

# **K**<sup>TM</sup> **KINDRACO**

# **PRODUCT CATALOGUE**

**2014-2015** (Rev 0)



[www.kindraco.com](http://www.kindraco.com)



CERTIFIED TO ISO 9001 : 2008  
CERT. NO. : AR 6135



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CERT. NO. : AR 6135



**KINDRACO HARDWARE SDN. BHD.**  
 LOT 1557, KG. JAYA INDUSTRI AREA  
 JLN KUSTA, 47000 SG. BULOH  
 SELANGOR D. E.

**Kindraco Hardware Sdn. Bhd. (176819-P)**

Incorporated since 1990, Kindraco Hardware Sdn Bhd is actively supplying plumbing materials to plumbers and hardware retailers throughout Malaysia. Kindraco Hardware has also extended its business to manufacturing of Polypropylene (PP) Compression Fittings carrying the brand name of **K KINDRACO**, and supplying to overseas markets.

**Our Vision | Providing High Quality Plumbing Materials To Customers**

**Our Mision | Maintaining A Competitive Edge In Breaking New Frontiers**

At Kindraco Hardware Sdn. Bhd., we believe that excellence can only come from commitment. To fulfill the needs of our clients, we constantly strive to improve our products with the latest state-of-the-art technology and know-how. In tandem with offering you our best services at all times, we strive to continuously improve our products and services to ensure that Kindraco is always your preferred supplier.



**Working Environment**

Dynamic and comfortable working environment is shared by more than 100 employees in 11 departments.



**Research & Development**

Finite Element Analysis (FEA) studies through Computer Aided Design (CAD) software by qualified expert to optimize product performance.



**In-House Production**

We setup our own manufacturing plant without outsourcing the production to 3rd parties for better in-house quality control.



**Well Equipped QC Lab**

Stringent QC tests are conducted daily in our own well equipped laboratory to ensure quality assurance and consistency.



CERTIFICATE



SIRIM QAS International hereby certifies that
KINDRACO HARDWARE SDN. BHD.
LOT 1557, KAMPUNG JAYA INDUSTRIAL AREA
JALAN KUSTA
47000 SUNGAI BULOH
SELANGOR DARUL EHSAN
MALAYSIA



has implemented a Quality Management System complying with
ISO 9001 : 2008
QUALITY MANAGEMENT SYSTEMS - Requirements



Scope of Certification
DESIGN, MANUFACTURING AND DISTRIBUTION OF POLYPROPYLENE
(PP) COMPRESSION FITTINGS.



Issue date : 26 June 2014
Validity period : 26 June 2014 - 25 June 2017
Certification No. : AR 6135

Signature of Khalidah Mustafa
Managing Director
SIRIM QAS International Sdn. Bhd.



CERTIFICATE

ICNet and SIRIM QAS International hereby certify that

KINDRACO HARDWARE SDN. BHD.
LOT 1557, KAMPUNG JAYA INDUSTRIAL AREA
JALAN KUSTA
47000 SUNGAI BULOH
SELANGOR DARUL EHSAN
MALAYSIA

has implemented and maintains a
QUALITY MANAGEMENT SYSTEM
which fulfils the requirements of the following standard

ISO 9001 : 2008

for the following activities
DESIGN, MANUFACTURING AND DISTRIBUTION OF POLYPROPYLENE
(PP) COMPRESSION FITTINGS.

Issued on : 26 June 2014
Validity date : 25 June 2017
Certification Number : MY-AR 6135



Signature of Michael Drechsel
President of ICNet

Signature of Khalidah Mustafa
Managing Director
SIRIM QAS International Sdn Bhd



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MEMBER ASSOCIATION... SIRIM QAS International Sdn Bhd

QUALITY POLICY
KINDRACO HARDWARE Sdn. Bhd. is committed to
provide Quality Products and Services at an Excellent value.
maintain and continually improve the effectiveness of the Quality Management System.
improve its Quality Management System on a continuous basis in order to ensure gains in Quality Objectives.

