



GRENBERT



G90 SERIES

NON-SKIVE

ONE-PIECE TYPE

Design for 1-1/4" TO 2" SAE R13 & 15

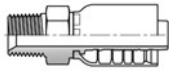
HIGH IMPULSE

EXTREME HIGH PRESSURE

P90 SERIES

NPT

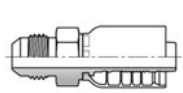
MP – Male



H3

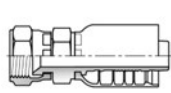
JIC 37° FLARE

MJ – Male



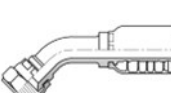
H3

FJ – Female



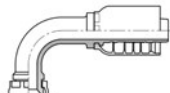
H4

FJ45 – Female 45° Elbow



H4

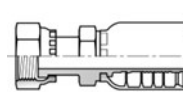
FJ90 – Female 90° Elbow



H5

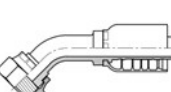
O-RING FACE SEAL (ORFS)

FF- Female



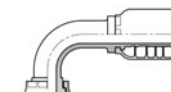
H5

FF45 – Female 45° Elbow



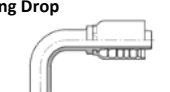
H6

FF90 – Female 90° Elbow



H6

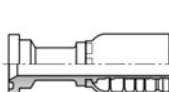
FF90L - Female 90° Elbow
Long Drop



H7

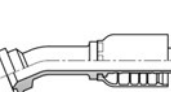
SAE CODE 61 FLANGE

FL



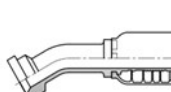
H7

FL22.5 – 22.5° Elbow



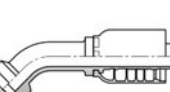
H8

FL30 – 30° Elbow



H8

FL45 – 45° Elbow



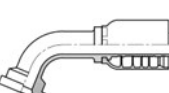
H9

FL45 – 45° Elbow Long
Drop



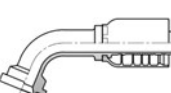
H9

FL60 – 60° Elbow



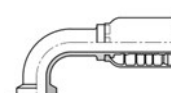
H10

FL66.5 – 67.5° Elbow



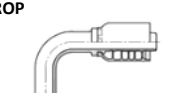
H10

FL90 – 90° Elbow



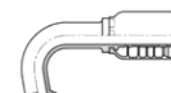
H11

FL90 – 90° Elbow LONG
DROP



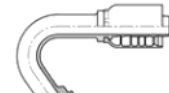
G12

FL110 – 110° Elbow



G13

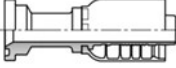
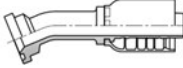
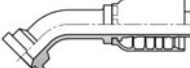
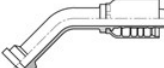
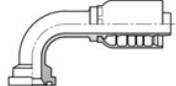
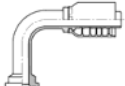
FL135 – 135° Elbow



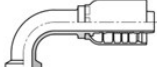
G13

P90 SERIES

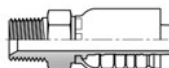
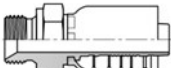
SAE CODE 62 FLANGE

FLH 	FL22.5 – 22.5° Elbow 	FL45 – 45° Elbow 	FL45L – 45° Elbow Long Drop 	FL67.5 – 67.5° Elbow 
H14	H14	H15	H15	H16
FL90 – 90° Elbow 	FL90L – 90° Elbow Long Drop 			
H16	H17			

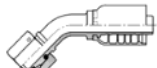
CATERPILLAR O-RING FLANGE

FLH 	FL45 – 45° Elbow 	FL90 – 90° Elbow 
H18	H18	H19

BRITISH PIPE THREAD (BSPT / BSPP)

MT – BSPT Male 	MB – BSPP Male 	FB – BSPP Female 	FB45 – BSPP 45° Elbow 	FB90 – BSPP 90° Elbow 
H21	H19	H20	H20	H21

METRIC DIN 24° CONE L-SERIES

MDKOL – Male 	FDKOL – Female 	FDKOL45 – 45° Elbow 	FDKOL90 – 90° Elbow 
H22	H22	H23	H23

METRIC DIN 24° CONE S-SERIES

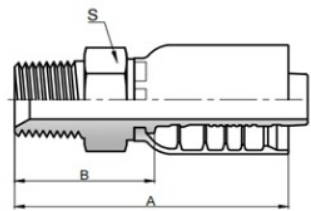
FDKOS – Female 	FDKOS45 – 45° Elbow 	FDKOS90 – 90° Elbow 	FDKOS90 – 90° Elbow 
H24	H24	H25	H25

MP MALE NPT

P90 Series

Features

- One-Piece, Non-Skive Design
- Design for R13 & R15 and 4SH (size -12 to -16)
- Coating Option: Zinc Nickle
- Specification: SAE J516



Part Number	Hose Size		Thread	A	B	S
	Inch	mm	Inch	mm	mm	mm

P90-SERIES

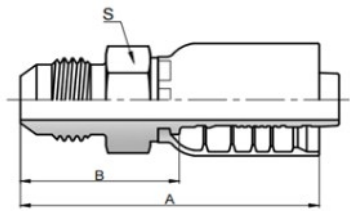
P9012-12MP	3/4	19	3/4-14	86	40	30
P9016-16MP	1	25.4	1-11.5	98	44	36
P9020-20MP	1.1/4	31.8	1.1/4-11.5	118	54	46
P9024-24MP	1.1/2	38.1	1.1/2-11.5	126	58	50
P9032-32MP	2	50.8	2-11.5	150	72	65

MJ MALE JIC 37° FLARE

P90 Series

Features

- One-Piece, Non-Skive Design
- Design for R13 & R15 and 4SH (size -12 to -16)
- Coating Option: Zinc Nickle
- Specification: SAE J516 / ISO 12151-5



Part Number	Hose Size		Thread	A	B	S
	Inch	mm	Inch	mm	mm	mm

P90-SERIES

P9012-12MJ	3/4	19	1.1/16x12	90	43	30
P9016-16MJ	1	25.4	1.5/16x12	100	46	36
P9020-20MJ	1.1/4	31.8	1.5/8x12	118	54	46
P9024-24MJ	1.1/2	38.1	1.7/8x12	126	58	50
P9032-32MJ	2	50.8	2.1/2x12	150	72	65

PART H
P90

FJ FEMALE JIC JIC 37° FLARE SWIVEL

P90 Series

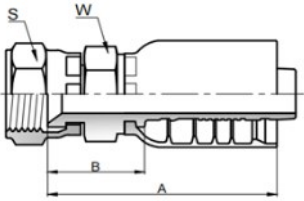
Features

One-Piece, Non-Skive Design

Design for R13 & R15 and 4SH (size -12 to -16)

Coating Option: Zinc Nickel

Specification: SAE J516 / ISO 12151-5



Part Number	Hose Size		Thread	A	B	W	S
	Inch	mm	Inch	mm	mm	mm	mm

P90-SERIES

P9012-12FJ	3/4	19	1.1/16x12	80	35	30	32
P9016-16FJ	1	25.4	1.5/16x12	92	38	36	41
P9020-20FJ	1.1/4	31.8	1.5/8x12	110	45	46	50
P9024-24FJ	1.1/2	38.1	1.7/8x12	118	50	50	60
P9032-32FJ	2	50.8	2.1/2x12	140	62	65	75

