

50;~ \ š 5S5 u Á+±: 5 } Æ# 't J' o E C æ"

MTÆWBk > 8• B w(" 0 w 1/2 1 B

%šž-D GT " È " ; L U' 0~" K•"K,>->-¶ œœ!œ+ 0žž-D GT " 7WŠ " K•"K,>->-¶ œœ!œo

...œ@ÁU: 5 } Æ# 't @@ÍZ w V*U\ š5S5 u ÁE =yJ' o E C @@@ÍÆCðü < # 't !A Ōf T C
• +±f ' ýP #t 4 ±±u(' 3 : 5 } Æ# 't 0- C g &/ L< t =žŽÜ6ī o 5 - w » 3üŷ o 5 -
)3@ý ' G Ó p i 1 Dª²(• 0W3 ½ī • £Fð*UA O¹ 6K} p N 3 ½³ \ š5S5 u Á Z 3 ½
ī • &4 ± • +±ž ú E - ' G Ó p i ±± =y g 3ÓCEŽ # w# 't (' - < g, 4 * • w& X 6
!|w!|¹ M' |J' o ±±&/ o 5 - E =y 3 ½@ÐÄwÄ] » Dª²(• ±±G Ó p i - EC ± £ ß o
&/ o 5 - g , E =y³ O¹@@ÐÄ Eð& G Ó p i - EC ±±E3> @ÐÄw* L ELÄ] \$ Bà@@ÍŽ
±±- EJ' o MŠ¼ A æ' g : 5 } Æ# 't ±±' o E C @@@Íý È - Ç ±±ī 50¹ È)

œl| œ@ÚÁ: 5 } Æ &/ L< t =ž \ š5S5 u Á J' o @@@Í
Z + 31" \$ Á > 0œœœœ' ([4 - . Äœœœœ' 0 4C\$ Áš!!!Kœ) %œ! ß o! Kš K

œœMút #t \ 7WŠ p Ōg &f *U ŌE • ÷ MùÈ
p *b g +±Fú>œñ =F 3 BkO% M4 Mút #t \ ^Fp
< } Æc = "s & » p Ōg 59? - "ü D"4 ±FúFü6* 6
u ýP p Ōg ±±T6* " ' g\$ Bà +÷ ÈJ-±±E -
L-lo "Fð*U: 5 } Æ, • M4 Fp< } Æl - .ú 6 u
A =y±±EA± xkO%,%! » Fp< } Æ": 5 } Æ²
6BUFÜD" & NFÜP & g ÓP 5=6);- 5=ß à ÷
Ä \ Ō0vE%œ9 #: 5 } Æ² 6 1 > / TE - '!
%æU Dª# G Ô*L ö e &-4 &\ 1 š D™K! ç
,%±±5S5 u Á "E - Ä: 5 } Æ± ±@@Íæ 6 ! G
%çh T "s œ-@@@Í! í : o °%

*^ » M4 Fp< #t NFÜP " Dª# #t • D°
< " ' U@@Ðð8 Z - 7Y* *' #t !A ŌC • ±±
C &4 ± T6* ±±ž ú œœ%&c59: 5 } Æ# 't ±±
• D°T "£ A : 9J' o æu±± • / œœ°T "DðT
±± • G) 7! #t : ° \$ BàA Ōf T C • ±±@@Í" E 59) 7! #t 4 ± u(' 8Kz% ' UJ' o @@@Í# ò
M'50;~ • & #t !A Ōf T 4 ± u(' ±±ž ú °%
• EİJ#0vç & : 5 } ÆÜ6ī @: 9 g 7±±\ š5S
5 u Á &4 ± • ±±ž ú E =y³ -A/£ °%š 1
î ±±0vç 3 X &7f*U: 5 } Æ# 't 1 p Ōg #t
E =y³ -A/£ "4 È =; J' o >ý Ó&' o Ç Ó&' o MŠ