Being an ISO 9001:2008 certified company, KINDRACO HARDWARE Sdn. Bhd. is committed to
provide quality products and services at an excellent value.
maintain and continually improve the effectiveness of the Quality Management System.
improves its quality management system on a continuous basis in order to ensure gains in Quality Objectives.



Customer Satisfaction

We focus on fulfilling customers' needs and requirements, to ensure close relationship and corporation.



Timely Delivery

We ensure timely deliveries to customers with our dedicated delivery team and extensive delivery networks.



Stocks Availability

We keep sufficient stock level through our high efficiency production output and effective stocks level control to serve the regional markets well.



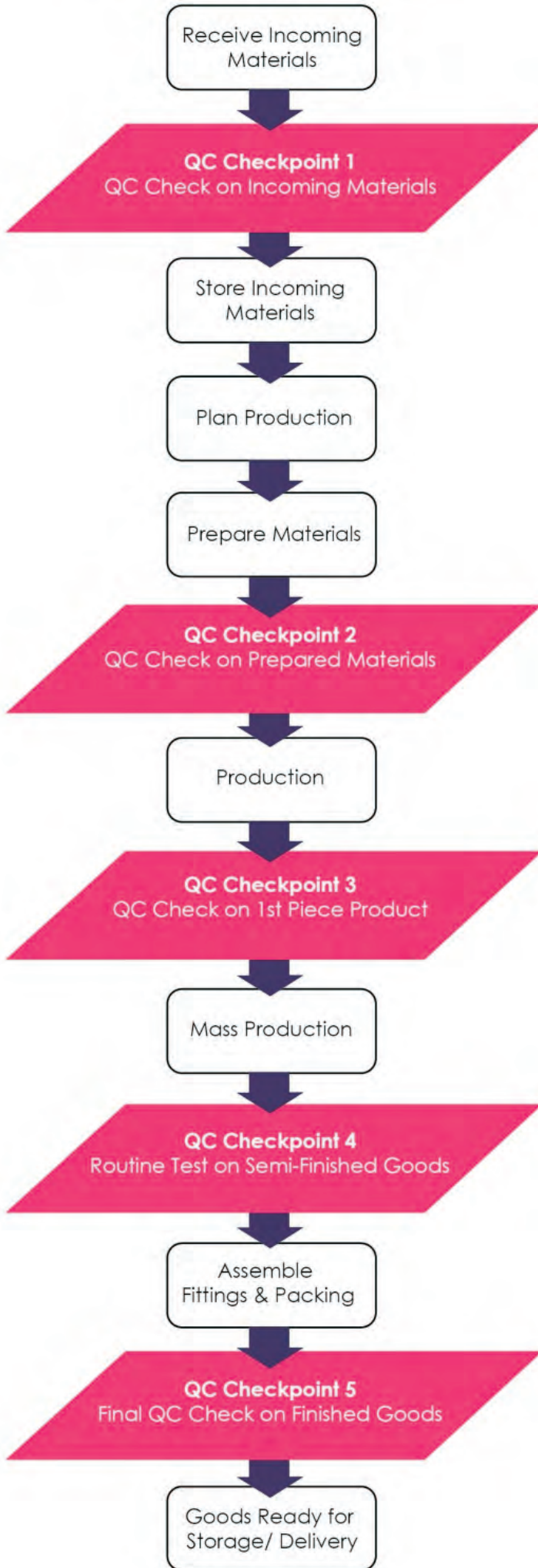
Competent Workforce

We ensure our staffs are competent to handle daily operations effectively and to provide best support to customers.

## Manufacturing Division

Our manufacturing division is backed by a strong team of well trained and experienced people with latest state-of-the-art technology and complete range of machineries and equipments.

# MANUFACTURING PROCESS & QC CHECKPOINTS



# Polypropylene (PP) Compression Fittings



Certified to BS 5114 standard.



