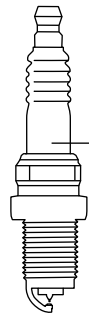


How to read our part number: Spark Plugs



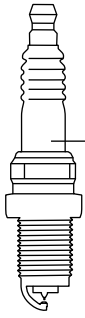
B P R 5 E S - 11

Unit : mm

B			P		R		5		E		S		-11												
	Thread size	Hex size	Structure		Resistor		Heat rating		Thread length		Design features		Spark gap												
A	∅ 18.0	Hex 25.4	P	Projected insulator type	R	Resistor	2		E	19.0	B	Integral terminal (CR8EB)	None	Motorcycle : 0.7~0.8											
B	∅ 14.0	Hex 20.8			Z	Inductive resistor type	4		EF	17.5	CM	Slant ground electrode Compact type (Exposed insulator length: 18.5)		Car : 0.8~0.9											
BC	∅ 14.0	Hex 16.0	M	Small spark plug		5	EH		19.0 half-thread	CS	Slant ground electrode	-8	0.8												
BK	∅ 14.0	Hex 16.0				6	H		12.7			-9	0.9												
C	∅ 10.0	Hex 16.0	U	Surface gap, Semi-surface discharge gap or Supplementary gap			7		L	11.2	G,GV	Racing spark plug	-10	1.0											
D	∅ 12.0	Hex 18.0					8		None	Tapered seat type A(P)-F : 10.9 B(P)-F : 11.2 BM(P)-F : 7.8			-11	1.1											
DC	∅ 12.0	Hex 16.0					9						-13	1.3											
E	∅ 8.0	Hex 13.0					10						-15	1.5											
*Exception B(P)M-A,Y : ∅ 14.0, Hex 19.0 P(P)-(E)F : ∅ 14.0, Hex 16.0 CM-6 : ∅ 10.0, Hex 14.0									Small type plug B(P)M- : 9.5 B-LM : 9.5 CM- : 9.5 CM-6 : 8.6 C-50 : 8.5																
BC : Old JIS standard size The length from gasket surface to terminal contact is 53.0mm.																									
BK : ISO / JIS standard size The length from gasket surface to terminal contact is 50.5mm.																									
												-LM	Compact type (Insulator length: 14.5)												
												N	Special ground electrode	-S	Special gasket										
												P	Platinum spark plug Single ground electrode : Double platinum	-E	Special resistance										
														IX-P	Iridium MAX plug										
													Multi-ground electrode : Single platinum in central electrode	LPG 1-8	LaserLine spark plug range for gas engine use										
												Q	4-ground-electrodes												
												S	Standard type												
												T	3-ground-electrodes												
												U	Semi-surface discharge gap												
												Y	V-grooved center electrode												
												Z	Special design												



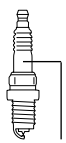
How to read our part number: Spark Plugs



P F R 5 A - 11

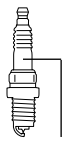
Unit : mm

P		F				R		5		A		-11						
Plug type			Thread diameter	Thread length	Seat configuration	Hex size		Resistor		Heat rating		Design		Spark gap				
DI	High ignitability plug: Double fine electrodes	F	ø 14.0	19.0	Gasket	Hex 16.0		R	Resistor	2	Hot type	A,B,C... Suffix code		None	Motorcycle : 0.7~0.8			
		FE	ø 14.0	19.0	Gasket	Hex 16.0				4		Car : 0.8~0.9						
I	Double iridium spark plug	G	ø 14.0	19.0	Gasket	Hex 20.8				5			6			-7	0.7	
L	Long thread reach plug	J	ø 12.0	19.0	Gasket	Hex 18.0				7			-9			0.9		
P	Double platinum spark plug	K	ø 12.0	19.0	Gasket	Hex 16.0				8			I			Iridium central electrode	-10	1.0
S	High ignitability plug : thin square tip type	KA	ø 12.0	19.0	Gasket	Hex 14.0				9			IX			Iridium IX spark plug	-11	1.1
Z	Projected firing end	KB	ø 12.0	19.0	Gasket	Bi-Hex 14.0 (Bi-hexagonal *)				10							Cold type	P
Above alphabets are occasionally used in combination <Example>ILFR..., PLZFR..., When „L“ is included, priority is given to „L“ (long reach) in thread length. <Example> *Gasket type FR5AP : Thread length ↓ 19.0mm LFR5AP-11 : Thread length ↓ 26.5mm *Tapered seat type PTR5C-13 : Thread length ↓ 17.5mm PLTR6A-10G : Thread length ↓ 25.0mm		KE	ø 12.0	19.0	Gasket	Hex 16.0										-15	1.5	
		KF	ø 12.0	19.0	Gasket	Hex 14.0												
		KG	ø 12.0	19.0	Gasket	Bi-Hex 14.0 (Bi-hexagonal *)												
		L	ø 10.0	12.7	Gasket	Hex 16.0												
		M	ø 10.0	19.0	Gasket	Hex 16.0												
		MA	ø 10.0	19.0	Gasket	Hex 14.0												
		MF	ø 10.0	19.0	Gasket	Hex 14.0												
		NA	ø 12.0	17.5	Tapered seat	Hex 14.0												
		T	ø 14.0	17.5	Tapered seat	Hex 16.0												
		U	ø 14.0	11.2	Tapered seat	Hex 16.0												
		W	ø 18.0	10.9	Tapered seat	Hex 20.8												
		X	ø 14.0	9.5	Gasket	Hex 20.8												
		Y	ø 14.0	11.2	Tapered seat	Hex 16.0												
					Bi-hexagonal													
																		
					Hexagonal													
																		



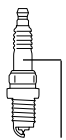
RE 7 C - L

RE		7	C		-L	
Plug type		Heat rating	Design		Spark gap	
RE	Plug for rotary engines	5	A,B,C--Suffix code		-L	Leading position
SD	Plug for rotary engines (Semi-surface discharge gap)	6			-T	Trading position
		7				
		8				
		9				
		10				
		11				



HB 6 A IX - 11 P

HB		6		A				IX		-11		P	
Plug type		Heat rating			Thread diameter	Thread length	Seat configuration	Hex size			Spark gap		
HB	HYBD (3-ground-electrode hybrid type)	4	Hot type	A	ø 14.0	20.5	Gasket	Hex 16.0	IX		-8	0.8	
		5			B	ø 14.0	19.0	Gasket		Hex 16.0	-9	0.9	
		6									-10	1.0	
		7									-11	1.1	
		8									Cold type	-13	



DF 6 H - 11 A

DF		6		H				-11		A		
Plug type		Heat rating			Thread diameter	Thread length	Seat configuration	Hex size	Spark gap			
DF	High ignitability plug (Double fine electrodes)	4	 Hot type	A	ø 14.0	19.0	Gasket	Hex 16.0	-8	0.8	A,B,C... Suffix code	
		5		B	ø 14.0	26.5	Gasket	Hex 16.0	-9	0.9		
DFH	High ignitability plug (DF + Hybrid type)	6		C	ø 12.0	26.5	Gasket	Hex 14.0	-10	1.0		
		7		*DF6H-11A : Thread length 28.0mm						-11		1.1
		8								-13		1.3
		9								-15		1.5
			Cold type									



IMPORTANT TIPS FOR THE INSTALLATION OF SPARK PLUGS

A torque wrench is required for the professional installation of a spark plug. Even for professionals the estimation of the tightening torque is nearly impossible. That is because a torque can be calculated from two sizes which are multiplied by one another: the force which is applied to the respective centre of rotation and the length of the

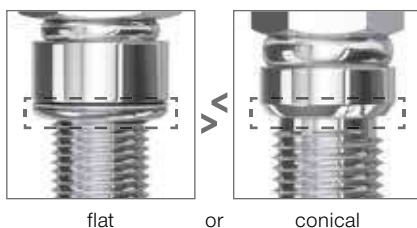
handle. Most spark plug failures can be traced back to an incorrect tightening torque. If it is set too low, there is a risk of compression losses and overheating. A break of the insulator or middle electrode as a result of vibrations is also feasible. If the tightening torque is set too high, the spark plug can snap off. The casing can also expand

or warp. Heat dissipation zones are disrupted, overheating and melting of the electrodes or even engine damage can occur.