¼ & : 5 } Æ# 't 4 ±±±T6* 6 k 9,, ž ú BkšO%
ö&ü0vç Eðð: 9J' o MŠ¼±±A O¹; , , L-A/£ =•
; J' o MŠ¼ & #t 4 ± • ±±ž ú µ T BkO% 9 #
,% » \ • " #t ±±š D™ • Gf #t ±±h
>ý "59h >ý±±f G k 9,, Kz{ #t 4 ±±±u(' BkO%
g³ ýP #t 4 ± u(" ò M"ü < #t !A ŌC • ±±
f "Q£ \ ü < š D™ • % ' V*U: 5 }
Æ&/ o 5 -4 ± Z±±\ š5S5 u Á "EððA0; J'
o >ý Ó¹ J' o MŠ¼ " -4 ± Z^ \ - Eðð5S5 u Á
Ô*L ±±š D™ • "; š- Ô*L ±±š D™ • ,%ç âµ"
ü < #t ±±j € š D™ • "ü 59ýP #t !A Ōf T
4 ±±±u(' BkO" DèJ' o E C @@@Í± ±±%
Y ' ' » 3üŷ o 5 -)3@çý ' ³ 0W3 ½ī
• áG Ó p i 1 Dª²(• %Eðð@@Í\ š5S5 A O¹"
-A/£ ³ 0W3 ½ī • &\ š5S5 u Á ±±ž ú "£ 4
5 6K} p N &A O¹ • > ;)3@ç ÉE =y³ &! O¹
@î% E - ' Fð*UG Ó p i 1 Dª²(• &\ š5S5 u
ÁE =y³ ÇFü3 ½" 3!o? \$ Bà- < (, 4 * •
±±- EJ' o MŠ¼ D™ C g!o? - E G Ó p i "Ä]
K¹Dª²(• C ±±- E G Ó p i 3ì %U4 Ç (<
\ š Dª²(• 8 "Eðð& - E G Ó p i 3ì ±±E3>
@ÐÄ"6* L, ! ÒÄ] \$ Bà ±@@ÍŽ # ±±- EJ' o

MŞ¼ "g : 5 } Æ# 't +±' o E C @ @î ý È ³ i 50
1 Ê > %

Ö† G Ó p i 1 Dª8ª2(• +± Ç v

ÖÖ† G Ó p i

g ³ 3 ½ &/ o 5 -4 ± Z,%9J' o>ÿ Ó m U
J' o z 4 & \ š 5S5 u Á+±ž ú " ' » 3ü ÷ o 5 -
) 3 @ Ç%o Á o" 3 L • ² G Ó- KbA 1 \ G Ó- KbD
Z,%9+±' o>ÿ Ó E =y 5 £ " G Ó- Kb • E - 8 á

$$A = H \sum_{i=\beta}^r \alpha_i$$

$$D = \frac{H}{\beta} \sum_{i=\beta}^r \delta_i \quad \%80$$

< Z " H g o 5 - h Ç Ó " r g J' o>ÿ Ó .ú 1 " +± • FÜ +
i g J' o>ÿ Ó +± 4 C \$ " Q i g & Á >ÿ Ó +± | D i G Ó-
Kb " α i 1 δ i 3 X g A >ÿ Ó +± • ² 1 \ G Ó p i "
* ^ T M < % 0 0 4 ' á

$$\alpha_i = \frac{\beta}{H} \sum_{t=\beta}^{m_i} h_{i,t-\beta} \gamma_t$$

$$\delta_i = \frac{x}{H} \sum_{t=\beta}^{m_i} h_{i,t-\beta} \gamma_t \quad \%80$$

< Z " m_i g 0 Y i W >ÿ Ó +±' o • FÜ " h_i " i 1 h_i " i - β 3 X
g A >ÿ Ó 8 0 Y t o +± 7 8 = • L • +± Z } 4 i % f > T M
< % 0 0 +± Ç v " α i ; J' o X F Ü < v , % 9 " A α i 1 δ i
\$ B à - 8 2 (

$$\sum_{i=\beta}^r \alpha_i = \sum_{i=\beta}^r \delta_i = \beta$$

$$\delta_i \hat{=} \alpha_i " \alpha_i - \alpha_i^0 + \alpha_i \hat{=} \quad \%00$$

