



PPR PIPING SYSTEMS

POLYPROPYLENE RANDOM COPOLYMER TYPE 3 (PPR) PIPES, FITTINGS AND ACCESSORIES FOR COLD WATER, HOT WATER, DRINKING WATER, CHILLER WATER AND CHEMICAL INSTALLATIONS.

APPLICATION TO INDOOR / OUT DOOR / ABOVE AND UNDER GROUND INSTALLATION





ASIALING PIPING SYSTEMS Co., LTD which is a special enterprise producing PPR pipes and fittings, PEX pipes and brass fittings, VALVES and Concern with a high quality. We can supply PPR products from Diameter 16 - 160 mm. And we have serviced for countries in Russia, Ukraine, Spain, Chili and Brazil, Etc About the quality: Raw material we always use HYOSUNG PPR R200P, GS PPB MP10, BASELL EP332C and SINOPEC, YANSHAN 4220, 8101. The melt index is between 0.23 - 0.25. All the product we export with control and tested.



Welcome to our company ASIALING® for your Building

ASIALING PP-R pipe, also called polypropylene random copolymer (type 3) are a new generation of environment - friendly construction materials developed in the 1990. Besides plastic pipe product such as lightness, corrosion resistance, anti-deposition and long service life, PP-R pipe also enjoy some other advantages, like hygienicness, heat-resistance and longer service life. Meanwhile, their coefficient of heat conductivity is quite low and they are a good at heat preservation and energy conservation. Because of the technique of thermosol binding, they friendly construction materials. Compared with plastic compound pipe, PP-R pipe can be made into tubular products with larger calibers, with the largest reaching more than 160mm in caliber. ASIALING PP-R pipe and pipe fittings are widely used in such areas as delivery of drinking water, production and delivery system of purified water and drinks, transportation of chemical fluids, heating pipes, circulation system of hot water, pipes in agriculture, planting in gardens and parks and ranches, etc.



Product range of ASIALING PPR system

ASIALING produces pipes, fittings and accessories in following sizes and with following parameters:

- PN10 PPR pipes with diameter range ø16-160mm for cold water transportation and drinking water
- PN16 PPR pipes with diameter range ø16-160mm for cold water transportation and chiller water
- PN20 PPR pipes with diameter range ø16-160mm for hot water transportation and chemical fluids
- PN20 ASIALING Stabi (PPR/AI/PPR) pipe with diameter range ø20-63mm for cold and hot water transportation and central heating
- PN25 Outer layer thermo-fusion PPR/Al/PPR multilayer composite pipes with diameter range ø20-75mm for cold and hot water transportation and central heating
- PN25 Outer layer thermo-fusion PPR/Al/PE-RT multilayer composite pipes with diameter range ø20-75mm for cold and hot water transportation and central heating
- PN16 ASIALING Fiber-Glass polymer composite pipes with diameter range ø75-160mm for cold and hot water transportation and central heating
- PN20 ASIALING Fiber-Glass polymer composite pipes with diameter range ø20-160mm for cold and hot water transportation and central heating
- PN25 ASIALING Fiber-Glass polymer composite pipes with diameter range ø20-63mm for cold and hot water transportation and central heating
- PPR fittings and PPR fittings with nickel-plated brass threaded insert and cap nuts with diameter range ø16-160mm
- PPR ball valves and stop valves
- Pipe clamps and wall mountings with diameter range ø16-160mm
- Cutting tools and welding devices for PPR pipes and fittings with diameter range ø16-160mm

Estimated service life of **ASIALING** PPR system is over 50 years and subject to proper installation and maintaining of material's characteristics. Short time peak temperatures up to 100°C are possible.

