Design Symbols: Spark Plugs

P		F					R		5		A		-11	
(One Or More Letters May Be Combined)		Thread Dimensions / Hex. Size					Resistor		Heat Rating		Firing End Construction		Spark Gap	
D	High Ignitability Plug With Double Fine Electrodes	KA	ø12.0	19.0mm (3/4") Reach	Gasket	14.0mm	R	Resistor	2	Hot Type	A, B, C..., Special Code		NONE	Motorcycle: 0.7-0.8mm Car: 0.8-0.9mm
I	Premium Iridium	KB	ø12.0	19.0mm (3/4") Reach	Gasket	Bi-Hex 14.0mm			4				-7	0.7mm (0.028")
L	Long Thread Reach Plug Gasket Type (26.5mm Reach)	MA	ø10.0	19.0mm (3/4") Reach	Gasket	14.0mm			5				-9	0.9mm (0.036")
L	Long Thread Reach Plug Tapered Seat Type (25.0mm Reach)	NA	ø12.0	26.5mm Reach	Tapered Seat	14.0mm			6		I	One-side Iridium Spark Plug	-10	1.0mm (0.039")
P	Premium Platinum	F	ø14.0	19.0mm (3/4") Reach	Gasket	16.0mm			7		P	One-side Platinum Spark Plug	-11	1.1mm (0.044")
S	High Ignitability Plug With Square Tip Type	G	ø14.0	19.0mm (3/4") Reach	Gasket	20.8mm			8				-13	1.3mm (0.052")
Z	Extended Gap	J	ø12.0	19.0mm (3/4") Reach	Gasket	18.0mm			9		ZGR-B	1.5mm Extended Metal Shell Reach	-14	1.4mm (0.055")
Above alphabets are occasionally used in combination. Ex. ILFR..., PLFZR...		K	ø12.0	19.0mm (3/4") Reach	Gasket	16.0mm			10	Cold Type	ZGR-C	3.0mm Extended Metal Shell Reach	-15	1.5mm (0.059")
		L	ø10.0	12.7mm (1/2") Reach	Gasket	16.0mm					ZGR-D	3.5mm Extended Metal Shell Reach		
		M	ø10.0	19.0mm (3/4") Reach	Gasket	16.0mm					ZGR-E	3.5mm Extended Metal Shell Reach	-A	Non Gasket
"L", Long thread reach, is prior to other letters which stand for thread reach. Ex. *Gasket type FR5AP-11; reach 19.0mm LFR5AP-11; reach 26.5mm *Tapered-seat type PTR5C-13; reach 17.5mm PLTR6A-10G; reach 25.0mm		T	ø14.0	17.5mm (0.708") Reach	Tapered Seat	16.0mm							-B	Special Design
		U	ø14.0	11.2mm (7/16") Reach	Tapered Seat	16.0mm							-C	Special Design
		W	ø18.0	10.9mm Reach	Tapered Seat	20.8mm							-D	Metal Shell Plating Spec Change
		X	ø14.0	9.5mm (3/8") Reach	Gasket	20.8mm							-E	Special Resistance
		Y	ø14.0	11.2mm (7/16") Reach	Tapered Seat	16.0mm							-G	Copper Core Ground Electrode
													-H	Special Thread Type
		PTR5A-13	ø14.0	25.0mm Reach	Tapered Seat	16.0mm							-J	2-Ground Electrode
													-K	Vibration-resistant Ground Electrode
													-N	Special Ground Electrode
													-Q	4-Ground Electrode
													-S	Special Gasket
													-T	3-Ground Electrode