FJ45 FEMALE JIC JIC 37° FLARE SWIVEL 45° ELBOW

P90 Series

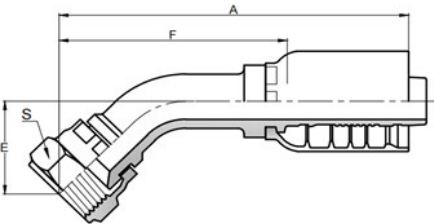
Features

One-Piece, Non-Skive Design

Design for R13 & R15 and 4SH (size -12 to -16)

Coating Option: Zinc Nickel

Specification: SAE J516 / ISO 12151-5



Part Number	Hose Size		Thread	A	E	F	S
	Inch	mm	Inch	mm	mm	mm	mm

P90-SERIES

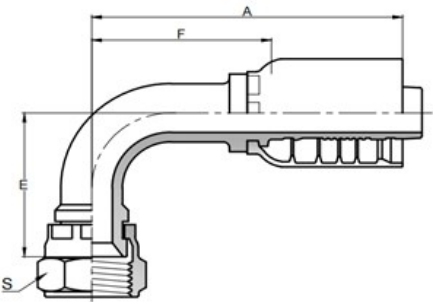
P9012-12FJ45	3/4	19	1.1/16x12	120	25	73	32
P9016-16FJ45	1	25.4	1.5/16x12	154	33	100	41
P9020-20FJ45	1.1/4	31.8	1.5/8x12	182	40	118	50
P9024-24FJ45	1.1/2	38.1	1.7/8x12	210	45	141	60
P9032-32FJ45	2	50.8	2.1/2x12	260	60	180	75

FJ90 FEMALE JIC 37° FLARE SWIVEL 90° ELBOW

P90 Series

Features

- One-Piece, Non-Skive Design
- Design for R13 & R15 and 4SH (size -12 to -16)
- Coating Option: Zinc Nickle
- Specification: SAE J516 / ISO 12151-5



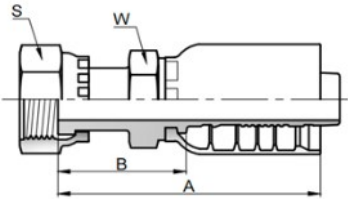
Part Number	Hose Size		Thread	A	E	F	S
	Inch	mm	Inch	mm	mm	mm	mm
P90-SERIES							
P9012-12FJ90	3/4	19	1.1/16x12	106	52	60	32
P9016-16FJ90	1	25.4	1.5/16x12	120	70	76	41
P9020-20FJ90	1.1/4	31.8	1.5/8x12	160	81	97	50
P9024-24FJ90	1.1/2	38.1	1.7/8x12	186	95	118	60

FF FEMALE O-RING FACE SEAL SWIVEL

P90 Series

Features

- One-Piece, Non-Skive Design
- Design for R13 & R15 and 4SH (size -12 to -16)
- Coating Option: Zinc Nickle
- Specification: SAE J516 / ISO 12151-1



Part Number	Hose Size		Thread	A	B	W	S
	Inch	mm	Inch	mm	mm	mm	mm
P90-SERIES							
P9012-12FF	3/4	19	1.3/16x12	90	44	30	36
P9016-16FF	1	25.4	1.7/16x12	104	50	36	41
P9020-20FF	1.1/4	31.8	1.11/16x12	120	56	46	50
P9024-24FF	1.1/2	38.1	2x12	130	62	50	60

FF45 FEMALE O-RING FACE SEAL SWIVEL 45° ELBOW (ORFS)

P90 Series

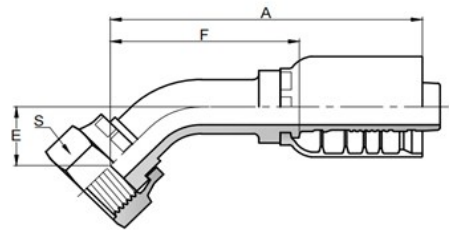
Features

One-Piece, Non-Skive Design

Design for R13 & R15 and 4SH (size -12 to -16)

Coating Option: Zinc Nickle

Specification: SAE J516 / ISO 12151-1



Part Number	Hose Size		Thread	A	E	F	S
	Inch	mm					
P90-SERIES							
P9012-12FF45	3/4	19	1.3/16×12	116	22	70	36
P9016-16FF45	1	25.4	1.7/16×12	148	26.5	94	41
P9020-20FF45	1.1/4	31.8	1.11/16×12	160	97	50	50
P9024-24FF45	1.1/2	38.1	2x12	186	118	60	60

FF90 FEMALE O-RING FACE SEAL SWIVEL 90° ELBOW (ORFS)

P90 Series

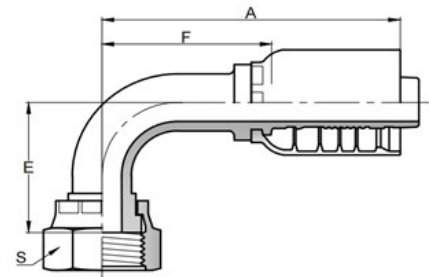
Features

One-Piece, Non-Skive Design

Design for R13 & R15 and 4SH (size -12 to -16)

Coating Option: Zinc Nickle

Specification: SAE J516 / ISO 12151-1



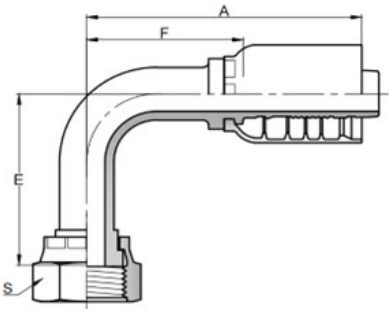
Part Number	Hose Size		Thread	A	E	F	S
	Inch	mm					
P90-SERIES							
P9012-12FF90	3/4	19	1.3/16×12	106	48	60	36
P9016-16FF90	1	25.4	1.7/16×12	130	58	76	41
P9020-20FF90	1.1/4	31.8	1.11/16×12	160	74	97	50
P9024-24FF90	1.1/2	38.1	2x12	186	86	118	60

FF90-L FEMALE O-RING FACE SEAL SWIVEL 90° ELBOW (ORFS LONG DROP)

P90 Series

Features

- One-Piece, Non-Skive Design
- Design for R13 & R15 and 4SH (size -12 to -16)
- Coating Option: Zinc Nickle
- Specification: SAE J516 / ISO 12151-1



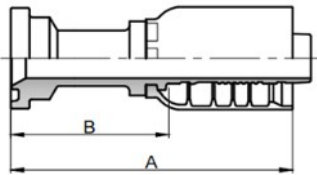
Part Number	Hose Size		Thread	A	E	F	S
	Inch	mm	Inch	mm	mm	mm	mm
P90-SERIES							
P9012-12FF90-96	3/4	19	1.3/16×12	106	96	60	36
P9016-16FF90-114	1	25.4	1.7/16×12	130	114	76	41
P9020-20FF90-129	1.1/4	31.8	1.11/16×12	160	129	97	50

FL SAE CODE 61 O-RING FLANGE

P90 Series

Features

- One-Piece, Non-Skive Design
- Design for R13 & R15 and 4SH (size -12 to -16)
- Coating Option: Zinc Nickle
- Specification: SAE J516 / ISO 12151-3



Part Number	Hose Size		Flange		A	B
	Inch	mm	Inch	mm	mm	mm
P90-SERIES						
P9012-12FL	3/4	38.1	3/4	38.1	94	58
P9012-16FL	3/4	38.1	1	44.5	96	60
P9016-16FL	1	44.5	1	44.5	118	63
P9016-20FL	1	44.5	1.1/4	50.8	118	63
P9020-20FL	1.1/4	50.8	1.1/4	50.8	140	76
P9020-24FL	1.1/4	50.8	1.1/2	60.3	140	76
P9024-24FL	1.1/2	60.3	1.1/2	60.3	148	80
P9024-32FL	1.1/2	60.3	2	71.4	152	84
P9032-32FL	2	71.4	2	71.4	166	89