Long time usage of piping system at temperatures ranging from 70°C to 90°C reduces its service life. Permissible working pressure for PPR piping for water supply systems)



Operating parameters for PPR pipes for potable water installations based on a theoretical service life of 50 years

Water	Maximum operating pressure, bar	Maximum operating temperatur, °C
Cold water	from 0 to 10	20
Hot water	from 0 to 10	60

Drinking Water System:

ASIALING pipe systems can be used for a wide range of areas of application including systems for dringking water and water for other purposes in houses and residential buildings, offices, schools, hotels, hospitals, factory, Industrial, etc.

BRASS















INSERTS







PPR piping installation

Main types of PPR piping installation:

- Internal installation
- Installation in ducts
- Open installation

Various basic rules and conditions - including linear thermal expansion, joint method, working conditions and necessary compensation - are to be considered during installation process.

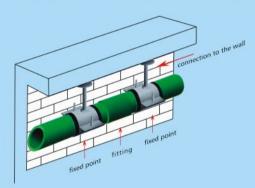
Pipeline mounting technique

Two types of pipeline supports are most frequently used: fixed points and sliding points. It is recomended to use pipe clamps with rubber protectors, which are specially designed for PPR pipes. It helps to avoid damaging of the pipe surface.

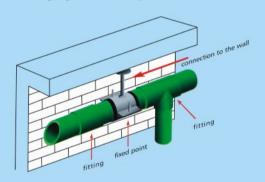
Fixed points

This type of fixing excludes the possibility of copensation; fixed supports should be installed at different sections of the pipe to avoid uncontrolled movemen of the pipe. Fixed points normally must be positioned where the system changes direction to ensure expansion points are not discharged. The distance between fixed points should be measured properly and the forces of expansion should be considered. Never use pivoting clamps as fixed points.

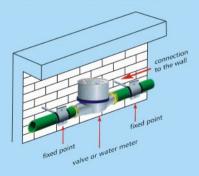
Fixing by two fixed clamps with fitting between them



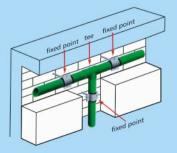
Fixing by fixed clamp between two fittings



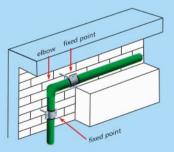
Water meter or valve fixing



Fixing at pipe branching



Fixing at pipe bending



Sliding points and other ways of fixing

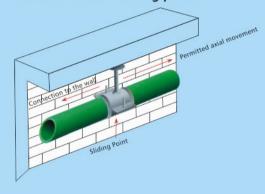
This type of mounting allows the pipe to move axially in both directions without damaging it. Sliding points should be positioned distantly from the joints (fittings) to ensure free movement of the pipe without any damaging. Such type of installation does not restrict any expansion movement.

Key to abbreviations

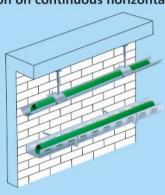
FP - Fixed Point

SP - Sliding Point

Installation with sliding points



Installation on continuous horizontal supports



Distance between supports ASIALING PPR pipes PN10 / PN16 (horizontal pipeline)

ΔT, °C	20
Ø D, mm	Distance Between Supports, cm
20	75
25	85
32	100
40	110
50	120
63	140
75	150
90	165
110	180
125	210
160	230

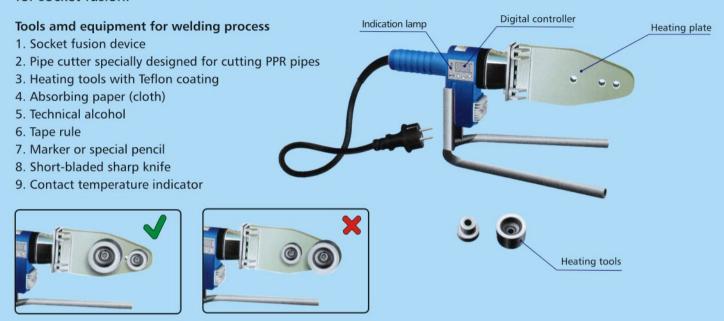
Distance between supports ASIALING PPR pipes PN 20 (horizontal pipeline)