Pressure rated to 16 bar (232 psi)



New & Patent Pending Features



Unique Industrial Design



Made of Virgin Resin Granules



Value for Money

Compatible with  
**HDPE Pipes**

ISO 4427, ISO 161-1,  
DIN 8074, BS EN 12201-1,  
MS 1058

## DESIGN FEATURES

- ✓ Simple Push-N-Lock design.
- ✓ Fast installation, leak proof.
- ✓ No seal tape, no solvent cement.
- ✓ Fully demountable, no wastage.
- ✓ Full bore hydraulic flow design.
- ✓ Premium quality of materials used.
- ✓ Passed Opacity test.
- ✓ Passed Non-Toxicity test.

DO  
**YOU**  
KNOW ?

Kindraco practices **NO-RECYCLED-MATERIALS POLICY** for ALL of our PP Compression Fittings production.

Each of our PP Compression Fittings are given **18 months** of Product Warranty against its manufacturing defects. Kindly refer to our Product Warranty Letter for more details.



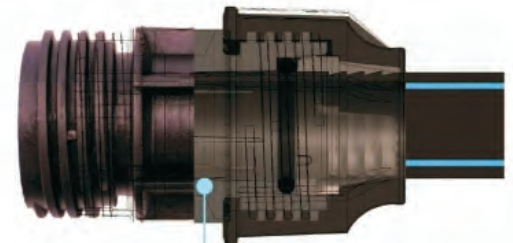
Cap Nut  
Polypropylene (PP)



Clinching Ring  
Poly Acetal (POM)



O-Ring  
EPDM Rubber



Body  
Polypropylene (PP)



## Product Range



**F 100**  
STRAIGHT COUPLER



**F 101**  
FEMALE THREADED ADAPTOR



**F 102**  
MALE THREADED ADAPTOR



**F 103**  
END CAP



**F 114**  
REDUCING COUPLER



**F 115**  
EQUAL BEND



**F 116**  
FEMALE BEND



**F 117**  
MALE BEND



**F 120**  
REDUCING TEE



**F 122**  
EQUAL TEE



**F 123**  
FEMALE TEE



**F 124**  
MALE TEE

## Material Data – Polypropylene (PP)



TYPICAL MATERIAL PROPERTIES	UNIT	NOMINAL VALUE UNIT	TEST METHOD
Specific Gravity	g/cm <sup>3</sup>	0.9	ASTM D792
Melt Mass-Flow Rate (MFR)	g/10 min	1.2	ASTM D1238
Tensile Elongation (Yield)	%	730	ASTM D638
Tensile Strength at Yield	MPa	25.5	ASTM D638
Tensile Strength at Break	MPa	34.3	ASTM D638
Flexural Modulus	MPa	1180	ASTM D790
Rockwell Hardness (R-Scale)	Unit	86	ASTM D785
Notched Izod Impact (Area) at -20°C	kJ/m <sup>2</sup>	4.9	ASTM D256
Notched Izod Impact (Area) at 23°C	kJ/m <sup>2</sup>	49	ASTM D256

## EPDM Rubber Test

### Testing of Unvulcanised Rubber Compound (EPDM)



PROPERTY	METHOD	OBSERVED	REQUIREMENT BS EN 681-1:1996 (Table 2 – 'WA/WC')
Tensile Strength, Mpa	ISO 37 : 2011	10.6	9.0 minimum
Elongation at Break, %		270	200 minimum
Hardness, IRHD	ISO 48 : 2010	71	70 ± 5
Compression Set, > (24 Hours/70°C), % > (72 Hours/23±2°C), % > (72 Hours/-10°C), %	ISO 815-1 : 2008	5 2 3	20 maximum 15 maximum 50 maximum
Immersion in Distilled Water, (7 days/70°C), Change in Volume, %	ISO 1817 : 2011	1	8 to -1
Stress Relaxation in Compression, > (7 days/23°C), % > (100 days/23°C), %	ISO 3384 : 1999 (Method B)	8 12	16 maximum 23 maximum
Ozone Resistance, (50 pphm/48 Hours/20% strain/40°C)	ISO 1431 : 2004	No Crack	No Crack (Without magnification)
Properties after accelerated ageing in air, 7 days (168 hours) at 70°C – ISO 188 : 2011 (Air Oven)			
▪ Change in Tensile Strength, %	ISO 37 : 2011	- 2	-20 maximum
▪ Change in Hardness, IRHD	ISO 48 : 2010	0	8 to -5 maximum
▪ Change in Elongation at Break, %		- 13	10 to -30 maximum