T						R		5		5		-1		IX	
Thread Dimensions / Hex. Size						Resistor		Heat Rating		Spark Gap		Special Design Type		Firing End Construction	
F	Ø14.0	19.0mm (3/4") Reach	Gasket	Projected	16.0mm	R	Resistor	4	Hot Type	None	0.039" (1.0mm)	F-1	3.0mm Extended Metal Shell Reach	None	V-grooved Center Electrode
G	Ø14.0	19.0mm (3/4") Reach	Gasket	Projected	20.8mm			5		5	0.059" (1.5mm)	T-1	3.0mm Extended Metal Shell Reach	IX	High Performance Iridium
T	Ø14.0	17.5mm (0.708") Reach	Tapered Seat	Projected	16.0mm			6		0	0.080" (2.0mm)	W-1	13.7mm Thread Reach	GP	Platinum Alloy Fine Wire
U	Ø14.0	11.2mm (7/16") Reach	Tapered Seat	Projected	16.0mm			7						VX	High Performance Platinum
W	Ø18.0	10.9mm Reach	Tapered Seat	Projected	20.8mm			8							
X	Ø14.0	9.5mm (3/8") Reach	Gasket	Projected	20.8mm			9							
Y	Ø14.0	11.2mm (7/16") Reach	Tapered Seat	Non-projected	16.0mm			10	Cold Type						

Design Symbols: Spark Plugs

B		P		5		E		S		-11	
Thread Dimensions / Hex. Size		Construction (One Or More Letters May Be Combined)		Heat Rating		Thread Reach		Firing End Construction		Spark Gap	
A	18mm / 1" (25.4mm)	K	Hex Size 5/8" Projected Tip (ISO)	2	Hot Type	E	19.0mm (3/4")	A	Special Design	NONE	Motorcycle: 0.7-0.8mm Car: 0.8-0.9mm
B	14mm / 3/16" (20.8mm)	L	Compact Type (Shorty)	4		EH	19.0mm (3/4") Half-Thread	B	Integral Terminal (Solid)	-8	0.8mm (0.032")
C	10mm / 5/8" (16.0mm)	M	Compact Type (Bantam) 3/4" Hex Size	5		H	12.7mm (1/2")	C	Low Angle Ground Electrode	-9	0.9mm (0.036")
D	12mm / 5/8" (16.0mm)	P	Projecting Insulator Type	6		L	11.2mm (7/16")	CM	Low Angle Ground Electrode Compact Type (Insulator Length: 18.5mm)	-10	1.0mm (0.039")
E	8mm / 13.0mm	R	Resistor Type	7		S	9.5mm (3/8")	E	V-Grooved Center Electrode (14mm Only) 1.5mm Insulator Projection	-11	1.1mm (0.044")
J	12mm / 5/8" (16.0mm)	U	Surface Gap, Semi-Surface Discharge Gap or Supplementary Gap	8		Z	21mm	F	Tapered Seat	-13	1.3mm (0.052")
AB	18mm / 13/16" (20.8mm)			9		Bantam Type		G	Fine Wire Nickel Alloy Center Electrode	-14	1.4mm (0.055")
BC	14mm / 5/8" (16.0mm) JIS Type	Z	Inductive Resistor Type	10	Cold Type			-G	Copper Core Ground Electrode	-15	1.5mm (0.059")
BK	14mm / 5/8" (16.0mm) ISO Type					BM---	9.5mm (3/8")	GP	Platinum Alloy Fine Wire (0.6mmø)		
DC	12mm / 5/8" (16.0mm)					BPM---	9.5mm (3/8")	GV	Gold-Palladium Center Electrode (Racing Line)		
						CM---	9.5mm (3/8")	I	One-Side Iridium Spark Plug	-S	Special Gasket
BK The length from the gasket circuit to the terminal contact on parts using International Standards (ISO) dimensions is 2.5mm shorter than the Japan Standard (JIS) BCP type.						Tapered Seat Type		IX	High Performance Iridium (0.6mmø)	-E	Special Resistance
								K	2-Ground Electrode		
						A-F---	10.9mm	-L	Medium Heat Rating		
						B-F---	11.2mm (7/16")	-LM	Compact Type (Insulator Length: 14.5mm)		
						B-EF---	17.5mm (0.708") Reach 5/8"Hex Size	N	Special Ground Electrode		
						BM-F---	7.8mm	P	Premium Platinum		
						No Symbol:		Q	4-Ground Electrode		
								S	Standard Type (2.5mm Centre Electrode)		
						18mmø	12mm Reach	T	3-Ground Electrode		
						14mmø	9.5mm (3/8") Reach	U	Semi-Surface Discharge		
								V	Fine Wire Gold-Palladium Center Electrode		
								VX	High Performance Platinum		
								W	Tungsten Electrode		
								Y	V-Grooved Center Electrode (14mm only) 2.5mm Insulator Projection		
								YA	Fouling Resistant		
								Z	Thick 2.9mm Center Electrode		