	ΔT, °C	20	30	40	50	60	70
Ø D, mm			Dis	stance between s	upports, cm		
20		75	75	70	65	60	50
25		80	75	75	70	65	60
32		90	90	80	80	75	75
40		110	110	105	100	95	90
50		130	120	110	110	110	100
63		140	140	130	130	115	105
75		170	165	160	150	145	120
90		180	170	160	150	140	125
110		190	180	170	170	165	140

Coefficient of Loss for **ASIALING** PPR fittings and valves

Fitting	Graphic symbol	Remark	Coefficient of Loss €
	ŦijĒ	Flow separation	1.8
	ŦiF	Counter current flow conjunction	4.2
Equal Tee	= ディデ	Flow conjunction	1.3
	<u> </u>	Counter current flow separation	2.2
	青戸	Flow separation	3.6
Reducing Tee	7,=	Counter current flow conjunction	9.0
Reducing fee	≒≓	Flow counjunction	2.6
	===	Counter current flow separation	5.0
90° Elbow	77		2.0
45° Elbow	1)		0.6
Equal Cross	41/2	Flow separation	2.1
	415	Flow conjunction	3.7
Coupling	-		0.25
		Reduction by one size	0.4
		by 2 siZes	0.5
Reducing Coupling		by 3 siZes	0.6
		by 4 siZes	0.7
		by 5 siZes	8.0
		by 6 siZes	0.9
Treaded Tee Female	並		1.4-1.8
Treaded Tee Male	<u> </u>		1.8
Treaded 90° Elbow Female	<u></u>		1.4
Treaded 90° Elbow Male	<u>"</u> "		1.6
Treaded Adaptor Female	<u>=</u>		0.5
Treaded Adaptor Male	<u></u>		0.85
Reducer with Cap Nut	Z		8.3
Joint Adaptor with Cap Nut	圭		1.5
Cross-Over Pipe	- -		0.8
		Ø20	9.5
Stop Valve		Ø25	8.5
		Ø32	7.6
		Ø40	5.7

The most common method for connecting PPR pipes and fittings is the socket thermo fusion welding. **ASIALING** offers hand-held socket welding devices and socket welding machines with pipe clamping for socket fusion.



Preparing the thermo fusion device

Heating tools have to be tightly assembled with fusion device while they are cold. Connect the plug to the 220V power supply socket and wait until the green light on the machine will indicate the reaching of the working temperature (260°C). Before welding the temperature of the device has to be examined with contact temperature indicator. Never use water to cool the fusion device.

Preparations before welding

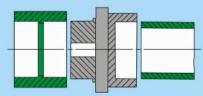
Heating tools have to be wiped with a clean cloth; this operation must be repeated after each welding. Check the surface of the heating tools. Cut the pipe at right angle; if necessary remove swarf from inside. Throughly clean the end of the pipe and the socket of the fitting with alcohol and absorbent cloth. Mark the welding depth of the socket at the end of the pipe. (Welding time and welding depth at air temperature 20°C)

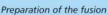
Welding process

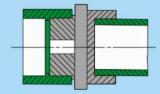
Push the pipe and the fitting simultaneously into the heating tools of the corresponding size in accordance with working conditions stated. Welding time and welding depth at air temperature 20°C After the heating, pull out the pipe and the fitting, and joint them immediately. Pust the pipe without any rotation until it reaches the marked welding depth. During the jointing time the welded pipe and fitting have to remain fixed. The outer fusion seam must be inspected. After the joint is completely cooled, the connection is ready for use.

Notice: The outer edges of the pipe ends for pipes with diameter Ø40mm and over should be beveled at the angle of 30-45°. For big diameter pipes it is necessary to scrape off the top layer of oxides (about 0.1mm), which can influence the welding quality. Check the pipe ovalisation, deformed and defective components should be sorted out.