Spark plug tightening torques

The required tightening torque depends on seat type, thread diameter and cylinder head material. Please take care of the tightening torques or angles, whenever these are printed on the packaging material!

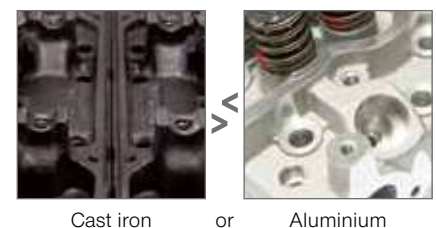
1 Seat type



2 Thread diameter



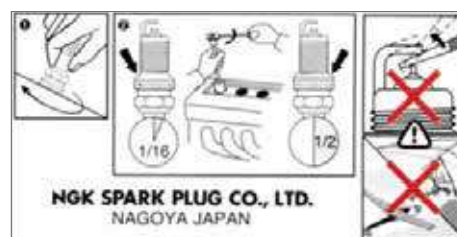
3 Cylinder head material



1	Seat type	Spark plug with a flat seat (with seal)				Spark plug with a conical seat	
2	Thread Ø	10 mm	12 mm	14 mm	18 mm	12 /14 mm	18 mm
3	Cast iron head	10-15 Nm	15-25 Nm	25-35 Nm	35-45 Nm	15-25 Nm	20-30 Nm
	Aluminium head	10-12 Nm	15-20 Nm	25-30 Nm	35-40 Nm	10-20 Nm	20-30 Nm

Alternative: Angle of rotation details

The respective angle of rotation can be found on the spark plug packaging. (Exception: racing plugs – only torque method)





IMPORTANT TIPS FOR THE REMOVAL AND INSTALLATION OF GLOW PLUGS

1 Removal / Breakaway torque



When changing glow plugs you must always use the correct torque, so that the breakaway torque is not exceeded, if not there is danger of tear-off.

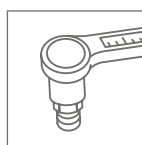
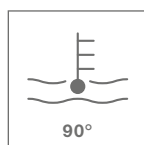
Glow plug breakaway torque

Ø Thread	M8	M9	M10	M12
Breakaway torque	20 Nm	30 Nm	40 Nm	50 Nm

Note: Other manufacturers often have, due to the varying thread materials, lower breakaway torque values. For this reason, you should reduce of a further 5 Nm the value, whenever the glow plug manufacturer is unknown.

2 Tips on removal issues

If an immediate removal is not urgent, we suggest proceeding as follows:



- > Sprinkle the glow plug seat on the transition to the cylinder head with synthetic motor oil.
- > Let absorb for a couple of days and move the vehicle.
- > Remove the glow plugs with the engine at operating temperature paying attention to the breakaway torques using a suitable torque wrench.

3 Cleaning



Before installing new glow plugs oil and soot residue should be removed from the glow plug hole with a greased reamer.

4 Glow plug installation / tightening torques

Metal rod glow plugs						Ceramic glow plugs	
Ø Thread	M8	M9	M10	M12	M14	M8	M10
Tightening torque	8,5Nm	11Nm	15Nm	23Nm	23Nm	10Nm	18Nm
Tolerance in %	+/- 10	+/- 10	+/- 10	+/- 10	+/- 10	+/- 10	+/- 10

Connecting nut		
Ø Thread	M4	M5
Tightening torque	0,8–1,5 Nm	3,0–4,0 Nm
Tolerance in %	+/- 10	+/- 10



Please take care of the tightening torques, whenever these are printed on the packaging material! Glow plugs will function properly only when tightened with the correct tightening torque!

SERIES



IGNITION
PARTS

SERIES OF NGK SPARK PLUGS

NGK ZÜNDKERZEN · SÉRIES DES BOUGIES NGK

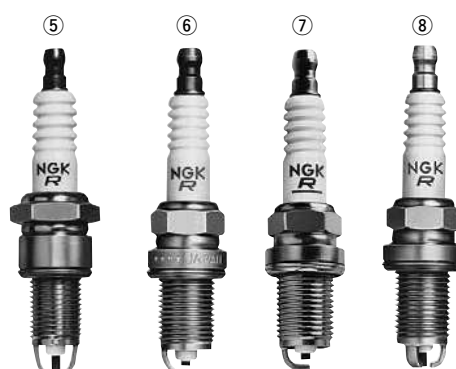
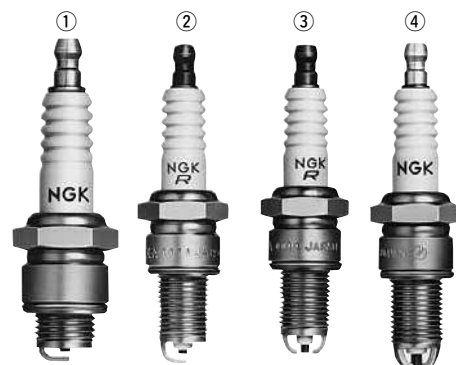
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STANDARD TYPES

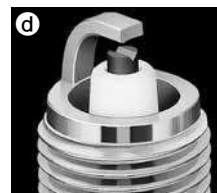
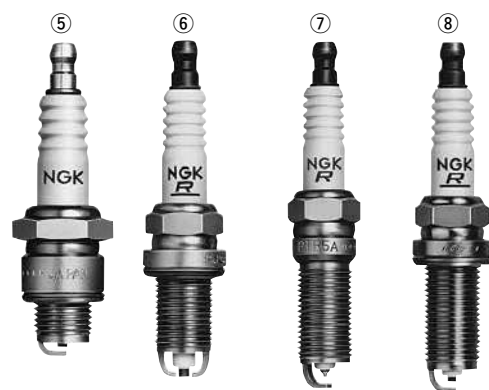
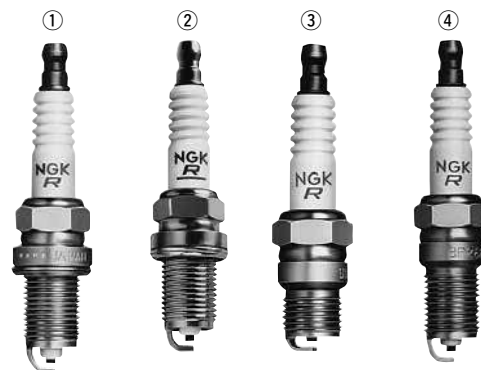
STANDARD AUSFÜHRUNGEN
TIPOS ESTÁNDARES