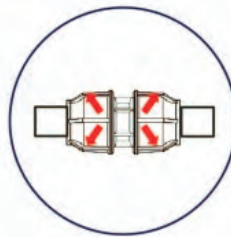
\* All above data are provided by resin and rubber suppliers respectively.

# Quality Control and Testing



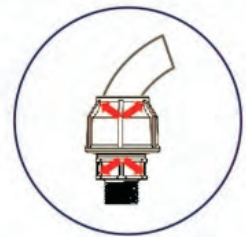
**COA  
Matching**

**MFI Test**  
(Melt Flow Index Check)



**48 bar  
(696 psi)**

**IPT**  
(Internal Hydrostatic  
Pressure Testing)



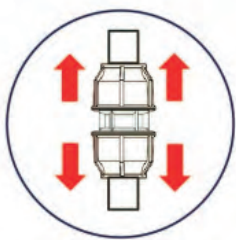
**48 bar  
(696 psi)**

**Bending Test**  
(Internal Hydrostatic Pressure  
Testing which subject to Bending)

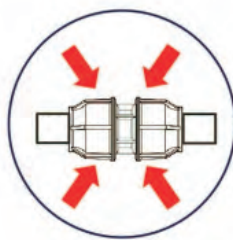
## DO YOU KNOW ?

- Water pressure from our water tap is usually at 2-5 bar. However, in order to be rated to PN 16 (16 bar), fittings need to be tested at 48 bar for 1 hour without leakage. (Note : 1 bar = 14.5 psi)
- Original form of PP resin is in **GRANULAR** shape, while recycled/reworked PP materials are in **PELLET** form. Fittings used for pressurized water are not advisable to be made by recycled materials.
- BS 5114 standard requires up to **3 times** of nominated pressure for IPT and Bending Test, while ISO 14236 only requires **2.5 times** for IPT and **1.8 times** for Bending Test.
- PP Compression Fittings in black which contain **Carbon Black** is the best choice of Compression Fittings for long term use under direct sunlight and UV exposure condition.





**Up to 10,000 N**



**2 bar  
(29 psi)**



**Safe for Drinking  
Water Pipeline**

**Tensile Test**  
(Resistance to Pull-Out Test)

**EPT**  
(External Pressure Test)

**Non-Toxicity Test**  
(BS 6920 Effect of Non-Metallic  
Materials on Water Quality)

Size (mm)	Tensile Force (N)
20	1100
25	1730
32	2696
40	3981
50	6488
63	10369

\*As per BS 5114 requirements.

**DO  
YOU  
KNOW ?**

- Tensile force applied to 63mm PP Compression Fittings is about the same force to pull up a car weighing **1,000 Kg/1 Tonne**.
- PP Compression Fittings are very suitable to be used in drinking water pipeline as it does not require any adhesive or chemical solvent in the installation.
- For each testing specifications, you may refer to our website for more details.

# Installation Method

For PP Compression Fittings

There are 2 installation methods for **K<sup>TM</sup> KINDRACO** PP Compression Fittings. User can choose either method to install. Details as below :

## METHOD A



Cut pipe square with pipe cutter.



Unscrew Cap Nut until few threads are visible.



Insert Pipe until 1st Stop and adjust alignment.



Push pipe into fitting again until fully home.



Tighten Cap Nut until stopper with tool.



It's done !

## METHOD B



Cut pipe square with pipe cutter.



Dismantle Cap Nut and its components.



Insert Cap Nut, Clinching Ring and O-Ring into pipe.



Push pipe into fitting and tighten Cap Nut.