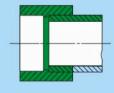
Schematic drawing of the fusion process





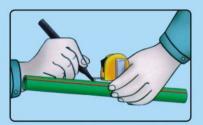


Alignment and preheating

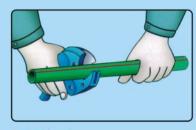


Joining and cooling

ASIALING® PPR PIPING SYSTEMS



1. Measure required length to be cut



2. Cut the pipe



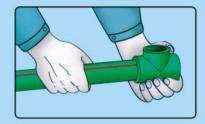
3. Heat the welder to 260°C



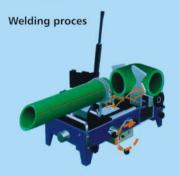
 Insert pipe and fitting into the heating tools, reference to Welding time and welding depth at air temperature 20°C is required.



Quickly insert heated pipe into the fitting.



 Assembly and cooling time should be strictly considered during the welding process. Slight aligment is allowed only during specified assembly time.

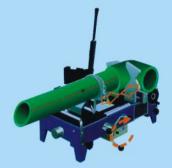


1. Fix the fitting in the clamp.

Ensure that the welding surface of the fitting is flat against the clamp; tighten it with the fixing crank handle. Put the pipe in the pipe clamp. Do not fix the clamp tightly. Keep pressing the spacing button and push sliding blocks together with the use of the hand wheel until it stops. Now pipe is adjusted to the welding depth, release the spacing button and fix the pipe clamp so that the pipe cannot be moved any longer.

2. The sliding blocks have to be moved apart and the welding plate has to be pulled down. Check out if the welding device is ready to use, when the green light is on the welding temperature has been reached (ensure that heating tools temperature is 260°C). Move the sliding blocks together until they are stopped by the lock. Check recommended welding time and welding depth air temperature 20°C. When the heating time has expired, move the sliding block apart and quickly remove the heating plate.





3. Push the sliding block together quickly to finally weld the pipe and the fitting. Never take the welded joint out of the support or turn back the hand crank before the cooling time has run out. Check recommended cooling time Welding time and welding depth at air temperature 20 °C. Once the cooling time has run out the welded joint is ready to use.

Welding time and welding depth at air temperature 20°C

Diameter, mm	Melting depth, mm	Heating time, sec	Welding time, sec	Cooling time, min
20	14	5	4	3
25	15.5	7	4	3
32	17.5	8	4	4
40	20	12	6	4
50	23	18	6	5
63	26	24	6	6
75	28.5	30	8	8
90	33	40	8	8
110	39	50	10	10
125	41	58	11	10.
140	43	68	13	10
160	46	80	15	15

Permissible working pressure for PPR piping for water supply systems

Temperature	Operation period	PPR pipe SDR11, PN10	PPR pipe SDR7.4, PN16	PPR pipe SDR6, PN20
		Safety factor 1.5		
	I	Permissible working pressure	e in bar	
	1	17.6	27.8	35.0
	5	16.6	26.4	33.2
10°C	10	16.1	25.5	32.1
	25	15.6	24.7	31.1
	50	15.2	24.0	30.3
	1	15.0	23.8	30.0
	5	14.1	22.3	28.1
20°C	10	13.7	21.7	27.3
	25	13.3	21.1	26.5
	50	12.9	20.4	25.7
	1	12.8	20.2	25.5
	5	12.0	19.0	23.9
30°C	10	11.6	18.3	23.1
	25	11.2	17.7	22.3
	50	10.9	17.3	21.8
	1	10.8	17.1	21.5
	5	10.1	16.0	20.2
40°C	10	9.8	15.6	19.6
	25	9.4	15.0	18.8
	50	9.2	14.5	18.3
	1	9.2	14.5	18.3
	5	8.5	13.5	17.0
50°C	10	8.2	13.1	16.5
	25	8.0	12.6	15.9
	50	7.7	12.2	15.4
	1	7.7	12.2	15.4
6006	5	7.2	11.4	14.3
60°C	10	6.9	11.0	13.8
	25	6.7	10.5	13.3
	50	6.4	10.1	12.7
	1	6.5	10.3	13.0
7000	5	6.0	9.5	11.9
70°C	10	5.9	9.3	11.7
	25	5.1	8.0	10.1
	50	4.3	6.7	8.5
	1	5.5	8.6	10.9
80°C	5	4.8	7.6	9.6
50°C	10	4.0	6.3	8.0
	25	3.2	5.1	6.4
90°C	1	3.9	6.1	7.7
	5	2.5	4.0	5.0