TYPES STANDARDS
STANDARDTYPEN

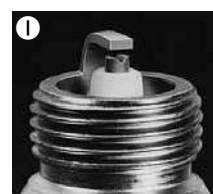
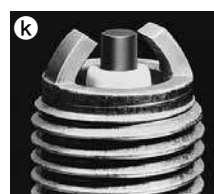
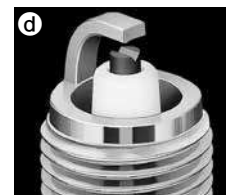
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ϕ 14mm × 9.5mm Hex 20.8mm Fig.①①		B-2 B-4 B6S B7S B8S		BR6S	
	Fig.①③	BP-4 BP5S BP6S			
ϕ 14mm × 19.0mm Hex 20.8mm Fig.②①		B4ES B5ES B6ES,-11 B7ES,-11 B8ES B9ES B10ES		BR4ES BR5ES BR6ES,-11 BR7ES BR8ES,-11 BR9ES BR10ES	
	Fig.②②			BR6EB-L-11	
	Fig.②③			BR8EYA BR9EYA BR10EYA	
	Fig.②④	BP2ES,BP-2E BP4ES,-11 BP5ES,-11,-13 BP6ES,-11 BP7ES,-11 BP8ES BP9ES	BP5ESZ BP6ESZ	BPR2ES,BPR-2E BPR4ES,-11,-13 BPR5ES,-11,-13 BPR6ES,-5,-11 BPR7ES,-11 BPR8ES,-6 BPR9ES	
	Fig.③⑤			BPR6EKN BPR7EKN	
	Fig.②⑥	BP4EY,-11 BP5EY,-11 BP6EY,-11 BP7EY		BPR4EY,-11 BPR5EY,-11 BPR6EY,-11 BPR7EY-11	
	Fig.②⑦	BP5E BP6E		BPR4E,-11 BPR5E,-11 BPR6E,-11 BPR7E	
	Fig.④⑧	BP5ET,-10 BP6ET BP7ET			
ϕ 14mm × 19.0mm Hex 16.0mm Fig.⑥①	Fig.⑤⑨			BPR5EJ	
		BCP4ES,-11 BCP5ES,-11 BCP6ES,-11 BCP7ES,-11		BCPR5ES,-11 BCPR6ES,-11 BCPR7ES,-11 BCPR9ES-11	
	Fig.⑧⑨ ISO	BCP5ET BCP6ET BCP7ET		BCPR5ET BCPR6ET BCPR7ET	
	Fig.⑥②	BC6ES		BCR8ES	
	Fig.⑦③ ISO	BK5ES	BK5ESZ	BKR4ES-11 BKR5ES,-11 BKR6ES,-11 BKR7ES-11	



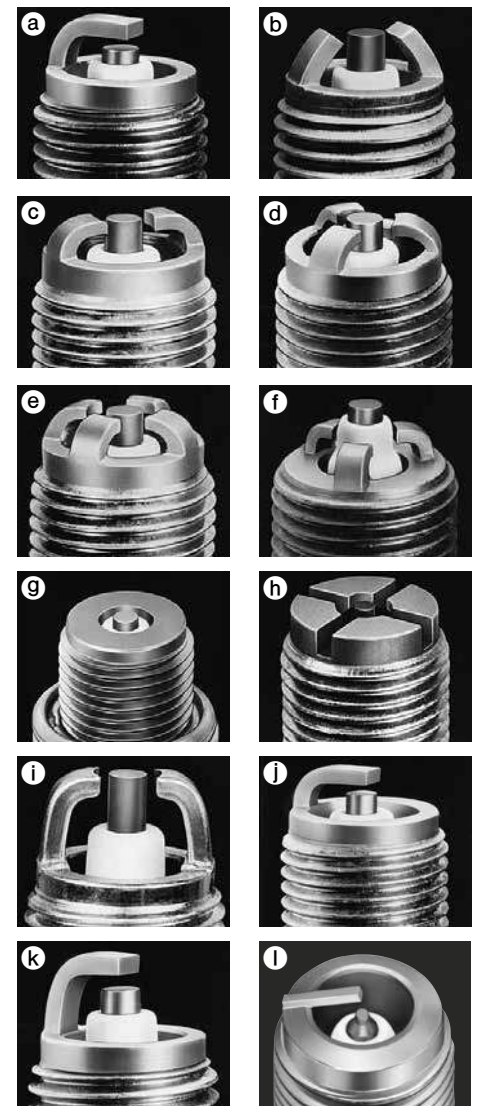
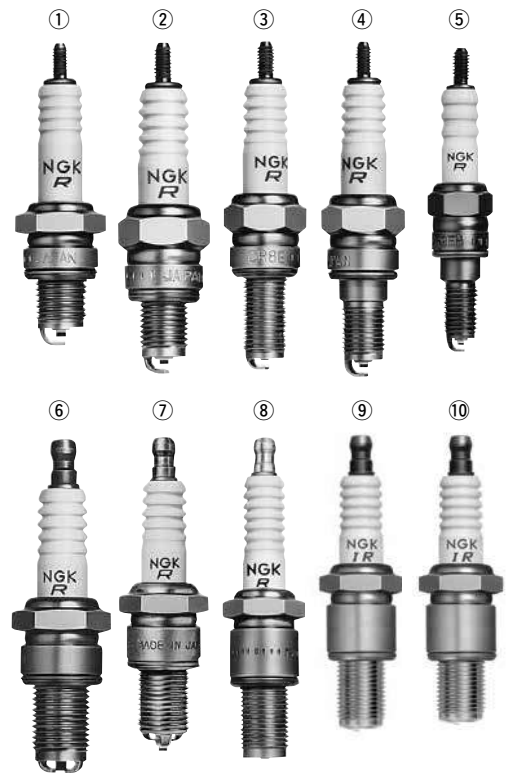
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ϕ 14mm $\times$ 19.0mm Hex 16.0mm Fig. ① ③			BCPR4EY,-11 BCPR5EY,-11 BCPR6EY,-11,-N-11 BCPR7EY,-11,-N-11
	Fig. ② ③ ISO		BKR4EY,-11 BKR5EY,-11 BKR5EYA,-11 BKR6EY,-11 BKR6EYA,-11 BKR7EY
	Fig. ① ④	BCP5E BCP6E,-11 BCP7E,-11	BCPR5E,-11 BCPR6E,-11 BCPR7E,-11
	Fig. ② ④ ISO	BK5E,-11 BK6E,-11	BKR4E,-11 BKR5E,-11,-N,-N-11 BKR5EZ BKR6E,-11,-E,-N,-N-11 BKR6EZ BKR7E,-11,-N-11 BKR8E-11 FR6F-11DK FR6F-11K
	Fig. ⑥ ① ISO		BKR5EK BKR6EK
	Fig. ⑥ ⑨ ISO		BKR5EKB-11 BKR6EKB-11
			BKR5EKC BKR6EKC,-N-11 BKR6EKE BKR7EKC,-N,-N-11
ϕ 14mm $\times$ 26.5mm Hex 16.0mm Fig. ⑧ ④			LFR4A,-11 LFR4A-E LFR5A,-11 LFR6A,-11 LFR7A
ϕ 14mm $\times$ 11.2mm Conical seat Hex 16.0mm Fig. ③ ①		B7FS	BR5FS BR6FS,-15
	Fig. ③ ②	BP4FS BP5FS BP6FS BP7FS	BPR4FS,-11,-15 BPR5FS,-11,-15 BPR6FS
	Fig. ③ ④	BP5F BP6F	
ϕ 14mm $\times$ 17.5mm Conical seat Hex 16.0mm Fig. ④ ①		B8EFS B9EFS	BR7EFS
	Fig. ④ ⑤		BR6EF BR7EF
	Fig. ④ ②	BP5EFS,-13 BP6EFS,-13 BP7EFS	BPR5EFS,-13 BPR6EFS,-13,-15 BPR7EFS-15
	Fig. ④ ④	BP6EF	BPR6EF,-11,-13
ϕ 14mm $\times$ 25.0mm Conical seat Hex 16.0mm Fig. ⑦ ②			TR5A-13 TR5B-13 TR6B-10
ϕ 14mm $\times$ 11.2mm Hex 20.8mm Fig. ⑤ ①		B-4L B-6L B6LY (Fig. ⑤ ⑤)	



