5 | [0.06] | 0.40 | [0.9] | 42.0 | [1.654] | 65.0 | [2.560] |
| KA-80 | 1.0 | [2.2] | 2.0 | [0.08] | 0.55 | [1.2] | 42.0 | [1.654] | 79.0 | [3.110] |
| KA-100 | 2.0 | [4.4] | 2.0 | [0.08] | 1.10 | [2.4] | 42.0 | [1.654] | 99.0 | [3.898] |
| KA-125 | 5.0 | [11.0] | 3.0 | [0.12] | 2.20 | [4.9] | 50.0 | [1.970] | 125.0 | [4.920] |
| KA-160 | 10.0 | [22.0] | 4.0 | [0.16] | 3.45 | [7.6] | 50.0 | [1.970] | 159.0 | [6.260] |
| KA-200 | 40.0 | [88.2] | 12.0 | [0.47] | 8.40 | [18.5] | 65.0 | [2.560] | 198.0 | [7.795] |
| KA-250 | 80.0 | [176.4] | 14.0 | [0.55] | 17.00 | [37.5] | 72.0 | [2.835] | 248.0 | [9.803] |
| KA-300-light | 180.0 | [396.8] | 25.0 | [0.98] | 36.00 | [79.4] | 96.0 | [3.780] | 300x300 | [11.8x11.8] |
| KA-300 | 250.0 | [551.2] | 25.0 | [0.98] | 48.00 | [105.8] | 96.0 | [3.780] | 300x300 | [11.8x11.8] |



Z-Axis Compliance Device

Compensates for different part heights or excessive force.

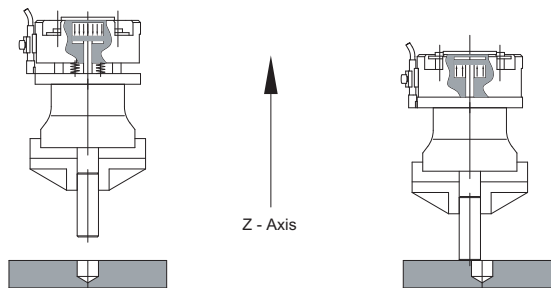
The Z Axis compliance unit compensates for different heights at part placement or excessive force at insertion. The “insertion” force can be varied by using different springs or by varying the air pressure. The 4 or more guiding rods provide excellent rigidity and accuracy in the Z direction. There is no rotation or X-Y compliance. The locking cylinder can be used to lock the unit during robot motion.



ZN Series

| Model | Payload kg | Payload [lbs.] | Misalignment Comptability Z -mm | Misalignment Comptability Z [-in.] | Spring Force N | Spring Force [lbs.] | Pneumatic Force* N | Pneumatic Force* [lbs.] | Weight kg | Weight [lbs.] |
|--------|---------------|-------------------|---------------------------------------|--|-------------------|------------------------|-----------------------|----------------------------|--------------|------------------|
| ZN-50 | 1.0 | [2.2] | 8.0 | [0.31] | 20 | [4] | – | – | 0.19 | [0.4] |
| ZN-80 | 2.0 | [4.4] | 8.0 | [0.31] | 40 | [9] | 150 | [34] | 0.53 | [1.2] |
| ZN-100 | 3.0 | [6.6] | 10.0 | [0.39] | 180 | [40] | 380 | [85] | 1.00 | [2.2] |
| ZN-125 | 8.0 | [17.6] | 12.0 | [0.47] | 300 | [67] | 500 | [112] | 1.85 | [4.1] |
| ZN-160 | 20.0 | [44.1] | 12.0 | [0.47] | 400 | [90] | 600 | [135] | 3.40 | [7.5] |
| ZN-200 | 40.0 | [88.2] | 12.0 | [0.47] | 1000 | [225] | 1700 | [382] | 5.75 | [12.7] |
| ZN-250 | 160.0 | [352.7] | 12.0 | [0.47] | 1500 | [337] | 1950 | [438] | 12.20 | [26.9] |
| ZN-300 | 300.0 | [661.4] | 12.0 | [0.47] | 2000 | [450] | 2200 | [495] | 18.30 | [40.3] |

*p=6 bar [87 psi]

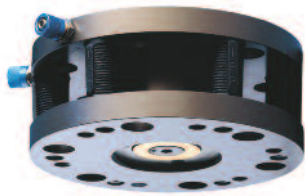


REMOTE CENTER COMPLIANCE WRIST

Compensates for part misalignment during assembly.

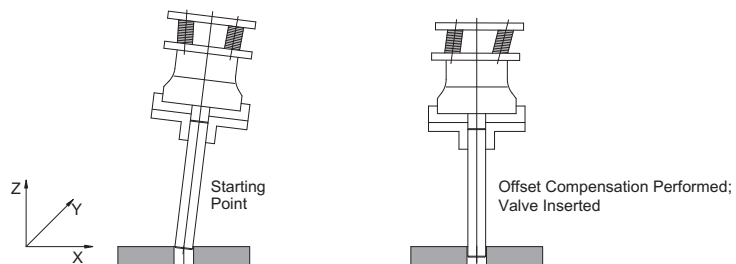
The Remote Center Compliance units facilitate assembly and machine loading-unloading by compensating for the misalignment of parts, fixtures or trays. It reduces forces in insertion applications, avoiding excessive part and tooling wear.