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PPR PIPES	Outside Diameter (OD)	Thickness (mm)	PACK. (M/PACK)
	20mm	2.0	240
	25mm	2.3	160
	32mm	3.0	96
	40mm	3.7	64
PN 10	50mm	4.6	40
	63mm	5.8	24
	75mm	6.9	16
	90mm	8.2	12
	110mm	10	8
	160mm	14.6	4

PPR PIPES	Outside Diameter (OD)	Thickness (mm)	PACK. (M/PACK)
	20mm	2.3	240
	25mm	2.8	160
	32mm	3.6	96
	40mm	4.5	64
PN 12.5	50mm	5.6	40
	63mm	7.1	24
	75mm	8.4	16
	90mm	10.1	12
	110mm	12.3	8
	160mm	17.9	4

PPR PIPES	Outside Diameter (OD)	Thickness (mm)	PACK. (M/PACK)
	20mm	2.8	240
	25mm	3.5	160
	32mm	4.4	96
	40mm	5.5	64
PN 16	50mm	6.9	40
	63mm	8.7	24
	75mm	10.3	16
	90mm	12.3	12
	110mm	15.1	8
	160mm	21.9	4

PPR PIPES	Outside Diameter (OD)	Thickness (mm)	PACK. (M/PACK)
	20mm	3.4	240
	25mm	4.2	160
	32mm	5.4	96
	40mm	6.7	64
PN 20	50mm	8.3	40
	63mm	10.5	24
	75mm	12.5	16
	90mm	15	12
	110mm	18.3	8

LL 2001	COUPLING	SIZE	PACK. (PIC./ PACK)
		16mm	2600
		20mm	1500
		25mm	900
	THE RESERVE OF THE PERSON NAMED IN COLUMN TWO IS NOT THE PERSON NAMED IN COLUMN TWO IS NAMED IN COLUMN TW	32mm	520
		40mm	300
		50mm	210
		63mm	128
		75mm	75
		90mm	52
		110mm	24
		125mm	
		160mm	9

LL 2002	90° ELBOW	SIZE	PACK. (PIC./ PACK)
		16mm-90	1820
		20mm-90	1040
		25mm-90	600
		32mm-90	360
			195
		50mm-90	140
		63mm-90	60
		75mm-90	36
		90mm-90	21
		110mm-90	12
		125mm-90	
		160mm-90	4

LL 2003	45° ELBOW	SIZE	PACK. (PIC./ PACK)
		16mm-45	2240
		20mm-45	1040
		25mm-45	640
		32mm-45	360
			240
		50mm-45	140
		63mm-45	80
		75mm-45	50
			36
		110mm-45	18
		160mm-45	6

LL 2004	REDUCING ELBOW	SIZE	PACK. (PIC./ PACK)
		25mm-20	750
		32mm-25	520
		32mm-25	420

LL 2005	TEE	SIZE	PACK. (PIC./ PACK)
		16mm	1300
		20mm	750
		25mm	450
		32mm	240
			140
		50mm	106
			54
			30
		90mm	18
		110mm	10
		125mm	
		160mm	4