	NON-RESISTOR NON-RÉSISTANCE ICKERESISTOR	OHNE WIDERSTAND NO-RESISTOR	RESISTOR RÉSISTANCE RESISTOR	MIT WIDERSTAND RESISTOR
ϕ 14mm $\times$ 12.7mm Hex 20.8mm Fig. ①(a)	B-2H B-4H,-10 B5HS B6HS,-10 B7HS,-10 B8HS,-10 B9HS B10HS		BR4HS BR5HS BR6HS,-10 BR7HS,-10 BZ7HS-10 BR8HS,-10 BR9HS,-10	
Fig. ①(b)	BP2HS BP4HS,-10 BP5HS,-10 BP6HS,-10 BP6HSA BP7HS,-10 BP8HS,-10,-15	BP-2H BP-4H BP6H BP7H	BPR2HS BPR4HS,-10 BPR4HSA BPR-4H BPR5HS BPR6HS,-10 BPR6HSA BPR7HS,-10 BPZ8H-N-10 BPR8HS,-10 BPR8HSA BPZ8HS-10,-15	
Fig. ①(c)	BP4HA			
Fig. ①(e)	B6HSA B8HSA		BR4HSA BR6HSA,-9 BR8HSA,-9	
ϕ 18mm $\times$ 12.0mm Hex 20.8mm Fig. ⑤(f)	AB-2 AB-6 AB-7 AB-8			
ϕ 18mm $\times$ 16.0mm Hex 25.4mm			R8102B-10	
ϕ 12mm $\times$ 19.0mm Hex 18.0mm Fig. ⑥(h)	D6EA D7EA D8EA D9EA D10EA		DR7EA DR7EB DR8EA DR8EB DR9EA	
Fig. ⑥(i)	DP6EA-9 DP7EA-9 DP8EA-9 DP9EA-9		DPR5EA-9 DPR6EA-9 DPR6EB-9 DPR7EA-9 DPR8EA-9 DPR9EA-9	
Fig. ⑥(h)	J9A		JR8B JR9B JR10B	
Fig. ⑥(k)			JR8C JR9C	
ϕ 12mm $\times$ 21.0mm Hex 18.0mm Fig. ⑦(j)	DP8Z		DPR7Z DPR8Z DPR9Z	
ϕ 12mm $\times$ 19.0mm Hex 16.0mm Fig. ⑧(i)	DCP6E DCP7E		DCPR6E KR6A-10 DCPR7E,-N DCPR8E,-N KR8C-G DCPR9E KR9C-G	
Fig. ⑧(m)			DCPR8EKC	
ϕ 12mm $\times$ 20.5mm Hex 16.0mm			KER7A-8DEG	
ϕ 12mm $\times$ 26.5mm Hex 16.0mm Fig. (b)			LKR6C LKR6E LKR6F-10 LKR7E	
ϕ 12mm $\times$ 25.0mm Hex 14.0mm			LNAR7A-9G	
ϕ 12mm $\times$ 26.5mm Hex 14.0mm Fig. (b)			LZKAR6C-9 LZKAR7D-9,-9D LKAR8A-9,-9S	



	NON-RESISTOR NON-RÉSISTANCE ICKERESISTOR	OHNE WIDERSTAND NO-RESISTOR	RESISTOR RÉSISTANCE RESISTOR	MIT WIDERSTAND RESISTOR
ϕ 12mm $\times$ 12.7mm Hex 18.0mm Fig. ①a	D6HA D8HA		DR4HS DR5HS DR6HS DR8HS	
ϕ 10mm $\times$ 12.7mm Hex 16.0mm Fig. ②a	C2H C5HSA C6HSA C7HSA C8HSA	C4HSB C5HSB	CR4HSA CR4HSB LR4C-E CR5HSA CR5HSB CR6HSA LR6E CR7HSA LR7D CR8HSA CMR8H LR8A LR8B	
ϕ 10mm $\times$ 19.0mm Hex 16.0mm Fig. ③①	C7E C8E C9E		CR6E CR6EB CR7EK CR7EB CR8EK CR8EB CR9EK CR9EB CR10E	
 Fig. ③k			D CPR8E CPR6EA-9S CPR7EA-9	
ϕ 10mm $\times$ 19.0mm Hex 16.0mm Fig. ④a	C8EH-9 C9EH-9		CR5EH-9 CR7EH-9 MR7C-9N MR7E-9 MR7F CR8EH-9 MR8C-9N MR8D-9 MR8E-9 MR8F CR9EH-9 MR9C-9N	
ϕ 10mm $\times$ 19.0mm Hex 16.0mm Fig. ③b			CR7EKB CR7EKB CR8EKB CR8EKB CR9EKB CR9EKB CR10EK	
 Fig. ③i			CR7EKC	
ϕ 10mm $\times$ 19.0mm Hex 14.0mm Fig. ⑤b			MAR9A-J MAR10A-J MAR8B-JDS MAR9B-JDS	
ϕ 10mm $\times$ 26.5mm Hex 14.0mm Fig. ⑥k			LMAR6A-9 LMAR7A-9 LMAR8A-7,9,9S LMAR6C-9 LMAR7H-9DS LMAR8F-9 LMAR8G	
 Fig. ⑤b			LMAR9D-J	
ϕ 8mm $\times$ 19.0mm Hex 13.0mm Fig. ⑤a			ER8EH, -N ER9EH, -N, -6N ER10EH	



FOR ROTARY ENGINE

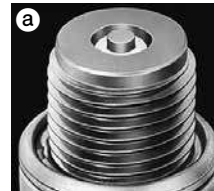
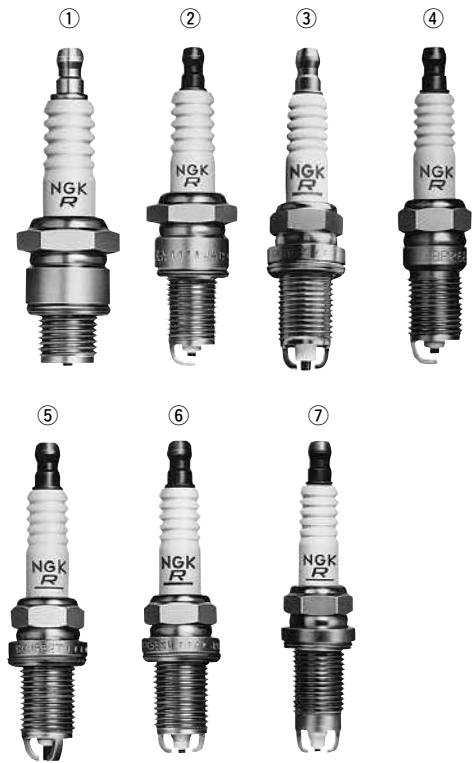
FÜR WANKELMOTOR POUR MOTEUR ROTATIF PARA MOTOR ROTATIVO TÄNDSTIFT FOR WANKELMOTORER