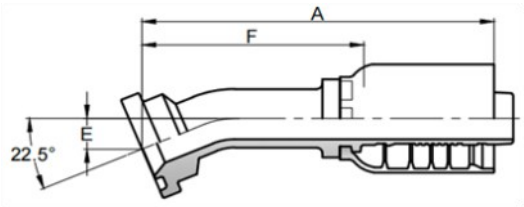


FL22.5 SAE CODE 61 O-RING FLANGE 22.5° ELBOW

P90 Series

Features

- One-Piece, Non-Skive Design
- Design for R13 & R15 and 4SH (size -12 to -16)
- Coating Option: Zinc Nickle
- Specification: SAE J516 / ISO 12151-3



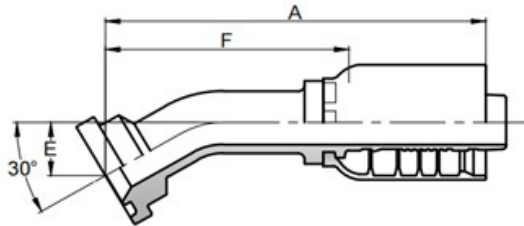
Part Number	Hose Size		Flange		A	E	F
	Inch	mm	Inch	mm	mm	mm	mm
P90-SERIES							
P9012-12FL22.5	3/4	19	3/4	38.1	111	11	75
P9012-16FL22.5	3/4	19	1	44.5	126	14	80
P9016-16FL22.5	1	25.4	1	44.5	144	14	90
P9016-20FL22.5	1	25.4	1.1/4	50.8	147	15	93
P9020-20FL22.5	1.1/4	31.8	1.1/4	50.8	180	15	115
P9020-24FL22.5	1.1/4	31.8	1.1/2	60.3	183	18	118
P9024-24FL22.5	1.1/2	38.1	1.1/2	60.3	208	18	140
P9024-32FL22.5	1.1/2	38.1	2	71.4	215	20	147
P9032-32FL22.5	2	50.8	2	71.4	243	22	168

FL30 SAE CODE 61 O-RING FLANGE 30° ELBOW

P90 Series

Features

- One-Piece, Non-Skive Design
- Design for R13 & R15 and 4SH (size -12 to -16)
- Coating Option: Zinc Nickle
- Specification: SAE J516 / ISO 12151-3



Part Number	Hose Size		Flange		A	E	F
	Inch	mm	Inch	mm	mm	mm	mm
P90-SERIES							
P9012-12FL30	3/4	19	3/4	38.1	124	18	78
P9016-16FL30	1	25.4	1	44.5	150	19	95
P9020-20FL30	1.1/4	31.8	1.1/4	50.8	176	11	112
P9024-24FL30	1.1/2	38.1	1.1/2	60.3	205	25	137
P9032-32FL30	2	50.8	2	71.4	240	32	164

FL45 SAE CODE 61 O-RING FLANGE 45° ELBOW

P90 Series

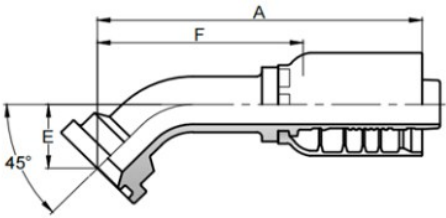
Features

One-Piece, Non-Skive Design

Design for R13 & R15 and 4SH (size -12 to -16)

Coating Option: Zinc Nickle

Specification: SAE J516 / ISO 12151-3



Part Number	Hose Size		Flange		A	E	F
	Inch	mm	Inch	mm	mm	mm	mm
P90-SERIES							
P9012-12FL45	3/4	19	3/4	38.1	120	24	74
P9012-16FL45	3/4	19	1	44.5	120	26	74
P9016-16FL45	1	25.4	1	44.5	144	30	90
P9016-20FL45	1	25.4	1.1/4	50.8	144	30	90
P9020-20FL45	1.1/4	31.8	1.1/4	50.8	178	34	114
P9020-24FL45	1.1/4	31.8	1.1/2	60.3	182	36	118
P9024-24FL45	1.1/2	38.1	1.1/2	60.3	198	40	130
P9024-32FL45	1.1/2	38.1	2	71.4	208	46	140
P9032-32FL45	2	50.8	2	71.4	252	56	175

FL45L SAE CODE 61 O-RING FLANGE 45° ELBOW (LONG DROP)

P90 Series

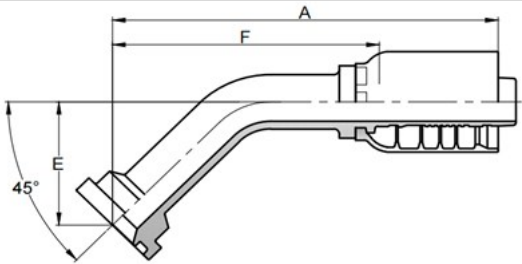
Features

One-Piece, Non-Skive Design

Design for R13 & R15 and 4SH (size -12 to -16)

Coating Option: Zinc Nickle

Specification: SAE J516 / ISO 12151-3



Part Number	Hose Size		Flange		A	E	F
	Inch	mm	Inch	mm	mm	mm	mm
P90-SERIES							
P9012-12FL45-L4	3/4	19	3/4	38.1	162	71	116
P9012-12FL45-L5	3/4	19	3/4	38.1	180	88	134
P9012-12FL45-L6	3/4	19	3/4	38.1	198	106	152
P9012-16FL45-L4	3/4	19	1	44.5	162	71	116
P9016-16FL45-L4	1	25.4	1	44.5	188	71	132
P9016-16FL45-L5	1	25.4	1	44.5	204	88	150
P9016-16FL45-L6	1	25.4	1	44.5	222	106	168
P9016-20FL45-L4	1	25.4	1.1/4	50.8	186	71	132
P9020-20FL45-L6	1.1/4	31.8	1.1/4	50.8	250	106	186



FL60 SAE CODE 61 O-RING FLANGE 60° ELBOW

P90 Series

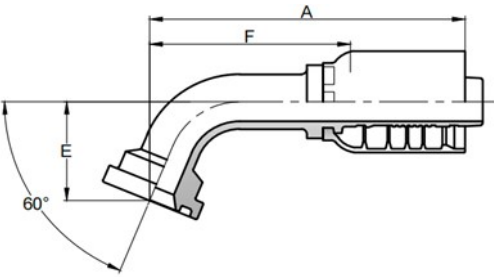
Features

One-Piece, Non-Skive Design

Design for R13 & R15 and 4SH (size -12 to -16)

Coating Option: Zinc Nickle

Specification: SAE J516 / ISO 12151-3



Part Number	Hose Size		Flange		A	E	F
	Inch	mm	Inch	mm	mm	mm	mm
P90-SERIES							
P9012-12FL60	3/4	19	3/4	38.1	120	37	74
P9016-16FL60	1	25.4	1	44.5	144	44	90
P9020-20FL60	1.1/4	31.8	1.1/4	50.8	176	48	112
P9024-24FL60	1.1/2	38.1	1.1/2	60.3	206	55	138
P9032-32FL60	2	50.8	2	71.4	252	80	175