REDUCING COUPLING

LL 2007	PACK.
SIZE	(PIC./ PACK)
20-16-16mm	2500
20-20-16mm	2000
20-16-20mm	1200
25-20-25mm	520
25-20-16mm	600
25-16-16mm	650
25-16-20mm	600
25-16-25mm	600
25-20-20mm	550
32-20-32mm	360
32-25-32mm	300
32-16-32mm	360
32-20-25mm	320
32-25-20mm	320
30-20-20mm	320
40-25-32mm	180
40-32-25mm	180
40-20mm	210
40-25mm	180
40-32mm	170
50-20mm	175
50-25mm	160
50-32mm	140
50-40mm	128

LL 2007 SIZE	PACK. (PIC./ PACK)
63-20mm	96
63-25mm	88
63-32mm	80
63-40mm	70
63-50mm	57
75-20mm	50
75-25mm	50
75-32mm	45
75-40mm	45
75-50mm	39
75-63mm	35
90-32mm	33
90-40mm	30
90-50mm	26
90-63mm	21
90-75mm	20
110-40mm	18
110-50mm	16
110-63mm	16
110-75mm	12
110-90mm	12
125-110mm	
160-110mm	4

LL 2008 SIZE	PACK. (PIC./ PACK)
20-16mm	1200
25-16mm	1200
32-16mm	1200
25-20mm	1200
32-20mm	800
32-25mm	640
40-20mm	480
40-25mm	450
40-32mm	375
50-20mm	300
50-25mm	280
50-32mm	270
50-40mm	240
63-20mm	216
63-25mm	216
63-32mm	216
63-40mm	216
63-50mm	136
75-32mm	130
75-40mm	120
75-50mm	120
75-63mm	83
90-40mm	72
90-50mm	72

LL 2008 SIZE	PACK. (PIC./ PACK)
90-63mm	72
90-75mm	48
110-40mm	45
110-50mm	42
110-63mm	40
110-75mm	36
110-90mm	30
125-110mm	
160-110mm	
,	

LL 2009	FLANGE	SIZE	PACK. (PIC./ PACK)
		40mm	
1		50mm	
		63mm	12
		75mm	
		90mm	
		110mm	
		160mm	



LL 2011	MALE CAP	SIZE	PACK. (PIC./ PACK)
	· ·	1/2 "	
		3/4 "	



LL 2013	FEMALE COUPLING	SIZE	PACK. (PIC./ PACK)
		16mm-1/2F	420
		20mm-1/2F	420
		20mm-3/4F	300
10		25mm-1/2F	325
		25mm-3/4F	260
			280
		32mm-3/4F	195
		32mm-1F	160
		40mm-1/2F	
		40mm-3/4F	150
		40mm-1F	100
		40mm-1 1/4F	96
		50mm-1 1/2F	60
		50mm-2F	48
		63mm-2F	36
		75mm-2 1/2F	16
		90mm-3F	12
		110mm-4F	7

LL 2014	MALE COUPLING	SIZE	PACK. (PIC./ PACK)
		16mm-1/2M	300
		20mm-1/2M	350
93		20mm-3/4M	220
3		25mm-1/2M	300
		25mm-3/4M	240
		32mm-1/2M	240
		32mm-3/4M	165
			120
		40mm-1M	100
		40mm-1 1/4M	84
		50mm-1 1/2M	62
		50mm-2M	36
		63mm-2M	36
		75mm-2.5M	12
		90mm-3M	12
		110mm-4M	6

LL 2015	ELBOW WITH SEAT	SIZE	PACK. (PIC./ PACK)
		16mm-1/2F	220
		16mm-1/2M	180
		20mm-1/2F	180
		20mm-1/2M	165
		25mm-1/2F	70
		25mm-1/2M	50



LL 2017	MALE ELBOW	SIZE	PACK. (PIC./ PACK)
		16mm-1/2M	300
		20mm-1/2M	240
		20mm-3/4M	195
		25mm-1/2M	195
		25mm-3/4M	180
		32mm-1/2M	150
		32mm-3/4M	
		32mm-1M	90
		40mm-1 1/4M	48
		50mm-1 1/2M	