Glow Plugs Technical Information

Use electric source of correct voltage and current as specified by the manufacturer. The glow plug will not be hot enough and may fail to start the engine when the voltage or the battery capacity is too low. When the voltage is too high, the coil may be burnt or the plug life may be affected.

The pre-heating time for sheathed glow plug is approximately 30 seconds for ordinary type, 13 to 17 seconds for the fast heating type, and about 6 seconds for the QGS type.

Prolonged pre-heating should be avoided since it will shorten the life of battery and the plug. When the engine fails to start, turn off the switch once, and pre-heat the plug again.

Installation of glow plug must be, at first, finger tightened. Once the glow plug has been finger tightened, the plug must be tightened with the specific torque as shown below:

Thread Diameter	Tightening Torque	
8 mm	0.8 kg-m ~ 1.5 kg-m	5.8 lb-ft ~ 10.8 lb-ft
10 mm	1.5 kg-m ~ 2.0 kg-m	10.8 lb-ft ~ 14.5 lb-ft
12 mm	2.0 kg-m ~ 2.5 kg-m	14.5 lb-ft ~ 18.0 lb-ft
14 mm	2.0 kg-m ~ 2.5 kg-m	14.5 lb-ft ~ 18.0 lb-ft
18 mm	2.0 kg-m ~ 3.0 kg-m	14.5 lb-ft ~ 21.6 lb-ft

Trouble Tracing: In case of poor starting, check the following:

1. First check the glow signal (glow indicator) on the instrument panel.
   - If any sheathed plug is broken, the indicator will take a long time to glow.
   - If there is the short-circuit, the indicator will glow quickly and will burn.
2. If uncertain, remove the glow plug for visual checking, measure its resistance with a tester, or apply the rated voltage indicated on its hexagon to check for heating. (Don't apply battery 12V or 24V directly)
   - Heating Element Breakage (Infinite Resistance or Non-Heating).
     Before replacing, check to see if the glow plug was wired properly. Also check with a tester to see if excess voltage has been applied to each glow plug.
   - Short-circuit or Resultant Breakage
     Before replacing, repair any damaged part of the wiring.

Design Symbols used in NGK Glow Plugs

Glow plugs are available in many types for different engine models. The sheathed glow plug is developed to withstand heavy-duty conditions by containing its heating coil in a refractory tube.

Y	-2	0	4	T	S	1
	<Thread Size>	<Battery Voltage>		<Heating Characteristics>		
Y Sheathed Type	1 10mm	0-4 12V	Serial Number	A AQGS type	Special Tube Material	Modification or Revision
YD Sheathed with non-body earth type	2 12mm	5-9 24V		J SRM type		
	3 10mm			R,M,U QGS type		
	4 14mm			V,T Fast Heat or Rapid Glow Type		
	5 10mm (Double coil)			No Letter Standard type		
	6 10mm (Double coil)			(Y-103K is standard type)		
	7 10mm (Double coil)					
	8 18mm					
	9 12mm (Double coil)					
	*Y-109, Y-159, Y-171 for caterpillar with thread size of 3/8" or 9.5mm					