The FM units will provide compensation in all directions X, Y and Z as well as rotational compliance around these axis. The maximum compensation at minimum insertion forces are indicated at the Remote Center of Compliance (L).



FM Series

| Model | Payload kg | Payload [lbs.] | Misalignment Comptability X/Y -mm | Misalignment Comptability X/Y [-in.] | Weight kg | Weight [lbs.] | Height mm | Height [in.] | Diameter mm | Diameter [in.] |
|--------|---------------|-------------------|---|--|--------------|------------------|--------------|-----------------|----------------|-------------------|
| FM-50 | 1.1 | [2.4] | 3.0 | [0.12] | 0.15 | [0.3] | 40.0 | [1.575] | 50.0 | [1.970] |
| FM-80 | 2.4 | [5.3] | 3.0 | [0.12] | 0.26 | [0.6] | 42.0 | [1.654] | 79.0 | [3.110] |
| FM-100 | 3.5 | [7.7] | 3.0 | [0.12] | 0.47 | [1.0] | 42.0 | [1.654] | 99.0 | [3.898] |
| FM-125 | 7.0 | [15.4] | 2.0 | [0.08] | 1.20 | [2.6] | 50.0 | [1.970] | 125.0 | [4.920] |
| FM-160 | 12.0 | [26.5] | 2.0 | [0.08] | 1.85 | [4.1] | 50.0 | [1.970] | 159.0 | [6.260] |
| FM-200 | 52.0 | [114.6] | 3.0 | [0.12] | 8.00 | [17.6] | 56.0 | [2.205] | 198.0 | [7.795] |
| FM-250 | 90.0 | [198.4] | 3.0 | [0.12] | 9.80 | [21.6] | 62.0 | [2.440] | 248.0 | [9.764] |
| FM-300 | 90.0 | [198.4] | 2.5 | [0.10] | 5.60 | [12.3] | 50.0 | [1.970] | 298.0 | [11.732] |



TOOL CHANGER

The Tool Changer has been designed and built to meet the most stringent specifications of automobile manufacturers. The Tool Changer features a high number of Air Ports, Electric Contacts (12 or 24 pins), and Hydraulic and Water Ports for the Welding Gun Tool Changer.

The Robot Side has an ISO mounting pattern to fit the Robot Flange directly, without an additional adapter plate. The locking mechanism, with cone and several hardened balls generates a high holding force and is failsafe due to the spring behind the Locking Cylinder. It compensates for misalignment at pick up by as much as 1/8". Once the Robot Side is about 1/8" distance to the Tool Side firing the Locking Mechanism will pull up the Tool and lock it, thus allowing for faster cycle times.



| TK Series | | | | | | | | | | | | |
|-----------|---------|----------|--------|--------|--------|---------|----------|----------|---------|---------|---------|------------|
| Model | Payload | | Weight | | Height | | Diameter | | Fz max* | | Fx max* | |
| | kg | [lbs.] | kg | [lbs.] | mm | [in.] | mm | [in.] | N | [lbs.] | Nm | [in.-lbs.] |
| TK-40 | 3 | [6.6] | 0.28 | [0.6] | 38.0 | [1.496] | 60.0 | [2.362] | 900 | [202] | 29 | [257] |
| TK-50 | 12 | [26.5] | 0.77 | [1.7] | 56.0 | [2.205] | 85.0 | [3.346] | 3340 | [750] | 136 | [1204] |
| TK-63 | 30 | [66.1] | 1.68 | [3.7] | 65.0 | [2.560] | 110.0 | [4.330] | 4600 | [1034] | 740 | [6550] |
| TK-80 | 60 | [132.3] | 3.06 | [6.7] | 76.0 | [2.992] | 140.0 | [5.512] | 8900 | [2000] | 1000 | [8850] |
| TK-125 | 150 | [330.7] | 6.10 | [13.4] | 115.0 | [4.528] | 158.0 | [6.220] | 30000 | [6744] | 2000 | [17702] |
| TK-160 | 250 | [551.2] | 9.45 | [20.8] | 115.0 | [4.528] | 200.0 | [7.874] | 35500 | [7980] | 2000 | [17702] |
| TK-160-SW | 300 | [661.4] | 21.00 | [46.3] | 14.0 | [.550] | 380.0 | [14.960] | 10000 | [2248] | 2825 | [25005] |
| TK-300-AL | 450 | [992.1] | 21.50 | [47.4] | 110.0 | [4.330] | 290.0 | [11.417] | 106500 | [23942] | 2000 | [17702] |
| TK-300-ST | 800 | [1763.7] | 42.50 | [93.7] | 110.0 | [4.330] | 290.0 | [11.417] | 106500 | [23942] | 2000 | [17702] |

*p=6 bar [87 psi]

7th Axis Robot Transport - Extends Robot Range by up to 99 ft (30m)

The all new robot axis consists of a modular high-strength extruded aluminum beam. It is possible to equip the axis with an optional cover which makes it walkable and dirt-proof. The length of the basic module is 6.5 ft [2m] with lengths available up to 99ft [30m].