LL 2019	UNION SOCKET	SIZE	PACK. (PIC./ PACK)
	The state of the s	20mm-1/2F	440
		25mm-3/4F	
		20mm-3/4F	
(IIII)			

LL 2021	UNION ELBOW	SIZE	PACK. (PIC./ PACK)
		20mm-1/2F	250



LL 2020	MALE TEE	SIZE	PACK. (PIC./ PACK)
	1	20mm-1/2M	210
		20mm-3/4M	140
		25mm-1/2M	165
		25mm-3/4M	140
		32mm-1/2M	120
		32mm-3/4M	100
		32mm-1M	70
		40mm-1/2M	
		40mm-1M	95
		40mm-1 1/4M	80
		50mm-1 1/2M	2803

LL 2022	UNION SEATEDELBOW	SIZE	PACK. (PIC./ PACK)
		20mm-1/2F	126
		20mm-1/2M	120
2			

LL 2023	FILTER	SIZE	PACK. (PIC./ PACK)
		20mm	140
4			90
		32mm	50

LL 2024	VALVE	SIZE	PACK. (PIC./ PACK)
		20mm	130
É		25mm	90

LL 2025	VALVE II	SIZE	PACK. (PIC./ PACK)
			130
		25mm	90

LL 2026	MALE UNION	SIZE	PACK. (PIC./ PACK)
		20mm-1/2M	320
		25mm-3/4M	210
			120
		40mm-1 1/4M	88
		50mm-1 1/2M	54
1		63mm-2M	36
ų.			

LL 2027	FEMALE UNION	SIZE	PACK. (PIC./ PACK)
		20mm-1/2F	360
		25mm-3/4F	220
		32mm-1F	140
		40mm-1 1/4F	96
· ·		50mm-1 1/2F	60
		63mm-2F	36

LL 2028	DOBLE UNION	SIZE	PACK. (PIC./ PACK)
6)		20mm	420
		25mm	320
<u> </u>		32mm	220

LL 2029	PLASTIC UNION	SIZE	PACK. (PIC./ PACK)
	90000000000000000000000000000000000000	20mm	
		25mm	
		32mm	
		40mm	
		50mm	
		63mm	

VALVE SERIES

LL 2030	DOBLE UNION BALL VALVE	SIZE	PACK. (PIC./ PACK)
100		20mm	120
		25mm	80
		32mm	50
			32
to.			18
		63mm	12

LL 2031	MALE UNION BALL VALVE	SIZE	PACK. (PIC./ PACK)
		20mm-1/2M	120
		25mm-3/4M	80
		32mm-1M	45
			27
		50mm-1 1/2M	15
4		63mm-2M	10
THE PERSON NAMED IN			

LL 2032	FEMALE UNION BALL VALVE	SIZE	PACK. (PIC./ PACK)
		20mm-1/2F	120
		25mm-3/4F	80
		32mm-1F	45
		40mm-1 1/4F	27
2		50mm-1 1/2F	15
		63mm-2F	10

LL 2033	STOP VALVE II	SIZE	PACK. (PIC./ PACK)
		20mm	80
		25mm	50
			40
	Yell		

LL 2034	BRASS BALL PLASTIC VALVE III	SIZE	PACK. (PIC./ PACK)
		20mm	
		25mm	
		32mm	



VALVE SERIES

LL 2036	IRON BALL PLASTIC VALVE	SIZE	PACK. (PIC./ PACK)
		20mm	100
		25mm	100
	2222	32mm	60

LL 2038	BRASS BALL PLASTIC VALVE II	SIZE	PACK. (PIC./ PACK)
		20mm	120
		25mm	100
		32mm	70
		40mm	40
		50mm	24
		63mm	15