FL67.5 SAE CODE 61 O-RING FLANGE 67.5° ELBOW

P90 Series

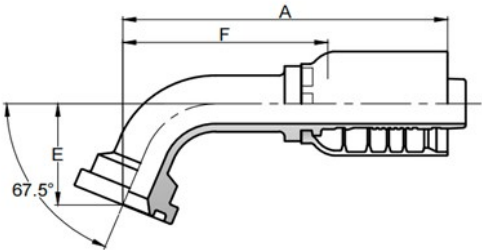
Features

One-Piece, Non-Skive Design

Design for R13 & R15 and 4SH (size -12 to -16)

Coating Option: Zinc Nickle

Specification: SAE J516 / ISO 12151-3



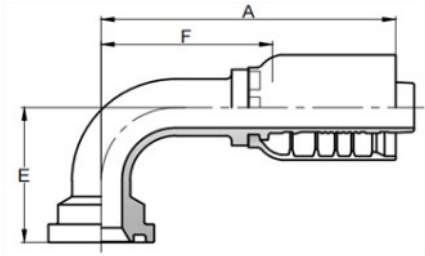
Part Number	Hose Size		Flange		A	E	F
	Inch	mm	Inch	mm	mm	mm	mm
P90-SERIES							
P9012-12FL67.5	3/4	19	3/4	38.1	118	38	72
P9012-16FL67.5	3/4	19	1	44.5	118	40	72
P9016-16FL67.5	1	25.4	1	44.5	140	46	86
P9016-20FL67.5	1	25.4	1.1/4	50.8	142	51	88
P9020-20FL67.5	1.1/4	31.8	1.1/4	50.8	176	54	112
P9020-24FL67.5	1.1/4	31.8	1.1/2	60.3	179	58	115
P9024-24FL67.5	1.1/2	38.1	1.1/2	60.3	202	65	134
P9024-32FL67.5	1.1/2	38.1	2	71.4	204	72	136
P9032-32FL67.5	2	50.8	2	71.4	240	90	162

FL90 SAE CODE 61 O-RING FLANGE 90° ELBOW

P90 Series

Features

- One-Piece, Non-Skive Design
- Design for R13 & R15 and 4SH (size -12 to -16)
- Coating Option: Zinc Nickle
- Specification: SAE J516 / ISO 12151-3



Part Number	Hose Size		Flange		A	E	F
	Inch	mm	Inch	mm	mm	mm	mm
P90-SERIES							
P9012-12FL90	3/4	19	3/4	38.1	106	50	60
P9012-16FL90	3/4	19	1	44.5	106	52	60
P9016-16FL90	1	25.4	1	44.5	130	62	76
P9016-20FL90	1	25.4	1.1/4	50.8	130	63	76
P9020-20FL90	1.1/4	31.8	1.1/4	50.8	160	74	97
P9020-24FL90	1.1/4	31.8	1.1/2	60.3	160	78	97
P9024-24FL90	1.1/2	38.1	1.1/2	60.3	186	85	118
P9024-32FL90	1.1/2	38.1	2	71.4	186	95	118
P9032-32FL90	2	50.8	2	71.4	222	120	145



FL90L SAE CODE 61 O-RING FLANGE 90° ELBOW (LONG DROP)

P90 Series

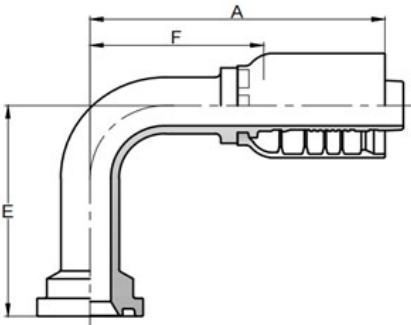
Features

One-Piece, Non-Skive Design

Design for R13 & R15 and 4SH (size -12 to -16)

Coating Option: Zinc Nickle

Specification: SAE J516 / ISO 12151-3



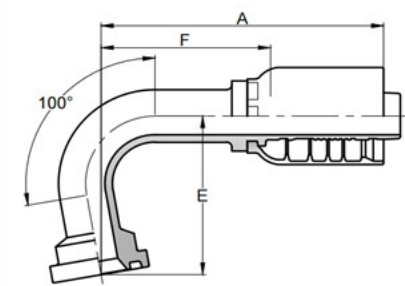
Part Number	Hose Size		Flange		A	E	F
	Inch	mm	Inch	mm	mm	mm	mm
P90-SERIES							
P9012-12FL90-L4	3/4	19	3/4	38.1	106	100	60
P9012-12FL90-L5	3/4	19	3/4	38.1	106	125	60
P9012-12FL90-L6	3/4	19	3/4	38.1	106	150	60
P9012-16FL90-L4	3/4	19	1	44.5	106	100	60
P9012-16FL90-L6	3/4	19	1	44.5	106	150	60
P9016-16FL90-L4	1	25.4	1	44.5	130	100	76
P9016-16FL90-L5	1	25.4	1	44.5	130	125	76
P9016-16FL90-L6	1	25.4	1	44.5	130	150	76
P9016-16FL90-L8	1	25.4	1	44.5	130	200	76
P9016-20FL90-L4	1	25.4	1.1/4	50.8	130	100	75
P9016-20FL90-L6	1	25.4	1.1/4	50.8	130	150	75
P9020-20FL90-L6	1.1/4	31.8	1.1/4	50.8	160	150	97
P9020-20FL90-L7	1.1/4	31.8	1.1/4	50.8	160	175	97
P9020-20FL90-L8	1.1/4	31.8	1.1/4	50.8	160	200	97
P9020-24FL90-L6	1.1/4	31.8	1.1/2	60.3	160	150	97
P9020-24FL90-L9	1.1/4	31.8	1.1/2	60.3	160	225	97
P9024-24FL90-L6	1.1/2	38.1	1.1/2	60.3	186	150	118
P9024-24FL90-L9	1.1/2	38.1	1.1/2	60.3	186	225	118
P9032-32FL90-L8	2	50.8	2	71.4	237	200	160
P9032-32FL90-L10	2	50.8	2	71.4	237	250	160
P9032-32FL90-L11	2	50.8	2	71.4	237	275	160

FL110 SAE CODE 61 O-RING FLANGE 110° ELBOW

P90 Series

Features

- One-Piece, Non-Skive Design
- Design for R13 & R15 and 4SH (size -12 to -16)
- Coating Option: Zinc Nickle
- Specification: SAE J516 / ISO 12151-3



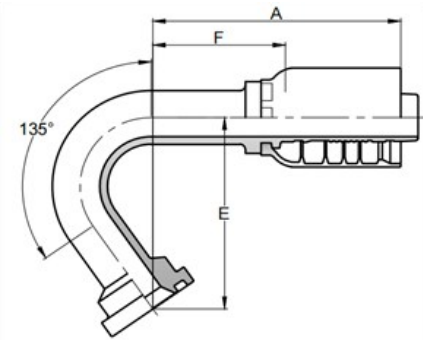
Part Number	Hose Size		Flange		A	E	F
	Inch	mm	Inch	mm	mm	mm	mm
P90-SERIES							
P9012-12FL110	3/4	19	3/4	38.1	110	63.5	64
P9016-16FL110	1	25.4	1	44.5	130	70	77
F9020-20FL110	1.1/4	31.8	1.1/4	50.8	172	90	108

FL135 SAE CODE 61 O-RING FLANGE 135° ELBOW

P90 Series

Features

- One-Piece, Non-Skive Design
- Design for R13 & R15 and 4SH (size -12 to -16)
- Coating Option: Zinc Nickle
- Specification: SAE J516 / ISO 12151-3



Part Number	Hose Size		Flange		A	E	F
	Inch	mm	Inch	mm	mm	mm	mm
P90-SERIES							
P9012-12FL135	3/4	19	3/4	38.1	94	75	48
P9016-16FL135	1	25.4	1	44.5	126	90	72
P9020-20FL135	1.1/4	31.8	1.1/4	50.8	145	101	81