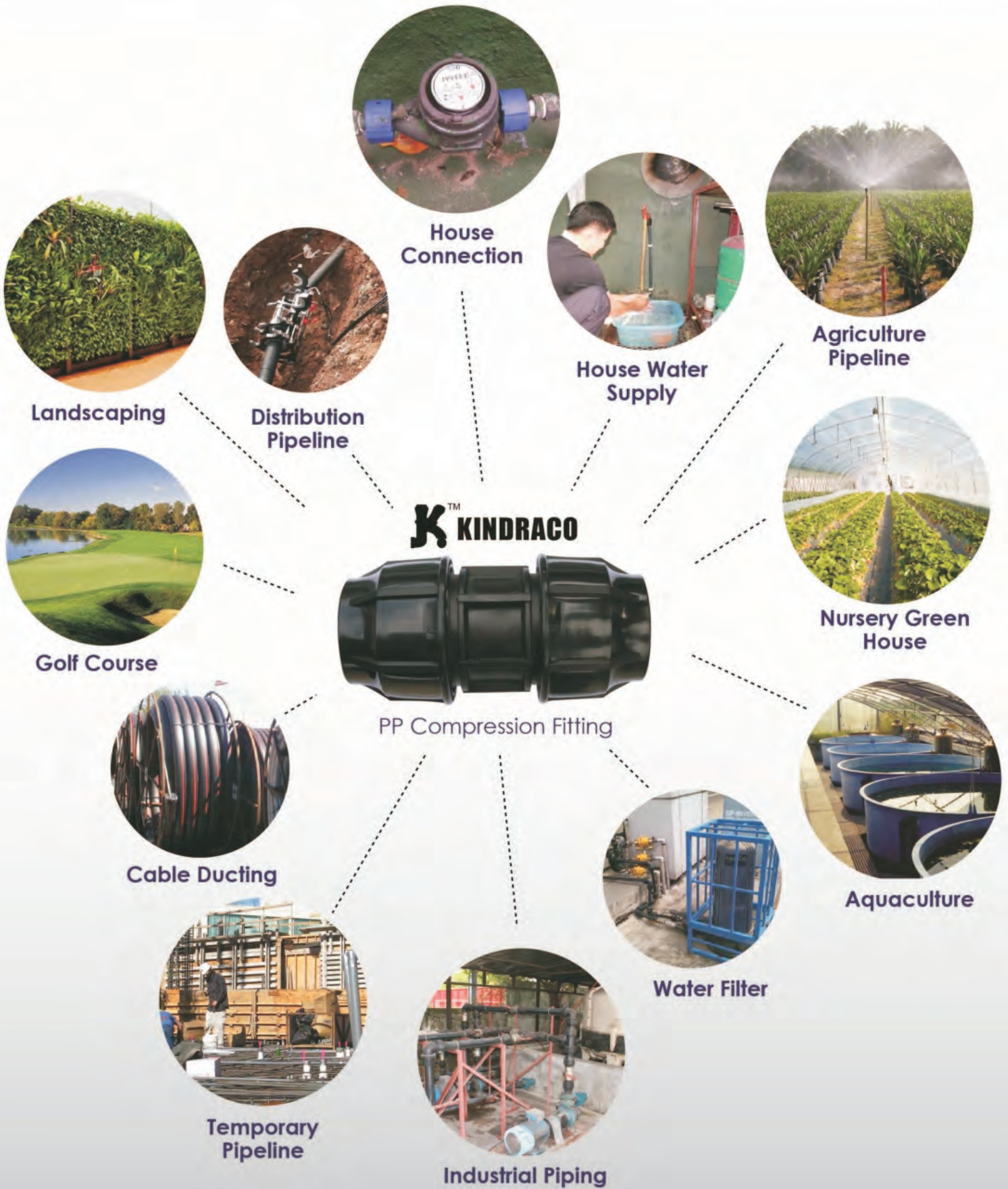
Further tighten Cap Nut until stopper with tool.