ÖÖ† Dª8ª2(•

g ³ 3 ½ : 9 Dª8ª , & 5S5 u Á+±ž ú " Fò
* U , z C & Dª8ª E =y FÜ • " - T M < % x o m . g á

$$\vec{M} = \sqrt{M_x^0 + M_y^0 + M_{xy}^0}$$

$$\dot{\omega}_x = M_x / \vec{M}$$

$$\dot{\omega}_y = M_y / \vec{M}$$

$$\dot{\omega}_{xy} = M_{xy} / \vec{M} \quad \%80$$

< Z " ω_i â ! " 0 0 " % = x " y " x y o g 5 ² È - ! , 2(
• " ú M 5 ² È - +± 3 F Ü M_i ; j ∈ M +± 2 (% M Ę g
5 ² È - r i 2 (• " ú M 5 ² È - M +± j ∈ T < "
* ^ » M Ę ; (κ j ∈ r Ó = 3 i T 2 (" ' M Ę

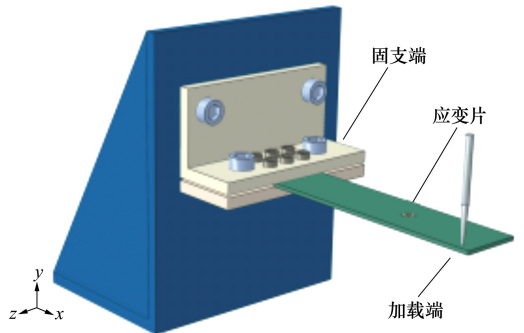
= β" & ω E = y @ Ç %

* ^ ' 3 X B ' ³ ∈ (Y J' o 2 M ± 3 ½ F ü á G
Ó p i α 1 δ " ÷ ∈ (Y Dª8ª 2 M ± 3 ½ F ü á ,
2 (• ω %

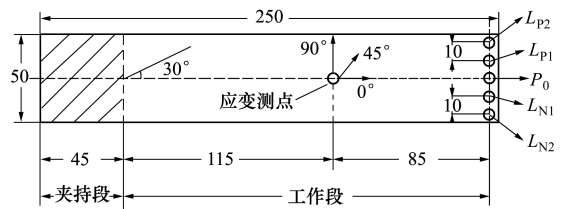
#† A O 1 ; 6 K } p N 3 ½ - A / £

#Ö† \ š 5S5 A O 1 æ u

+ β g \ š 5S5 A O 1 í Dª æ < . g < + % + 0 g
: 5 } Æ A # g % g < + % - + m . g " E D ð U : 5
) Æ Ü 6 i - í Dª 0 " W : 9 z 4 > ê í Dª 8ª 3 X g
L q 0 " L q β " P i " L ð β 1 L ð 0 % Ë (Y š - * ^ B L] • +± " . ú \
š Dª 8ª ! , " A O 1 F ð * U Ç v Ç β β * b } 4 6 * A O 1 g
í Dª " A O 1 E L Ó g 0]] ð ç " ∈ Dª 8ª D è] ! ¶ # "
4 Ç E A O 1 " ... • > % o 5 - E 6 * U X x ! . ð
_ X @ P N F ü à 3 Ñ ! : 5 } Æ " , o Ç Ó ! ž 3 0 "
]] " £ , o < T > î = • β %



+ β ç e A O 1 í Dª æ < . g < +



+ 0 ç e : 5 } Æ A # g % g < + % p z á] o

=• Ö† 9 ½ # Ñ - T ÷ ä 9 í ' : 5 } Æ , o ' Y T 6 *

$E_{\beta\beta}$	δ	E_{00}	δ	$\nu_{\beta\beta}$	ν_0	$G_{\beta\beta}$	δ	G_0	δ	HêU
HêU	HêU	HêU	HêU	HêU	HêU	HêU	HêU	HêU	HêU	HêU
β @ ž 3 β	β ž 0	! ž " x	! ž "	" ž	0 ž					