FLH SAE CODE 62 O-RING FLANGE

P90 Series

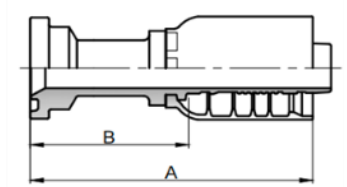
Features

One-Piece, Non-Skive Design

Design for R13 & R15 and 4SH (size -12 to -16)

Coating Option: Zinc Nickle

Specification: SAE J516 / ISO 12151-3



Part Number	Hose Size		Flange		A	B
	Inch	mm	Inch	mm	mm	mm
P90-SERIES						
P9012-12FLH	3/4	19	3/4	41.3	108	62.5
P9012-16FLH	3/4	19	1	47.65	108	62.5
P9016-16FLH	1	25.4	1	47.65	117	63
P9016-20FLH	1	25.4	1.1/4	54.0	122	68
P9020-20FLH	1.1/4	31.8	1.1/4	54.0	140	76
P9020-24FLH	1.1/4	31.8	1.1/2	63.5	150	86
P9024-24FLH	1.1/2	38.1	1.1/2	63.5	158	90
P9024-32FLH	1.1/2	38.1	2	79.4	158	90
P9032-32FLH	2	50.8	2	79.4	180	102

FLH22.5 SAE CODE 62 O-RING FLANGE 22.5° ELBOW

P90 Series

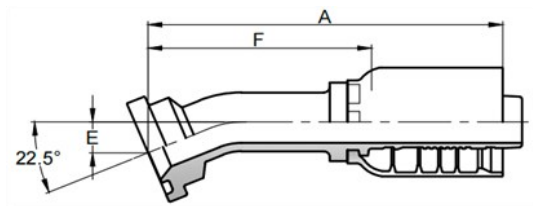
Features

One-Piece, Non-Skive Design

Design for R13 & R15 and 4SH (size -12 to -16)

Coating Option: Zinc Nickle

Specification: SAE J516 / ISO 12151-3



Part Number	Hose Size		Flange		A	E	F
	Inch	mm	Inch	mm	mm	mm	mm
P90-SERIES							
P9012-12FLH22.5	3/4	19	3/4	41.3	130	14.5	83
P9016-16FLH22.5	1	25.4	1	47.65	150	16	95
P9020-20FLH22.5	1.1/4	31.8	1.1/4	54.0	184	18	120
P9024-24FLH22.5	1.1/2	38.1	1.1/2	63.5	213	20.5	135
P9032-32FLH22.5	2	50.8	2	79.4	245	22	168

FLH45 SAE CODE 62 O-RING FLANGE 45° ELBOW

P90 Series

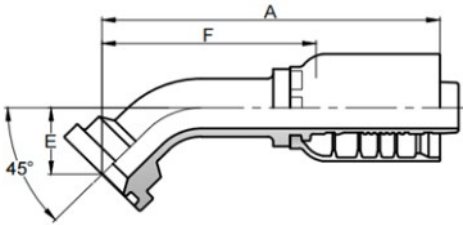
Features

One-Piece, Non-Skive Design

Design for R13 & R15 and 4SH (size -12 to -16)

Coating Option: Zinc Nickle

Specification: SAE J516 / ISO 12151-3



Part Number	Hose Size		Flange		A	E	F
	Inch	mm	Inch	mm	mm	mm	mm
P90-SERIES							
P9012-12FLH45	3/4	19	3/4	41.3	120	27	72.5
P9012-16FLH45	3/4	19	1	47.65	120	27	72.5
P9016-16FLH45	1	25.4	1	47.65	150	32	92.5
P9016-20FLH45	1	25.4	1.1/4	54.0	158	38	98.5
P9020-20FLH45	1.1/4	31.8	1.1/4	54.0	182	38	118
P9020-24FLH45	1.1/4	31.8	1.1/2	63.5	190	44	125
P9024-24FLH45	1.1/2	38.1	1.1/2	63.5	216	47	138
P9024-32FLH45	1.1/2	38.1	2	79.4	228	52	150
P9032-32FLH45	2	50.8	2	79.4	252	56	175

FLH45L SAE CODE 62 O-RING FLANGE 45° ELBOW

P90 Series

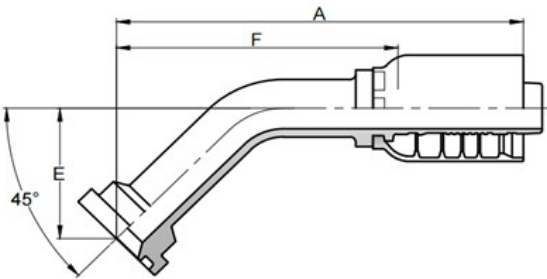
Features

One-Piece, Non-Skive Design

Design for R13 & R15 and 4SH (size -12 to -16)

Coating Option: Zinc Nickle

Specification: SAE J516 / ISO 12151-3



Part Number	Hose Size		Flange		A	E	F
	Inch	mm	Inch	mm	mm	mm	mm
P90-SERIES							
P9012-12FLH45-L4	3/4	19	3/4	41.3	162	71	116
P9012-12FLH45-L5	3/4	19	3/4	41.3	180	88	134
P9012-12FLH45-L6	3/4	19	3/4	41.3	198	106	152
P9012-16FLH45-L4	3/4	19	1	47.65	162	71	116
P9012-16FLH45-L6	3/4	19	1	47.65	198	106	152
P9016-16FLH45-L4	1	25.4	1	47.65	186	71	132
P9016-16FLH45-L5	1	25.4	1	47.65	204	88	150
P9016-16FLH45-L6	1	25.4	1	47.65	222	106	168
P9020-20FLH45-L6	1.1/4	31.8	1.1/4	54.0	240	106	186

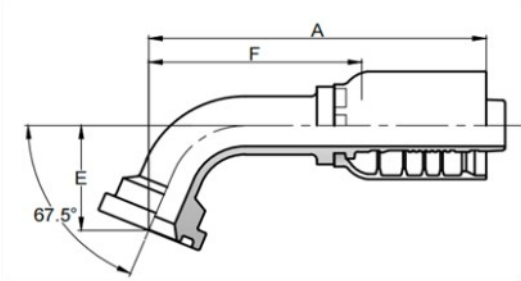


FLH67.5 SAE CODE 62 O-RING FLANGE 67.5° ELBOW

P90 Series

Features

- One-Piece, Non-Skive Design
- Design for R13 & R15 and 4SH (size -12 to -16)
- Coating Option: Zinc Nickle
- Specification: SAE J516 / ISO 12151-3



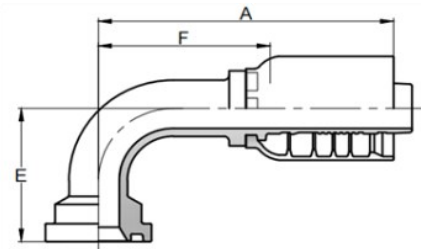
Part Number	Hose Size		Flange		A	E	F
	Inch	mm	Inch	mm	mm	mm	mm
P90-SERIES							
P9012-12FLH67.5	3/4	19	3/4	41.3	116	42	70
P9016-16FLH67.5	1	25.4	1	47.65	142	51	88
P9020-20FLH67.5	1.1/4	31.8	1.1/4	54.0	180	64	115
P9024-24FLH67.5	1.1/2	38.1	1.1/2	63.5	208	74	140
P9032-32FLH67.5	2	50.8	2	79.4	238	90	161