Y	A	0 1
Sheathed Type	E 8mm QGS type or SRM type	Serial Number

C	Z	0 1
Ceramic	Z 10mm QGS type	Serial Number

Resistor Covers

L **B** **05** **E** **H** **P** **K**

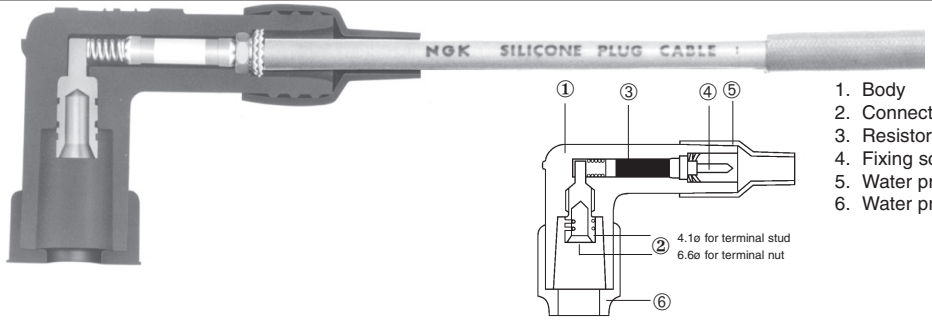
External appearance
- **L:** 90° Elbow type
- **S:** Straight
- **X:** 102° Elbow Type
- **V:** 120° Elbow type (long)
- **Y:** 120° Elbow type (short)

Adaptable plug thread size
- **B:** 14mm ø thread
- **D:** 10 & 12mm ø thread
- **Z:** 10, 12 & 14mm ø thread

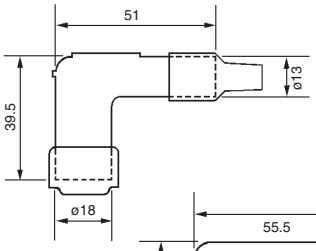
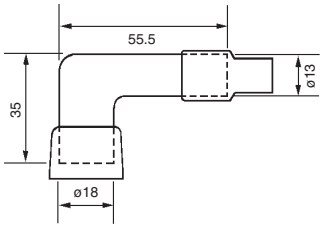
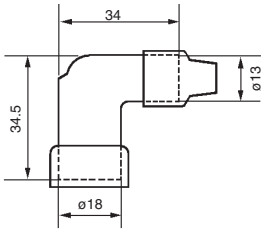
Resistance
- **01:** 1 KΩ
- **05:** 5 KΩ
- **10:** 10 KΩ

Adaptable plug terminal
- **E:** For terminal nut or integrated terminal
- **F:** For terminal stud

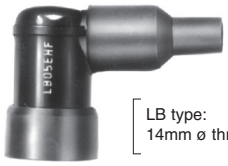
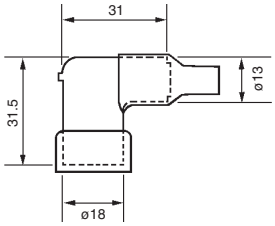
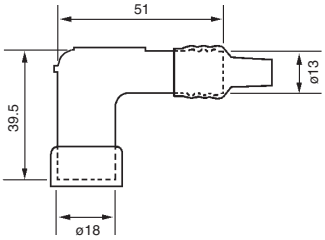
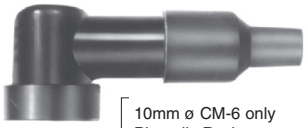
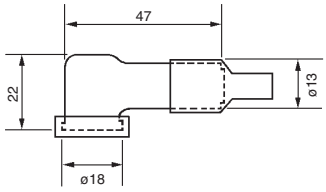
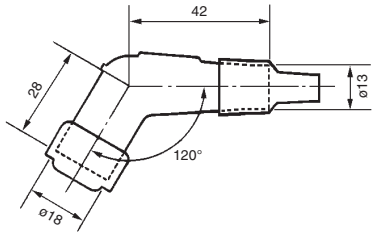
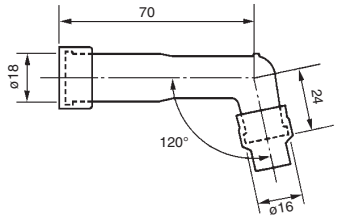
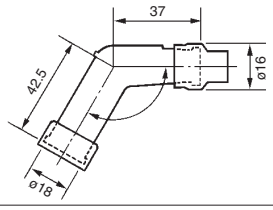
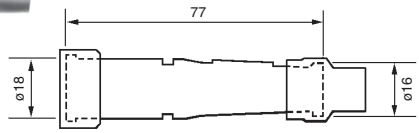
Accessory
- **H:** Compact type
- **P:** With Special Water-Proof Cover
- **K:** With Silicone Water-Proof Cover
- **M:** Rubber Sheathed
- **F:** For 5 mm ø high tension cord
- **Y:** With handle
- **Z:** Special shape