	NON-RESISTOR NON-RÉSISTANCE ICKERESISTOR	OHNE WIDERSTAND NO-RESISTOR	RESISTOR RÉSISTANCE RESISTOR	MIT WIDERSTAND RESISTOR
ϕ 14mm $\times$ 19.5mm Hex 20.8mm Fig. ⑥c	B7EM		BR8EM	
 Fig. ⑥d			BR7ET BR8ET BR9ET BR10ET	
 Fig. ⑥e			BR8EQ,-14 BR9EQ,-14	
ϕ 14mm $\times$ 21.5mm Hex 20.8mm Fig. ⑧g			SD10A SD11A	
 Fig. ⑧h			BUR6EQ BUR7EQ BUR8EQ BUR9EQ BUR7EQP BUR9EQP	
ϕ 14mm $\times$ 21.0mm Hex 20.8mm Fig. ⑨			RE6C-L RE7C-L RE8C-L	
ϕ 14mm $\times$ 19.0mm Hex 20.8mm Fig. ⑩①			RE9B-T	

SEMI SURFACE DISCHARGE TYPES AND SUPPLEMENTARY GAP TYPE

HALBGLEITFUNKENTYPEN UND ZUSÄTZLICHER ABSTANDSTYP
TYPE À DÉCHARGE SEMI-SURFACIQUE ET TYPE À ÉCARTEMENT SUPPLÉMENTAIRE
TIPO DE DESCARGA DE MEDIA SUPERFICIE Y TIPO DE GALGA SUPLEMENTARIA
STIFT MED SEMI-YTGNISTGAP OCH STIFT AV SUPPLEMENTÄR TYP

		NON-RESISTOR OHNE WIDERSTAND NON-RÉSISTANCE NO-RESISTOR ICKERESISTOR	RESISTOR RÉSISTANCE RESISTOR
ϕ 14mm × 12.7mm Hex 20.8mm Fig.①②		BU8H	BUZ8H
ϕ 14mm × 19.0mm Hex 20.8mm Fig.②③			BUR5EA-11 BUR6EA-11 BUR7EA-11
ϕ 14mm × 19.0mm Hex 20.8mm Fig.②④			BUR4EB-11 BUR5EB-11 BUR6EB-11 BUR7EB-11
	Fig.②⑤		BUR5ET,-10 BUR6ET
ϕ 14mm × 19.0mm Hex 20.8mm Fig.③⑥			BPR6EK-A
	Fig.③⑦		BPR5EKU
ϕ 14mm × 17.5mm Conical seat Hex 16.0mm Fig.④⑧		BU6EFSZ	BUR6EFSZ
ϕ 14mm × 19.0mm Hex 16.0mm Fig.⑥⑨ ISO			BKUR6EK,-9 BKUR7EK
	Fig.⑤④ ISO		BKUR5ET,-10 BKUR5ETZ-10 BKUR6ET,-10 BKUR6ETB BKUR7ET
	Fig.⑥⑦ ISO	BK7EKU	BKR5EKU BKR6EKU BKR7EKU
	Fig.⑥⑧ ISO		BKR6EKUE BKR6EKUB
ϕ 14mm × 22.0mm Hex 16.0mm Fig.⑦⑩			BKR5EKUC BKR6EKUC
ϕ 14mm × 19.0mm Hex 16.0mm Fig.⑥⑪			BKR6EQUA



PROJECTED GAP TYPES

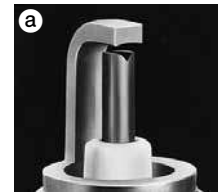
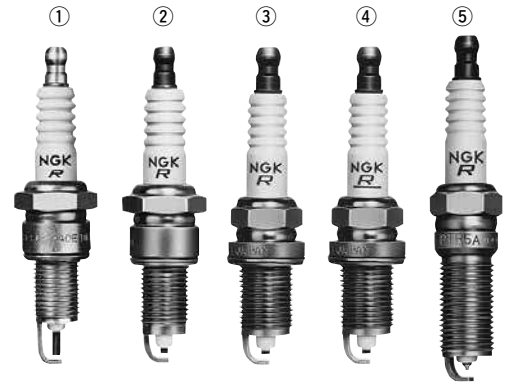
ZUNDKERZEN MIT VORSRINGENDER FUNKENSTRECK

TYPE A ÉCARTEMENT EN SAILLIE

TIPOS DE ABERTURA DE CHISPA PROYECTADA

STIFT MED FÖRLÄNGDA ELEKTRODER

	NON-RESISTOR NON-RÉSISTANCE ICKERESISTOR	OHNE WIDERSTAND NO-RESISTOR	RESISTOR RÉSISTANCE RESISTOR	MIT WIDERSTAND RESISTOR
ϕ 14mm $\times$ 19.0mm Hex 20.8mm Fig. ①②	BE529Y-11		BRE527Y-11 BRE529Y,-11	
Fig. ②③			ZGR4A ZGR5A	
ϕ 14mm $\times$ 20.5mm Hex 20.8mm Fig. ②④			ZGR5B,-11 ZGR6B-11	
ϕ 14mm $\times$ 22.0mm Hex 20.8mm Fig. ②⑤			ZGR5C	
ϕ 14mm $\times$ 19.0mm Hex 16.0mm Fig. ③⑥	ZF6A-11		ZFR5A-11 ZFR6A-11	
Fig. ④⑦			ZFR4F-11 ZFR5F,-11 ZFR5J-11 ZFR6F-11,G ZFR6J-11 ZFR7F-11 ZFR7J-11	
Fig. ③⑧			BCRE527Y	
ϕ 14mm $\times$ 20.5mm Hex 16.0mm Fig. ③⑨			ZFR6K-9E,-11S	
			ZFR5G ZFR6G	
ϕ 14mm $\times$ 22.5mm Hex 16.0mm Fig. ③⑩			ZFR4E-11 ZFR5E-11 ZFR6E-11	
Fig. ③⑪			ZFR5D-11	
ϕ 14mm $\times$ 25.0mm Conical seat Hex 16.0mm Fig. ⑤⑫			LZTR4A-11 LZTR5A-13	
ϕ 12mm $\times$ 19.0mm Hex 16.0mm			ZKR7A-10	
ϕ 12mm $\times$ 21.5mm Hex 16.0mm			ZKER6A-10DEG,-10EG	
ϕ 12mm $\times$ 26.5mm Hex 16.0mm			LZKR6B-10E	
ϕ 12mm $\times$ 26.5mm Hex 14.0mm			LZKAR6C-11	
ϕ 12mm $\times$ 26.3mm Bi-Hex 14.0mm			ZKBR7A-HTU	