=• 0 g x . ú A # J' o MŞ¼ 1 & Á J' o >ÿ Ó +±

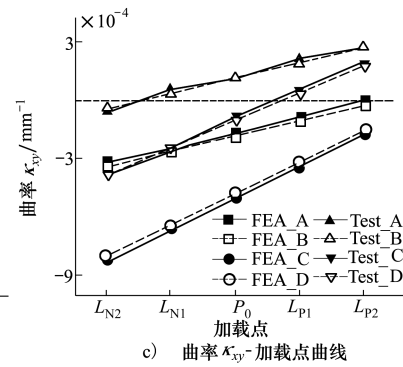
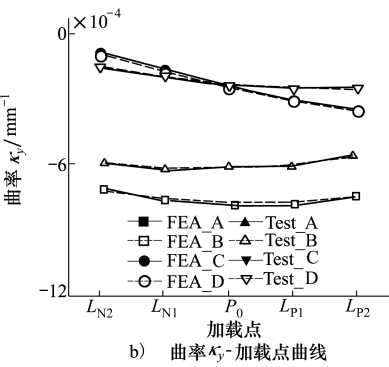
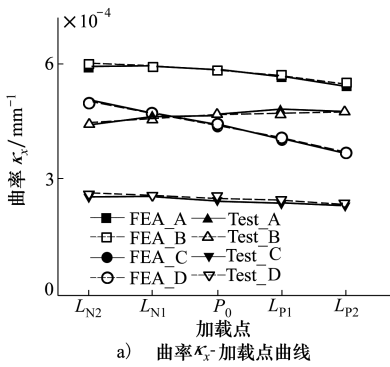
δ%ϵ⊕δf A #J' oMŠ¼"É(Ýδ±± C %U@⊕Í
 A # | DjJ' o>yÓ# "g ýP A O'• › ±± 3 ½T "
 Uf ω 1 δ # "ýP (' 1 š(' ±± CFü"ÁE6
 5S5 u ÁD°g±±| Dj>yÓ "9 #50;~ | Dj>yÓJ'
 @±Kë@| Dj>yÓ j • g É "- 3ōf › Y ' m*U
 : 5 } Æ< T "E6 !° %og | DjJ' o>yÓ%
 = #±A #J' oMŠ¼¹ \ GÓp i δ

4C\$	J' oMŠ¼	\ GÓp i %p z ášo				
		δ ₁	δ _{q1}	δ ₁	δ ₁	ϕ _{q1}
ö	!₀ äq !₀ δ!₀ ä₀ ð	!žB	!ž®	!ž®	!ž!	!
>	!₀ ä₀ δ!₀ äq !₀ ð	!ž®	!žB	!ž®	!ž®	!
,	q !₀ δ!₀ ä₀ δ!₀ ð	!ž!	!ž®	!žB	q!ž"	!
Ö	!₀ δ!₀ äq !₀ δ!₀ ð	!ž®	!ž!	!žB	!ž!x	!

#ž± 6K} p 3 ½N_s
 *^ »A O' 6*ϵ⊕@ðÄÄ Ä] "x%æ (" "
 "x Ä² È- " ' : 6*! Ö & Ä)3@£ =y@ðÄ
 O'@î%ϵ⊕δB ' 6K} p %èööo, ,L@ðÄ" 9 #
 Ä] "x%æ (' ² È- %ϵ⊕δ&! A O'; èöö±±
 (' • › "O'@îèöö±±@ðÄÄ É±±• -> T %° 3A
 O' ('ϵ⊕δ Ä)3@ðÄÄ] ±±² È- ; èöö±±
 ² È- E =y&! 3 ½"£ ' ' O'@Fδ*U Ä)3@£
 & \ š5S5 u ÁE =y3 ½@ðÄ\ S =y%
 Y ' Fδ*U ö>öP i s G 6K} p # & A O'E =y
 ,L N %N_s g %¹ Í Dªæ<; + 0&+ β- 7! "
 } Æ< T ¹ J' oMŠ¼; =• ß&• 0- 7! "Fδ*U Ö!
 , p", p • g ®!!!%N_s Dæy Ž # ÷ Í Dªæ<