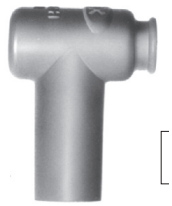
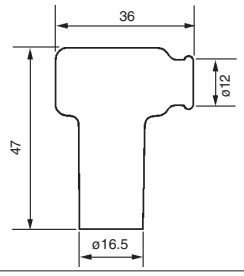
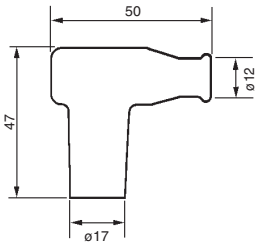
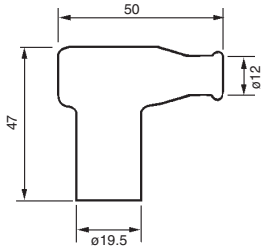
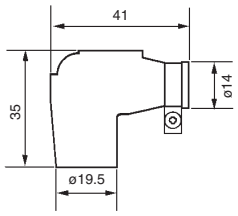
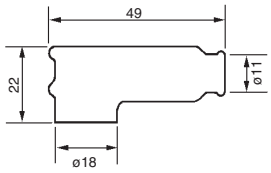
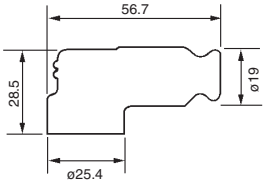
1. Body
2. Connector
3. Resistor element
4. Fixing screw
5. Water proof cover
6. Water proof Cover

Configuration (applicable plug thread dia, body material) **Unit:** mm	**Part No:**	**Stock No:**	KΩ
 LE,LB type: 14mm ø thread LD type: 10 & 12mm ø thread Phenolic Resin  < Excluding LB○EZ type >			1
			5
	LB01EP	**8328**	1
	LB05EP	**8020**	5
			5
 14mm ø thread Phenolic Resin  < LB○EZ >	**LB05FP**	**8030**	5
	LB05EZ	**8744**	5
			5
			10
 	**LZFH**	**8381**	No resistor

Resistor Covers

Configuration (applicable plug thread dia, body material) **Unit:** mm	**Part No:**	**Stock No:**	KΩ
 LB type: 14mm ø thread 	**LB10EH**	**8351**	10
 10 & 12mm ø thread Phenolic Resin 	**LD05FP**	**8070**	5
 10mm ø CM-6 only Phenolic Resin 			5
 YB type: 14mm ø thread 	**YB05FP**	**8448**	5
 XB type: 14mm ø thread XD type: 10 & 12mm ø thread 	**XB05FP** **XD05FP**	**8435** **8641**	5
 VB type: 14mm ø thread VD type: 10 & 12mm ø thread Phenolic Resin 	**VB05FP** **VD05FP**	**8413** **8429**	5
 SB type: 14mm ø thread SD type: 10 & 12mm ø thread 	**SB05FP** **SD05FP**	**8386** **8325**	5

Resistor Covers

Configuration (applicable plug thread dia, body material) **Unit:** mm	**Part No:**	**Stock No:**	KΩ
 14mm ø thread Rubber sheathed 	**LB05EMH**	**8338**	5
 14mm ø thread Rubber sheathed (Silicon) 	**TB05EM**	**8955**	5
 14mm ø thread Rubber sheathed 	**TB05EMA** **(Blk)**	**8636**	5
 14mm ø thread Rubber sheathed (Silicon) 			5
 14mm ø thread Rubber sheathed (Silicon) For racing spark plug R6120- only 			5
 14mm ø thread Rubber sheathed (Silicon) For racing spark plug R5300A- only copy resistor covers 			5