SLANT GROUND ELECTRODE TYPE

SCHRÄGER MASSENELEKTRODENTYP

TYPE A ÉLECTRODE DE MASSE À INCLINAISON

TIPO DE ELECTRODO DE MASA INCLINADO

STIFT MED VINKLAD SIDOELEKTROD

ϕ 14mm $\times$ 12.7mm Hex 20.8mm Fig. ⑥⑦	B7HCS B8HCS B9HCS	BR8HCS-10
ϕ 14mm $\times$ 19.0mm Hex 20.8mm Fig. ⑦⑧	B7ECS B8ECS B9ECS	BR8ECS BR9ECS BR10ECS
Fig. ⑧⑨		BR8ECM BR9ECM BR10ECM

PLATINUM, IRIIDIUM TIPPED TYPES

TYPEN MIT PLATINELEKTRODENSPITZE, IRIIDIUMSPITZE

TYPE[S] À EXTREMITÉ EN PLATINE, IRIIDIUM

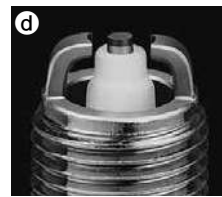
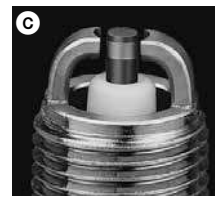
TIPOS CON PUNTA DE PLATINO, IRIIDIO

STIFT MED MITTELEKTRODÄNDA AV PLATINA OCH IRIIDIUM

	RESISTOR RÉSISTANCE RESISTOR	MIT WIDERSTAND RESISTOR
ϕ 14mm × 19.0mm Hex 20.8mm Fig.①①	PGR5A,-11 PGR5C-11 BPR5EP-11,-13 PGR6A,-11 PGR6C-11 BPR6EP-8 PGR7A 125CX 126CX IGR7A	
ϕ 14mm × 19.0mm Hex 20.8mm Fig.①⑧	IGR5C13 GR7CI-8	
ϕ 14mm × 19.0mm Hex 16.0mm Fig.②②	PFR5A-11 PFR5K-11 BCPR5EP-8,-11,-13 PFR6A-11 PFR6H-10 PFR6K-11 BCPR6EP-8,N-8,-11,-N-11,-13 PFR7A-11 PFR7H-10	
Fig.③⑧ ISO	FR4AP-10,-11 FR4BP-11 FR5AP-10,-11 FR5BP-11 FR5AP-11E FR6AP-10,-11 FR6BP-11 FR7AP-11 115CX 116CX 136CX FR5EI-13	
	PFR5B-9,-11,-11B PFR5C-11 PFR6B,-9,-11,-11B,-11C PFR6E-10 PFR7B,-9,-11 PFR8B,-9	
	PFR4G-11 PFR5J-11 PFR5G-11,-13E PFR6H-10 PFR6J,-11 PFR6G,-9,-11,-13,-13E PFR7G,-9,-11 PFR7S11EG	
	PFR5L-11 PFR5N-11,8DS PFR5P-11 PFR6L-11,-13 PFR6N-11 PFR6P-11 PFR6Q PFR7N-D PFR7Q	
	PFR5R-11	
	BKR5EP-11 BKR6EP-8,-11,-13,-N-8	
	Fig.④④ ISO BKR6EKPA	
	Fig.④⑤ ISO BKR5EKUP	
	Fig.④⑥ ISO BKR5EKP-11,-13 BKR6EKP-11	
	Fig.④⑦ ISO BKR5EQUPA BKR6EQUP BKR6EQUPA	
Fig.③⑩ ISO	PFR6M PFR6X-11 PFR7M PFR7S8EG	
Fig.③⑨ ISO	PZFR5B PZFR5F,-11 IZFR5B IZFR5F11 IZFR5G IZFR5L11 PZFR6B PZFR6F,-11 IZFR6B IZFR6F11 SIFR6B7G T6728R T6728U-G035	
Fig.③⑧ ISO	IFR5A11,-8N IFR5D10 IFR5E11 IFR6A11 IFR6C IFR6D10 IFR6E11 IFR6AD7DG IFR6AE11S IFR7F-D IFR7B4D IFR8AF4D IFR8AG8	
	IFR5G11 IFR5J11 IFR5N10 IFR5T-8N,11 IFR6J11 IFR6S IFR6T11 IFR7X7G	
Fig.③	PZFR6H IZFR6J IZFR6N-E IZFR6Q	
Fig.③③	PFR6W-TG	
Fig.③④	DIFR5E11 DF6A-13B DIFR6D11D DIFR6D13	
	ZFR5LP-13G IZFER7A4D 11G-55	
ϕ 14mm × 21.5mm Hex 16.0mm	PZFR6R,8EG	
ϕ 14mm × 22.0mm Hex 16.0mm Fig.⑩⑩ ISO	PZFR5C PZFR5D-11	
	Fig.⑩⑩ ISO IZFR5C IZFR7E-D	
ϕ 14mm × 22.5mm Hex 16.0mm	135CX	
ϕ 14mm × 25.0mm conical seat Hex 16.0mm Fig.⑥⑧	PTR5A-13 ILTR5D	