LL 2040	BRASS BALL PLASTIC VALVE II	SIZE	PACK. (PIC./ PACK)
		20mm	120
		25mm	100
		32mm	70
		40mm	40
		50mm	24
		63mm	15

LL 2037	BRASS BALL PLASTIC VALVE	SIZE	PACK. (PIC./ PACK)
		20mm	100
		25mm	100
	1	32mm	60

LL 2039	PLASTIC BALL VALVE	SIZE	PACK. (PIC./ PACK)
		20mm	125
		25mm	80
		32mm	50
		40mm	32
	100 M	50mm	20
			10

LL 2041	BELOW SERIES	SIZE	PACK. (PIC./ PACK)
		20	120
		25	100
		32	70
30.		40	40
The same	AMARIAN TOPON	50	24
		63	15
10.127	Manual Tolandon		

TOOLS SERIES

LL 2042	BRIDGE BEND	SIZE	PACK. (PIC./ PACK)
-		Ф20	280
		Ф25	200
		Ф32	120

LL 2044	BRIDGE BEND	SIZE	PACK. (PIC./ PACK)
		Ф20	
		Ф25	
		Ф32	
	15	Ф40	
	a	Ф50	
		Ф63	
		Ф75	
		Ф90	

LL 2046	METAL HOLD CLIP	SIZE	PACK. (PIC./ PACK)
100		Ф20	
		Ф25	
		Ф32	
(Ф40	
2		Ф50	
07		Ф63	
		Ф75	
		Ф90	

LL 2048	ALL-PURPOSE BUCKLEWITH SEAT	SIZE	PACK. (PIC./ PACK)
		Ф20	
	U-	Ф25	
	3 3	Ф32	
		Ф40	
		Ф50	
		Ф63	
		Ф75	
		Ф90	

LL 2043	PLASTIC CLIP	SIZE	PACK. (PIC./ PACK)
		Ф20	
		Ф25	
		Ф32	
		Ф40	
		Ф50	
		Ф63	

LL 2045	LINEAR CLIP WITH NAIL	SIZE	PACK. (PIC./ PACK)
	1	Ф16	
		Ф20	
		Ф25	
		Ф32	
	3 17		

LL 2047	FLOOR HEATING CLIP NAIL	SIZE	PACK. (PIC./ PACK)
		Ф20	
9		Ф25	
1		Ф40	
	A CONTRACTOR OF THE PARTY OF TH	Ф50	
	A STATE OF THE STA		
		Ф75	
		Ф90	

LL 2049	хомүт	SIZE	PACK. (PIC./ PACK)
		Ф20	
-		Ф25	
1		Ф32	
HILL	- Fail	Ф63	
	Mile Service Company	Ф75	
c.		Ф90	

TOOLS SERIES



LL 2052	ROUND MAKER	SIZE
		16X20X25X32

LL 2054	BIG CALINBRE PIPE CUTTER	SIZE
		Ф16-32



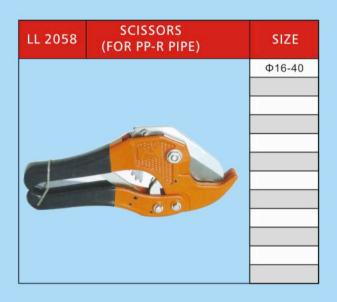


LL 2053	BIG CALINBRE PIPE CUTTER	SIZE
		Ф16-63
		Ф50-125

LL 2055	BIG CALINBRE PIPE CUTTER	SIZE
		Ф16-40

LL 2057	SCISSORS (FOR PP-R PIPE)	SIZE
		Ф16-40

TOOLS SERIES



LL 2060	WELDING MACHINE	SIZE
		20-32
		20-63

LL 2062	WELDING MACHINE	SIZE
		20-32
		20-63
		75-110
		110-160
7 10		



LL 2061	WELDING MACHINE	SIZE
		20-63

LL 2063	WELDING MACHINE	SIZE
		20-32





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