FLH90 SAE CODE 62 O-RING FLANGE 90° ELBOW

P90 Series

Features

- One-Piece, Non-Skive Design
- Design for R13 & R15 and 4SH (size -12 to -16)
- Coating Option: Zinc Nickle
- Specification: SAE J516 / ISO 12151-3



Part Number	Hose Size		Flange		A	E	F
	Inch	mm	Inch	mm	mm	mm	mm
P90-SERIES							
P9012-12FLH90	3/4	19	3/4	41.3	106	58	60
P9012-16FLH90	3/4	19	1	47.65	106	58	60
P9016-16FLH90	1	25.4	1	47.65	130	70	76
P9016-20FLH90	1	25.4	1.1/4	54.0	130	70	76
P9020-20FLH90	1.1/4	31.8	1.1/4	54.0	161	90	97
P9020-24FLH90	1.1/4	31.8	1.1/2	63.5	161	90	97
P9024-24FLH90	1.1/2	38.1	1.1/2	63.5	186	104	118
P9024-32FLH90	1.1/2	38.1	2	79.4	186	104	118
P9032-32FLH90	2	50.8	2	79.4	224	138	147

FLH90L SAE CODE 62 O-RING FLANGE 90° ELBOW (LONG DROP)

P90 Series

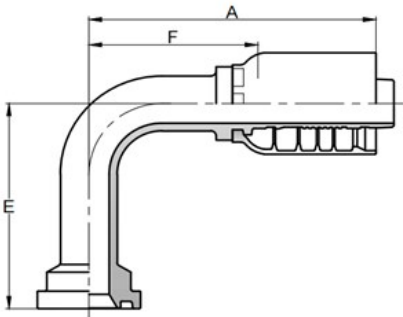
Features

One-Piece, Non-Skive Design

Design for R13 & R15 and 4SH (size -12 to -16)

Coating Option: Zinc Nickle

Specification: SAE J516 / ISO 12151-3



Part Number	Hose Size		Flange		A	E	F
	Inch	mm	Inch	mm	mm	mm	mm
P90-SERIES							
P9012-12FLH90-L4	3/4	19	3/4	41.3	106	100	60
P9012-12FLH90-L5	3/4	19	3/4	41.3	106	125	60
P9012-12FLH90-L6	3/4	19	3/4	41.3	106	150	60
P9012-16FLH90-L4	3/4	19	1	47.65	106	100	60
P9012-16FLH90-L5	3/4	19	1	47.65	106	125	60
P9012-16FLH90-L6	3/4	19	1	47.65	106	150	60
P9016-16FLH90-L4	1	25.4	1	47.65	130	100	76
P9016-16FLH90-L5	1	25.4	1	47.65	130	125	76
P9016-16FLH90-L6	1	25.4	1	47.65	130	150	76
P9016-20FLH90-L6	1	25.4	1.1/4	54.0	130	150	76
P9016-20FLH90-L7.5	1	25.4	1.1/4	54.0	130	190	76
P9020-20FLH90-L6	1.1/4	31.8	1.1/4	54.0	161	150	97
P9020-20FLH90-L7.5	1.1/4	31.8	1.1/4	54.0	171	190	97
P9024-24FLH90-L6	1.1/2	38.1	1.1/2	63.5	186	150	118
P9024-24FLH90-L8	1.1/2	38.1	1.1/2	63.5	186	200	118
P9024-24FLH90-L9	1.1/2	38.1	1.1/2	63.5	186	225	118
P9032-32FLH90-L8	2	50.8	2	79.4	224	200	147
P9032-32FLH90-L10	2	50.8	2	79.4	224	250	147
P9032-32FLH90-L11	2	50.8	2	79.4	224	275	147

PART H
P90



FLC CATERPILLAR O-RING FLANGE

P90 Series

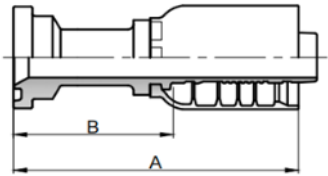
Features

One-Piece, Non-Skive Design

Design for R13 & R15 and 4SH (size -12 to -16)

Coating Option: Zinc Nickle

Specification: SAE J516 / ISO 12151-3



Part Number	Hose Size		Flange		A	B
	Inch	mm	Inch	mm	mm	mm
P90-SERIES						
P9012-12FLC	3/4	19	3/4	41.3	110	62.5
P9012-16FLC	3/4	19	1	47.65	110	62.5
P9016-16FLC	1	25.4	1	47.65	118	63
P9016-20FLC	1	25.4	1.1/4	54.0	123	68
P9020-20FLC	1.1/4	31.8	1.1/4	54.0	140	76
P9020-24FLC	1.1/4	31.8	1.1/2	63.5	150	86
P9024-24FLC	1.1/2	38.1	1.1/2	63.5	158	90
P9024-32FLC	1.1/2	38.1	2	79.4	158	90
P9032-32FLC	2	50.8	2	79.4	180	102

FLC45 CATERPILLAR O-RING FLANGE 45° ELBOW

P90 Series

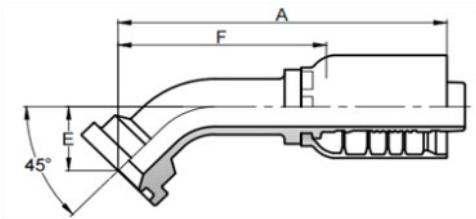
Features

One-Piece, Non-Skive Design

Design for R13 & R15 and 4SH (size -12 to -16)

Coating Option: Zinc Nickle

Specification: SAE J516 / ISO 12151-3



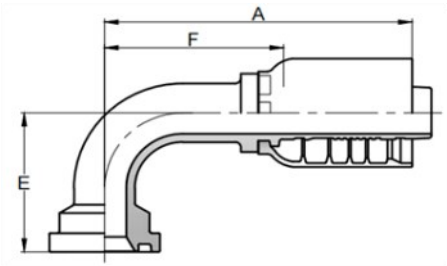
Part Number	Hose Size		Flange		A	E	F
	Inch	mm	Inch	mm	mm	mm	mm
P90-SERIES							
P9012-12FLC45	3/4	19	3/4	41.3	120	27	72.5
P9012-16FLC45	3/4	19	1	47.65	120	27	72.5
P9016-16FLC45	1	25.4	1	47.65	148	32	92.5
P9016-20FLC45	1	25.4	1.1/4	54.0	152	38	98.5
P9020-20FLC45	1.1/4	31.8	1.1/4	54.0	182	38	118
P9020-24FLC45	1.1/4	31.8	1.1/2	63.5	190	44	125
P9024-24FLC45	1.1/2	38.1	1.1/2	63.5	206	47	138
P9024-32FLC45	1.1/2	38.1	2	79.4	218	52	150
P9032-32FLC45	2	50.8	2	79.4	252	56	175

FLC90 CATERPILLAR O-RING FLANGE 90° ELBOW

P90 Series

Features

- One-Piece, Non-Skive Design
- Design for R13 & R15 and 4SH (size -12 to -16)
- Coating Option: Zinc Nickle
- Specification: SAE J516 / ISO 12151-3



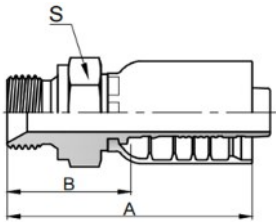
Part Number	Hose Size		Flange		A	E	F
	Inch	mm	Inch	mm	mm	mm	mm
P90-SERIES							
P9012-12FLC90	3/4	19	3/4	41.3	106	58	60
P9012-16FLC90	3/4	19	1	47.65	106	58	60
P9016-16FLC90	1	25.4	1	47.65	130	70	76
P9016-20FLC90	1	25.4	1.1/4	54.0	130	70	76
P9020-20FLC90	1.1/4	31.8	1.1/4	54.0	160	90	97
P9020-24FLC90	1.1/4	31.8	1.1/2	63.5	160	90	97
P9024-24FLC90	1.1/2	38.1	1.1/2	63.5	186	104	118
P9024-32FLC90	1.1/2	38.1	2	79.4	186	104	118
P9032-32FLC90	2	50.8	2	79.4	224	138	147