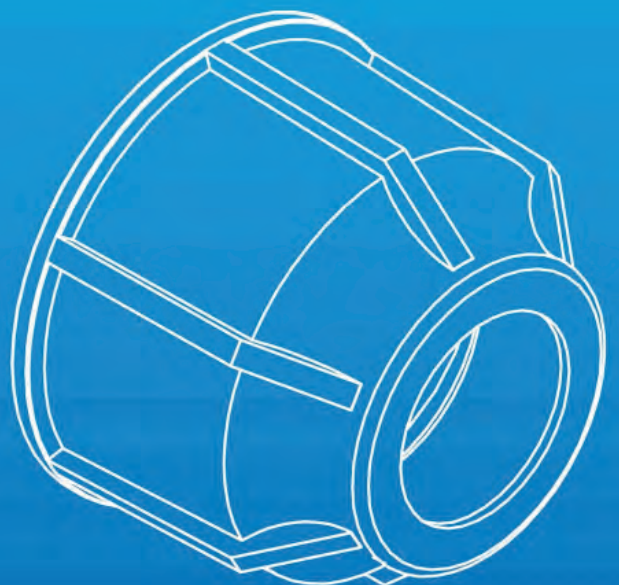
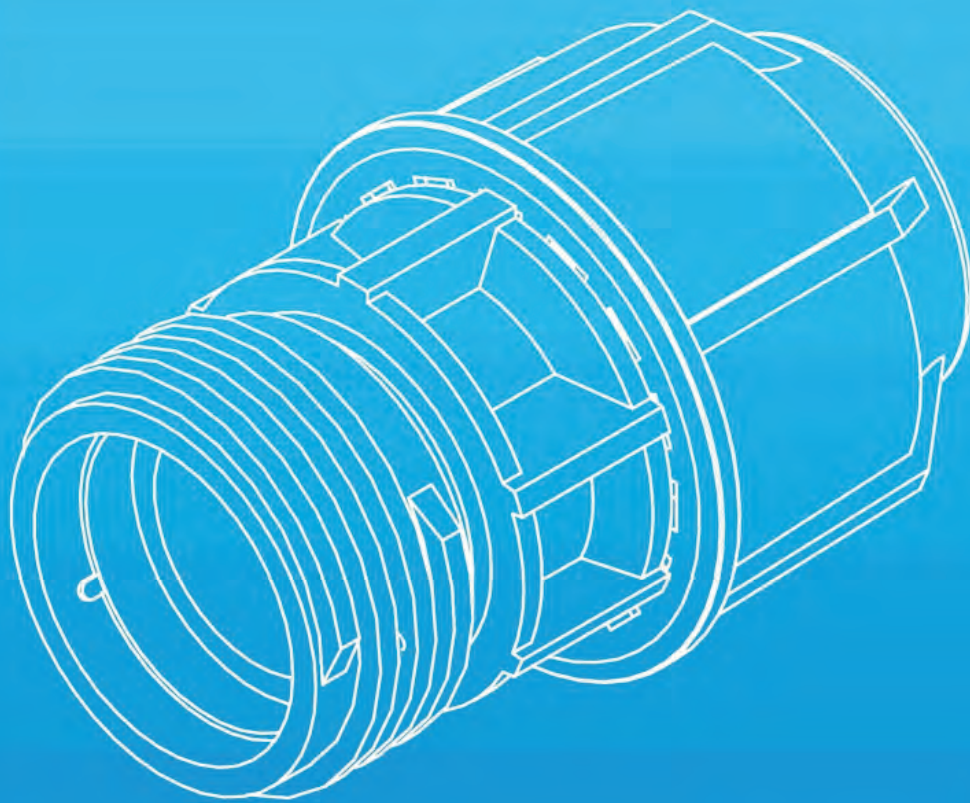
It's done !

# Applications

PP Compression Fitting is served as a component to HDPE pipeline system. Below are some of the illustrated applications of PP Compression Fittings with HDPE pipes for user's references.



**Important notes :** Users are advised to check with their consultant or respective regulatory bodies prior to usage of these fittings.



Sole Distributor of Indonesia :



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