	RESISTOR MIT WIDERSTAND RÉSISTANCE RESISTOR RESISTOR
ϕ 14mm $\times$ 17.5mm conical seat Hex 16.0mm Fig. ⑨①	PTR4B-15 PTR5C-13 ITR4A15 ITR6F13
ϕ 14mm $\times$ 17.5mm conical seat Hex 16.0mm Fig. ③⑧ Fig. ⑨⑨	ITR5H13 PTR5D-10,-13 TR5AI-13 TR5AP-13 ITR6G9 PTR6D-13,-13G ITR7J9D PZTR5A-15
ϕ 14mm $\times$ 20.5mm Hex 16.0mm Fig. ③⑫	IZFR6K11,11E,13 IZFR6K-11S,IZFR6K11NS PZFR7G-G
ϕ 14mm $\times$ 21.5mm Hex 16.0mm Fig. ⑭	PZFR5N-11T
ϕ 14mm $\times$ 22.0mm Hex 16.0mm Fig.	PZFR6J-11
ϕ 14mm $\times$ 26.5mm Hex 16.0mm Fig. ⑪	PLFR4A-11 PLFR5A-9,-11 ILFR5T11 ILFR5B11 DILFR5A11 DILFR5C11 DILFR5E11 DF5B-8A DILFR5L11 ILZFR5E8D LZFR5CI-11 PLFR6A-9,-11 ILFR6T11 ILFR6K8 ILFR6G,-E SILFR6A11 DILFR6D11D DILFR6L11 PLFR7A-9 DILFR7K9G ILFER7A8EG SILZFR7A9G PLZFR6A-11S ILZFR6A11 DILFR7B10G 155CX 156CX
ϕ 14mm $\times$ 28.0mm Hex 16.0mm Fig. ⑪	LZFR5BI-11 LZFR5DI-11 LZFR6AI
ϕ 14mm $\times$ 29.5mm Hex 16.0mm Fig. ⑪①	LZFR5AQP
ϕ 14mm $\times$ 25.0mm conical seat Hex 16.0mm	PLZTR4A-13 PLZTR5A-13 ILTR5A-13G ILTR5P11D LTR5BI-13 LTR6AP-11 ILTR6A-8G,-13G ILTR6J13 ILTR6M9G LTR6AI-8 LTR6BI-13 LTR6BI-9 LTR6DI-8 LTR6DP13 ILTR7E9D ILTR7J8 ILTR7N8 ILTR7Q9 LTR7CP13
ϕ 12mm $\times$ 19.0mm Hex 18.0mm Fig. ⑤⑧	PJR6A PJR7A IJR7A9 PJR8A
ϕ 12mm $\times$ 19.0mm Hex 16.0mm	IKR6G8 IKR7H8 IZKR8C10D SIKR8B7G IKR9H8 IKR9J8 147CX
ϕ 12mm $\times$ 19.0mm Hex 16.0mm Fig. ⑦①	PKR7A KR7AI IKR6G11 PKR9B KR8AI KR9CI IKR9F8
ϕ 12mm $\times$ 19.0mm Hex 16.0mm Fig. ⑦⑥	DCPR8EKP
ϕ 12mm $\times$ 20.5mm Hex 16.0mm	IKER7A8EGS ZKR7BI-10 PKER7A8EGS PKER7A8DES
ϕ 12mm $\times$ 21.5mm Hex 16.0mm	PZKER7B8EGS
ϕ 12mm $\times$ 22.0mm Hex 16.0mm	IZKR7A
ϕ 12mm $\times$ 26.5mm Hex 16.0mm Fig. ⑩ Fig.	ILKR6F11 ILZKR6F11 SILKR6C10E SILKR6D10G ILKR7D8 ILKR7J8 ILKR7K8 ILKR7L8G ILZKR7D8 ILZKR7E10DG LKR7FI-8 SILKR7C8DE SILZKR7E11 SILZKR7E8EG SILZKR7E9 SILZKR7E9G SILZKR7G8DE ILKR8M5D ILKR8P8 SILZKR8E8D SILZKR8E8G ILKR9G8 ILKR9H8 HKS-G40XL DILKR7E11
ϕ 12mm $\times$ 28.0mm Hex 16.0mm	DILZKR7B11G ILZKR7G7G
ϕ 12mm $\times$ 29.0mm Hex 16.0mm	SILZKKER8A8E
ϕ 12mm $\times$ 25.0mm Hex 14.0mm	SILZNAR6D9 SILNAR7B7 SILNAR7C7DG ILNAR8B7G ILZNAR8B7G SILNAR8A7
ϕ 12mm $\times$ 26.5mm Hex 14.0mm Fig. ⑬④ Fig. ⑬⑨ Fig. ⑬	ILKAR7L11 ILKAR7L11D ILKAR7M10 ILZKAR7D11 LKAR7CI-8 ILKAR8H6 LKAR8CI-8 SILKAR8C6DG SILKAR8C6DS SILKAR8D6 SILKAR8E4DG SILKAR8F8 SILZKAR8D4D SILZKFR8B7S SILZNAR8C7H HKS-M50HL LKAR8AP7JD LKAR8AP7JDS DILKAR7B8 DILKAR7G11DS DILKAR7H11GS DILKAR7M8 DILZKAR7B11 DILKAR8J9G DILKAR8K8D DILKAR8L8D



	RESISTOR MIT WIDERSTAND RÉSISTANCE RESISTOR RESISTOR
ϕ 12mm $\times$ 27.0mm Hex 14.0mm	SILZKFR8C7S SILZKFR8D7S
ϕ 12mm $\times$ 27.5mm Hex 14.0mm	SILZKFR8E7S
ϕ 12mm $\times$ 28.0mm Hex 14.0mm Fig.(K)	DILZKAR7C11S ILZKAR7E11S ILZKAR8F8S ILZKAR8G8 ILZKAR8H8S ILZKAR8J8SY ILZKAR8A7G SILZKAR8F7S
ϕ 12mm $\times$ 28.5mm Hex 14.0mm Fig.(N)	DILKA7E9HS
ϕ 10mm $\times$ 19.0mm Hex 16.0mm Fig.(8)(1)	CR9EBI-9
Fig.(8)	MR8CI-8 SIMR7B9DS
Fig.(8)(C)	MR8BI-8
ϕ 10mm $\times$ 19.0mm Hex 16.0mm Fig.(12)	
ϕ 10mm $\times$ 22.0mm Hex 16.0mm	MR8BP8HJS
ϕ 10mm $\times$ 26.5mm Hex 14.0mm Fig.(14)	ILMAR7B8 LMAR7CI-8 SILMAR7D9DS ILMAR8C9D LMAR8AI-8E LMAR8BI-9 SILMAR8C9 SILMFR8A8G SILMAR9B9
ϕ 10mm $\times$ 26.5mm Hex 14.0mm Fig.(d)	LMAR9AP8JS
ϕ 12mm $\times$ 26.5mm Bi-Hex 14.0mm	ILZKBR7B8DG PLZKBR7B8DG SILZKBR8B8HG SILKGR9A7EG
ϕ 12mm $\times$ 27.5mm Bi-Hex 14.0mm	SILZKBR8D8S SILZKBR8E8S SILZKGR8A8S SILZKGR8B8S
ϕ 12mm $\times$ 28.0mm Bi-Hex 14.0mm	SILZKG8D7E
ϕ 12mm $\times$ 28.5mm Bi-Hex 14.0mm	SILZKBR8F8S SILZKGR8C8S



COMPACT TYPES

KOMPAKT STIFT
TIPOS COMPACTOS

TYPES COMPACTES
KOMPAKTE TYPEN

	NON-RESISTOR NON-RÉSISTANCE ICKERESISTOR	OHNE WIDERSTAND NO-RESISTOR	RESISTOR RÉSISTANCE RESISTOR	MIT WIDERSTAND RESISTOR
ϕ 18mm × 16mm Hex 25.4mm	R8160B-10			
ϕ 14mm × 9.5mm Hex 19.0mm Fig.①a	BM4A BM6A BM7A	B2-LM * B4-LM * BM6 * BM7 * * Hex.20.8mm	BMR2A,-10 BMR4A BMR6A BMR7A	BR2-LM * BR4-LM * * Hex.20.8mm
Fig.①b	BPM4A BPM6A,-10 BPM7A		BPMR4A,-10 BPMR6A,-10 BPMR7A,-9	
ϕ 14mm × 12.7mm Hex 20.8mm Fig.②a	BL-6H			
ϕ 14mm × 7.8mm Conical seat Hex 16.0mm Fig.③a	BM6F BM7F	BM6FY	BMR6F	
Fig.③b	BPM6F BPM7F		BPMR6F	
ϕ 10mm × 8.6mm Hex 14.0mm Fig.④a	CM-6			
ϕ 10mm × 9.5mm Hex 16.0mm Fig.⑧a			CMR6A CMR7A	
ϕ 10mm × 12.7mm Hex 16.0mm Fig.⑧e			CMR5H CMR6H CMR7H	
ϕ 14mm × 9.5mm Hex 19.0mm Fig.①c	BPM6Y BPM7Y BPM8Y		BPMR6Y BPMR7Y BPMR8Y	