MB MALE BSP PARALLEL 60° CONE (BSPP)

P90 Series

Features

- One-Piece, Non-Skive Design
- Design for R13 & R15 and 4SH (size -12 to -16)
- Coating Option: Zinc Nickle
- Specification: BS5200 / ISO 12151-6



Part Number	Hose Size		Thread	A	B	S
	Inch	mm	Inch	mm	mm	mm
P89-SERIES						
P9012-12MB	3/4	19	3/4-14	84	38	32
P9016-16MB	1	25.4	1-11	100	46	41



FB FEMALE BSP PARALLEL 60° CONE SWIVEL (BSPP SINGLE HEX)

P90 Series

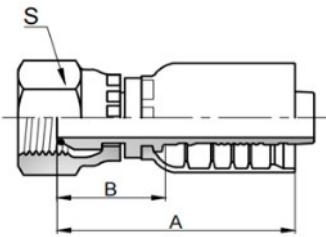
Features

One-Piece, Non-Skive Design

Design for R13 & R15 and 4SH (size -12 to -16)

Coating Option: Zinc Nickle

Specification: BS5200 / ISO 12151-6



Part Number	Hose Size		Thread	A	B	S
	Inch	mm	Inch	mm	mm	mm
P90-SERIES						
P9012-12FB	3/4	19	3/4-14	75	29	32
P9016-16FB	1	25.4	1-11	87	33	41
P9020-20FB	1.1/4	31.8	1 1/4-11	100	34	50
P9024-24FB	1.1/2	38.1	1 1/2-11	108	40	55
P9032-32FB	2	50.8	2-11	125	48	70

FB45 FEMALE BSP PARALLEL 60° CONE SWIVEL 45° ELBOW (BSPP)

P90 Series

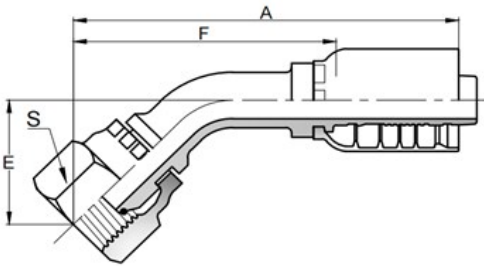
Features

One-Piece, Non-Skive Design

Design for R13 & R15 and 4SH (size -12 to -16)

Coating Option: Zinc Nickle

Specification: BS5200 / ISO 12151-6



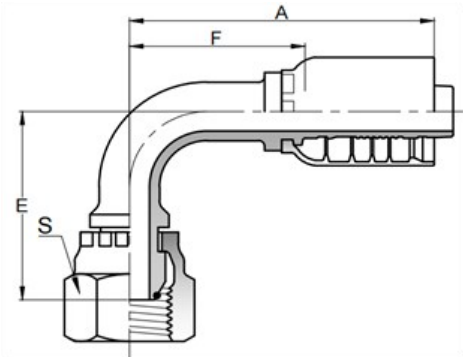
Part Number	Hose Size		Thread	A	E	F	S
	Inch	mm	Inch	mm	mm	mm	mm
P90-SERIES							
P9012-12FB45	3/4	19	3/4-14	122	28	76	32
P9016-16FB45	1	25.4	1-11	146	33	92	41
P9020-20FB45	1.1/4	31.8	1 1/4-11	160	85	97	50
P9024-24FB45	1.1/2	38.1	1 1/2-11	186	96	118	55
P9032-32FB45	2	50.8	2-11	222	120	145	70

FB90 FEMALE BSP PARALLEL 60° CONE SWIVEL 90° ELBOW (BSPP)

P90 Series

Features

- One-Piece, Non-Skive Design
- Design for R13 & R15 and 4SH (size -12 to -16)
- Coating Option: Zinc Nickle
- Specification: BS5200 / ISO 12151-6



Part Number	Hose Size		Thread	A	E	F	S
	Inch	mm	Inch	mm	mm	mm	mm

P90-SERIES

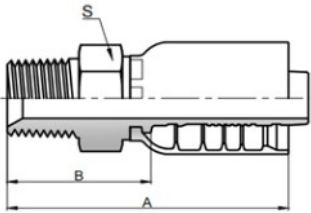
P9012-12FB90	3/4	19	3/4-14	106	55	60	32
P+016-16FB90	1	25.4	1-11	130	66.5	76	41
P9020-20FB90	1.1/4	31.8	1 1/4-11	160	85	97	50
P9024-24FB90	1.1/2	38.1	1 1/2-11	186	96	118	55
P9032-32FB90	2	50.8	2-11	222	120	145	70

MT MALE BSP TAPER 60° CONE (BSPT)

P90 Series

Features

- One-Piece, Non-Skive Design
- Design for R13 & R15 and 4SH (size -12 to -16)
- Coating Option: Zinc Nickle
- Specification: JIS B8363



Part Number	Hose Size		Thread	A	B	S
	Inch	mm	Inch	mm	mm	mm

P90-SERIES

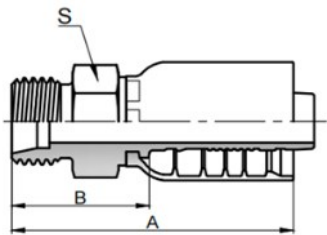
P9012-12MT	3/4	19	3/4-14	86	40	30
P9016-16MT	1	25.4	1-11	100	44	36
P9020-20MT	1.1/4	31.8	1.1/4-11	118	54	46
P9024-24MT	1.1/2	38.1	1.1/2-11	126	58	50
P9032-32MT	2	50.8	2-11	150	72	65

MDKOL MALE DIN-L 24° CONE

P90 Series

Features

- One-Piece, Non-Skive Design
- Design for R13 & R15 and 4SH (size -12 to -16)
- Coating Option: Zinc Nickle
- Specification: JISO 12151-2



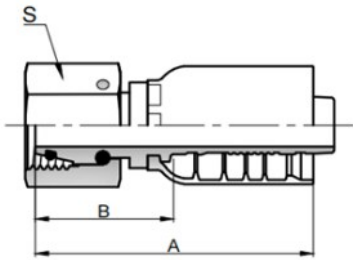
Part Number	Hose Size		Thread	Tube	A	B	S
	Inch	mm					
P90-SERIES							
P9012-22MDKOL	3/4	19	M30x2.0	22	84	38	32
P9016-28MDKOL	1	25.4	M36x2.0	28	92	38	41
P9020-35MDKOL	1.1/4	31.8	M45x2.0	35	110	46	46
P9024-42MDKOL	1.1/2	38.1	M52x2.0	42	116	48	55

FDKOL FEMALE DIN-L 24° CONE (O-RING) SWIVEL

P90 Series

Features

- One-Piece, Non-Skive Design
- Design for R13 & R15 and 4SH (size -12 to -16)
- Coating Option: Zinc Nickle
- Specification: JISO 12151-2