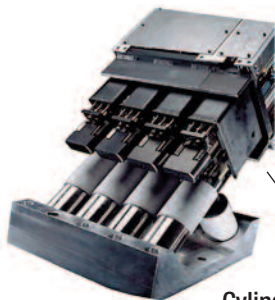


Roller Support

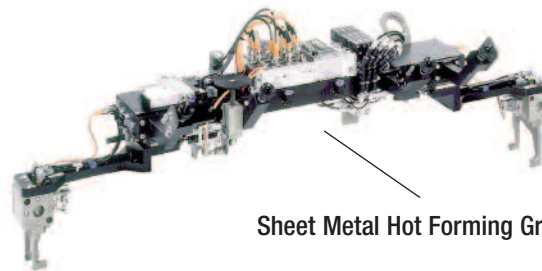


Cable Track

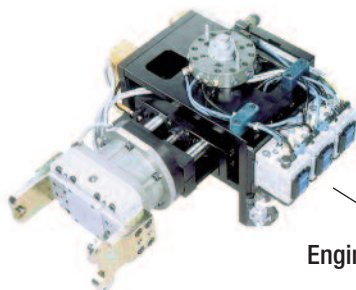
Custom Designed and Built End Effectors



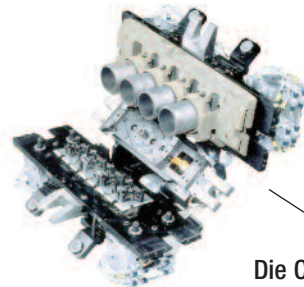
Cylinder Liner Gripper



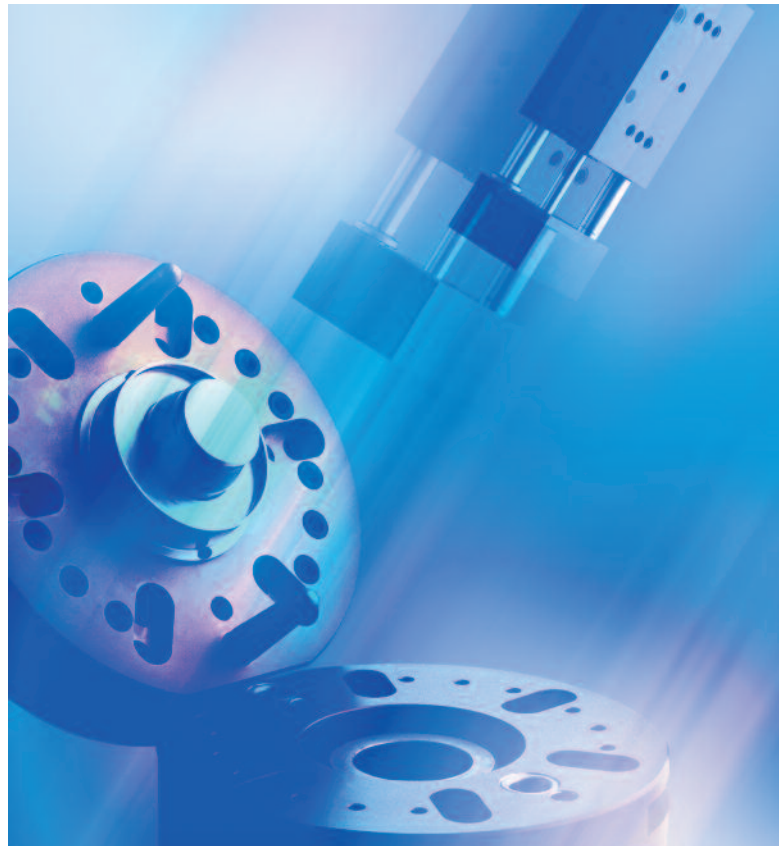
Sheet Metal Hot Forming Gripper



Engine Block Gripper



Die Cast Sand Core/
Cylinder-Liner Gripper



IPR - Intelligente Peripherien für Roboter GmbH
Industriestraße 29 · 74193 Schwaigern / GERMANY
Tel. +49(0)7138/812-100·Fax+49(0)7138/812-500
www.iprworldwide.com · info@iprworldwide.com

IPR Robotics
2673 American Drive, Troy, MI 48083
Tel: 877-573-7223, 248 556-7556 · Fax: 248 556-7560
www.iprrobotics.com · techsales@iprrobotics.com