FARM EQUIPMENT TYPES

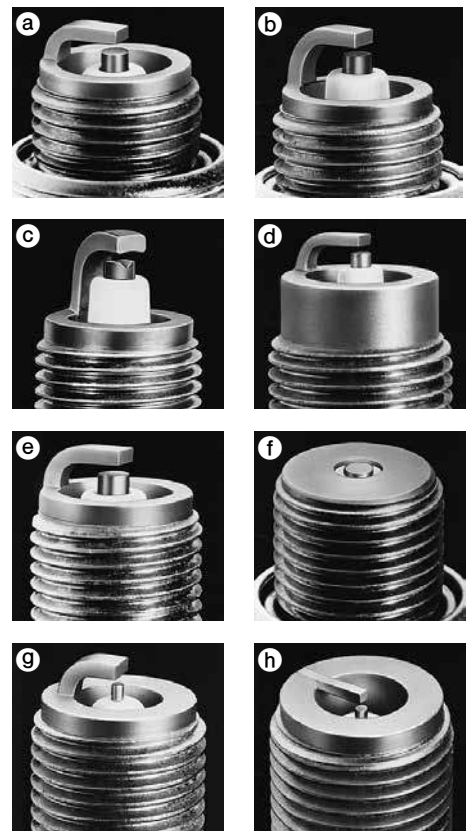
LANDMASCHINEN TYPEN TYPES MACHINES AGRICOLES
TIPOS MÁQUINAS AGRÍCOLAS FÖR JORDBRUKS-MASKINER

PF1/2" × 22.5mm Hex 23.8mm Fig.⑤d	G-27 G-2Z
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SURFACE DISCHARGE TYPES

GLEITFUNKENTYPEN TYPE À DÉCHARGE SUPERFICIELLE
TIPO DESCARGA EN SUPERFICIE TÅNDSTIFT MED YTGNISTGAP

ϕ 14mm × 12.7mm Hex 20.8mm Fig.⑥f	BUHX(Series gap) BUHXW-1(Series gap)	
	BUH	
	BUHW BUHW-2	BUZHW BUZHW-2
ϕ 14mm × 19.0mm Hex 20.8mm Fig.⑦f	BUE	



RACING TYPES

RENN-TYPEN TYPES COURSES
TIPOS DE CARRERAS RACERSTIFT

	Nickel electrode Nickel Elektrode Electrodo de níquel Electrodo de níquel Nickel elektrod	Precious metal electrode Elektrode mit sonde-redel metall Electrode en metal précieux Electrodo de metal precioso Ädelmetall elektrod	Platinum electrode Platinel Elektrode Electrodo de platino Electrodo de platino Platina elektrod
ϕ 14mm × 19.0mm Hex 20.8mm	(Fig.⑨g) B8EGV BR8EG* B9EGV BR9EG* B10EGP BR10EG* B11EG	(Fig.⑨g) B8EGV B85EGV B9EGV B95EGV B10EGV B105EGV B11EGV	(Fig.⑨h) B10EGP
*Resistor Type			

IX TYPES

IX TYPEN
TIPOS IX

TYPES IX
IX-STIFT

		RESISTOR RÉSISTANCE RESISTOR	MIT WIDERSTAND RESISTOR
ϕ 18mm × 10.9mm Hex 20.8mm Fig. ①a		WR5IX	
ϕ 14mm × 19.0mm Hex 20.8mm Fig. ②b		BPR5EIX,-11 BPR6EIX,-11 BPR7EIX BPR8EIX BPR9EIX BPR10EIX	GR4IX GR5IX
	Fig. ②c	BR7EIX BR8EIX BR9EIX BR10EIX	
	Fig. ②d	BR8ECSIX BR9ECSIX,-5	
	Fig. ③d	BR8ECMIX BR9ECMIX BR10ECMIX	
ϕ 14mm × 12.7mm Hex 20.8mm Fig. ④b		BPR6HIX BPR7HIX BPR8HIX	
	Fig. ④c	BR6HIX BR7HIX BR8HIX BR9HIX BR10HIX	
ϕ 14mm × 9.5mm Hex 20.8mm Fig. ⑤a		XR4IX XR5IX XR45IX	
ϕ 14mm × 19.0mm Hex 16.0mm Fig. ⑥b		BCPR7EDIX	
	Fig. ⑦b	BCPR5EIX,-11 BCPR6EIX,-11 BCPR7EIX,-11	
	Fig. ⑧b	BKR4EIX BKR5EIX,-11 BKR6EIX,-11 BKR7EIX,-11 BKR8EIX BKR9EIX	
	Fig. ⑧e	ZFR5FIX-11 ZFR6FIX-11	
ϕ 14mm × 26.5mm Hex 16.0mm Fig. ⑨b		LFR5AIX-11 LFR6AIX-11 LFR7AIX	LKR6AIX LKR6AIX-P LKR6CIX LKR7AIX
ϕ 14mm × 17.5mm Conical seat Hex 16.0mm Fig. ⑩b		BPR6EFIX-10,-15	
	Fig. ⑩a	TR4IX TR5IX TR6IX TR7IX TR8IX	TR55IX TR65IX TR75IX TR85IX
ϕ 14mm × 20.5mm Conical seat Hex 16.0mm Fig. ⑪e		TR5-1IX	TR45-1IX TR55-1IX
ϕ 14mm × 11.2mm Conical seat Hex 16.0mm Fig. ⑫c	Fig. ⑫c	BR6FIX	
	Fig. ⑫a	UR4IX UR5IX UR6IX	UR45IX UR55IX
ϕ 14mm × 25.0mm Conical seat Hex 16.0mm Fig. ⑬b		LTR5IX-11 LTR6IX-11 LTR7IX-11	
	Fig. ⑬e	LZTR4AIX-11 LZTR5AIX-13 LZTR6AIX-13 LZTR7AIX-13	



IX TYPES

IX TYPEN TYPES IX
TIPOS IX IX-STIFT

		RESISTOR RÉSISTANCE RESISTOR	MIT WIDERSTAND RESISTOR
ϕ 12mm × 19.0mm Hex 16.0mm Fig. ① ①		DCPR6EIX DCPR7EIX DCPR8EIX DCPR9EIX	
	Fig. ① ②	DCR7EIX DCR8EIX DCR9EIX	
ϕ 12mm × 19.0mm Hex 18.0mm Fig. ② ①		DPR7EIX-9 DPR8EIX-9 DPR9EIX-9	
	Fig. ② ②	DR7EIX DR8EIX DR9EIX	
ϕ 12mm × 21.0mm Hex 18.0mm Fig. ③ ①		DPR8ZIX	
ϕ 12mm × 26.5mm Conical seat Hex 14.0mm Fig. ④ ①		ZNAR7AIX ZNAR6AIX-11	
ϕ 12mm × 26.5mm Hex 14.0mm		LZKR6AIX	
ϕ 10mm × 19.0mm Hex 16.0mm Fig. ⑤ ①		CPR6EAIX-9S CPR7EAIX-9 CPR9EAIX-9	
	Fig. ⑤ ③	CR7EIX CR8EIX CR9EIX CR10EIX	
	Fig. ⑥ ②	CR8EHIX-9 CR9EHIX-9	
ϕ 10mm × 12.7mm Hex 16.0mm Fig. ⑦ ②		CR5HIX CR6HIX CR7HIX CR8HIX CR9HIX	
ϕ 8mm × 19.0mm Hex 13.0mm Fig. ⑧ ③		ER8EHIX ER9EHIX	