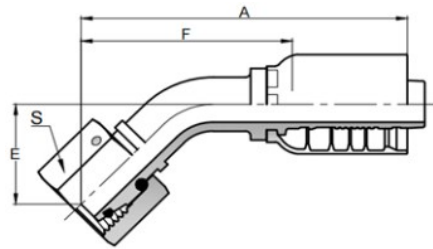
Part Number	Hose Size		Thread	Tube	A	B	S
	Inch	mm			mm	mm	mm
P90-SERIES							
P9012-22FDKOL	3/4	19	M30x2.0	22	80	33	36
P9016-28FDKOL	1	25.4	M36x2.0	28	88	34	41
P9020-35FDKOL	1.1/4	31.8	M45x2.0	35	105	41	50
P9024-42FDKOL	1.1/2	38.1	M52x2.0	42	110	42	60

FDKOL45 FEMALE DIN-L 24° CONE (O-RING) SWIVEL 45° ELBOW

P90 Series

Features

- One-Piece, Non-Skive Design
- Design for R13 & R15 and 4SH (size -12 to -16)
- Coating Option: Zinc Nickle
- Specification: JISO 12151-2



Part Number	Hose Size		Thread	Tube	A	E	F	S
	Inch	mm						

P90-SERIES

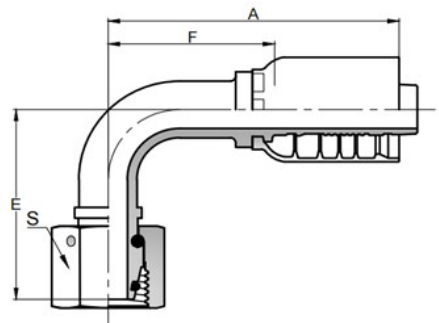
P9012-22FDKOL45	3/4	19	M30x2.0	22	116	28.5	78	36
P9016-28FDKOL45	1	25.4	M36x2.0	28	147	32	92	41
P9020-35FDKOL45	1.1/4	31.8	M45x2.0	35	182	38	118	50
P9024-42FDKOL45	1.1/2	38.1	M52x2.0	42	208	44	140	60

FDKOL90 FEMALE DIN-L 24° CONE (O-RING) SWIVEL 90° ELBOW

P90 Series

Features

- One-Piece, Non-Skive Design
- Design for R13 & R15 and 4SH (size -12 to -16)
- Coating Option: Zinc Nickle
- Specification: JISO 12151-2



Part Number	Hose Size		Thread	Tube	A	E	F	S
	Inch	mm						

P90-SERIES

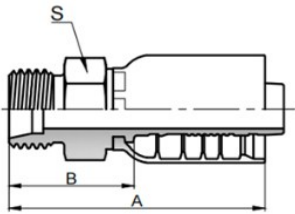
P9012-22FDKOL90	3/4	19	M30x2.0	22	106	56	60	36
P9016-28FDKOL90	1	25.4	M36x2.0	28	130	68.5	76	41
P9020-35FDKOL90	1.1/4	31.8	M45x2.0	35	160	80	97	50
P9024-42FDKOL90	1.1/2	38.1	M52x2.0	42	186	95	118	60

MDKOS MALE DIN-S 24° CONE (O-RING)

P90 Series

Features

- One-Piece, Non-Skive Design
- Design for R13 & R15 and 4SH (size -12 to -16)
- Coating Option: Zinc Nickle
- Specification: JISO 12151-2



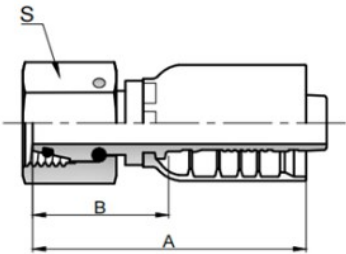
Part Number	Hose Size		Thread	Tube	A	B	S
	Inch	mm	metric	mm	mm	mm	mm
P90-SERIES							
P9012-20MDKOS	3/4	19	M30x2.0	20	84	38	32
P9012-25MDKOS	3/4	19	M36x2.0	25	88	42	41
P9016-25MDKOS	1	25.4	M36x2.0	25	98	44	41
P9016-30MDKOS	1	25.4	M42x2.0	30	100	46	46
P9020-30MDKOS	1.1/4	31.8	M42x2.0	30	114	48	46
P9020-38MDKOS	1.1/2	38.1	M52x2.0	38	117	51	55

FDKOS FEMALE DIN-S 24° CONE (O-RING) SWIVEL

P90 Series

Features

- One-Piece, Non-Skive Design
- Design for R13 & R15 and 4SH (size -12 to -16)
- Coating Option: Zinc Nickle
- Specification: JISO 12151-2



Part Number	Hose Size		Thread	Tube	A	B	S
	Inch	mm	metric	mm	mm	mm	mm
P90-SERIES							
P9012-20FDKOS	3/4	19	M30x2.0	20	82	36	36
P9012-25FDKOS	3/4	19	M36x2.0	25	82	36	46
P9016-25FDKOS	1	25.4	M36x2.0	25	90	34	46
P9016-30FDKOS	1	25.4	M42x2.0	30	94	38	50
P9020-30FDKOS	1.1/4	31.8	M42x2.0	30	108	42	50
P9020-38FDKOS	1.1/2	38.1	M52x2.0	38	112	44	60

FDKOS45 FEMALE DIN-S 24° CONE (O-RING) SWIVEL / 45° ELBOW

P90 Series

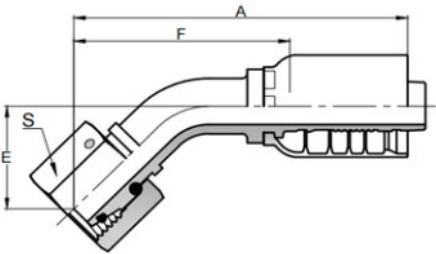
Features

One-Piece, Non-Skive Design

Design for R13 & R15 and 4SH (size -12 to -16)

Coating Option: Zinc Nickle

Specification: JISO 12151-2



Part Number	Hose Size		Thread	Tube	A	E	F	S
	Inch	mm						

P90-SERIES

P9012-20FDKOS45	3/4	19	M30x2.0	20	124	28.5	78	36
P9012-25FDKOS45	3/4	19	M36x2.0	25	126	32	80	46
P9016-25FDKOS45	1	25.4	M36x2.0	25	147	32	92	46
P9016-30FDKOS45	1	25.4	M42x2.0	30	147	32	92	50
P9020-30FDKOS45	1.1/4	31.8	M42x2.0	30	186	38	118	50

FDKOS90 FEMALE DIN-S 24° CONE (O-RING) SWIVEL 90° ELBOW

P90 Series

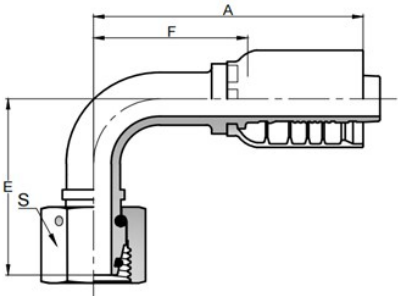
Features

One-Piece, Non-Skive Design

Design for R13 & R15 and 4SH (size -12 to -16)

Coating Option: Zinc Nickle

Specification: JISO 12151-2



Part Number	Hose Size		Thread	Tube	A	E	F	S
	Inch	mm						

P90-SERIES

P9012-20FDKOS90	3/4	19	M30x2.0	20	106	56	60	36
P9012-25FDKOS90	3/4	19	M36x2.0	25	106	56	60	46
P9016-25FDKOS90	1	25.4	M36x2.0	25	120	68	76	46
P9016-30FDKOS90	1	25.4	M42x2.0	30	120	70	76	50
P9020-30FDKOS90	1.1/4	31.8	M42x2.0	30	163	80	97	50
P9020-38FDKOS90	1.1/2	38.1	M52x2.0	38	163	80	97	60