- =• m.g "t ; A O'Ž # j 6* . - 7! %
 =• út 6K} p N_s Dæy Ž # ÷ Í Dªæ<
 3ÓEz 4> 3ÓEæ<
 f . â ÂL• U = !
 Í . â 7=•L<ϕ¶ z 4> U_B = U₀ = U = !
 Í Dªæ<L_{q0} L_{qB} L_{q1} L_{qB} L_{q0} F = - !/¶

#ž± A O'; 6K} p 4 É &! 3 ½
 + g x.úA # A O'¹ èöö±± (' κ qí Dªæ<
 3i %4 5=• 0Z±±p i ; + Z 3i ,8' á
 ßo &! x.úA # U P₁ 3Ü\ Í Dªæ< "K'δ₁ È
 T " | κ_x | ¹ | κ_y | ü < K¼ δ₁ - δ₋₁ | È T " | κ_{xy} |
 È T + U δ₁ - δ₋₁ > ! ±± ö>Ö, Z κ_{xy} < ! " ú x U
 δ₁ - δ₋₁ < ! ±± , Z κ_{xy} > ! %
 0o U δ₁ - δ₋₁ > ! ±± ö>Ö, Z "K¼ M_{xy} È T κ_x
 ü < " ú x U δ₁ - δ₋₁ < ! ±± , Z κ_x È T "K¼ δ₁
 - δ₋₁ | È T "κ_x ¹ κ_{xy} ±±É (È T %
 o & Á "ú : 9 \ š Dªæ< , # " | κ_{xy} | - <
 i & Á : 9 ±±J' oMŠ¼ %ö , ¹ > , | κ_{xy} | - < i
 & Á U L_{q0} Í Dªæ< £ Z ö , | κ_{xy} | ! < " , ¹ Ö,
 | κ_{xy} | - < i 3 X & Á L_{qB} ¹ L_{qB} Í Dªæ<
 û 7 3 ½ p (Ý "†δ₁ Öc Ä \ T 6* +æ
 | δ₁ - δ₋₁ | ±±T < Öc 5S5 u Á±±g ^ "δ₁ - δ₋₁
 ±±• BLÖc 5S5 u Á±±• BL%e U : 9 \ š Dªæ<
 ! , 8"- < | κ_{xy} | & Á±±J' o OE : %9 %*^ '
 3L'E 4 ±±J' oMŠ¼Dªæ< g E 4 ±±GÓp i " & :
 5 } Æ\ š5S5 u ÁE =yçFü3 ½¹ -A/£ %

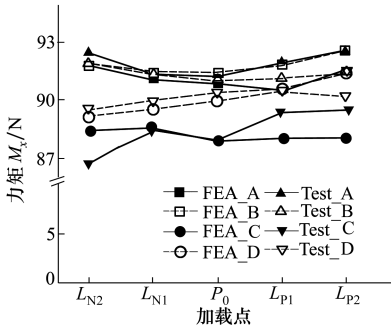


+ æx.úA # A O'¹ 6K} p ±± (' yqí Dªæ< 3i

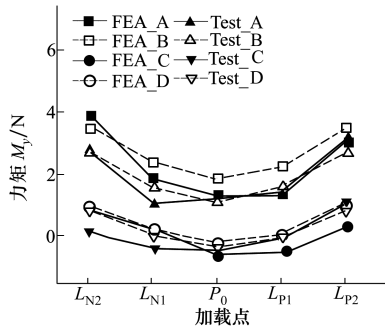
ææ+ xg x.úA # A O'¹ èöö±±È- M - Í Dª
 %æ 3i "£ Z A O'±±² È- M \ *^A O'±± (' •
 › ϵ⊕δ Ä)3@ðÄÄ] ±±²ú + Z ,8' xú

A # ±± Dªð â ' Y - 7! % & x.úA # ±±M!o t
 £ @ðÄÄ] t ω " =• x m.g %4 5=• x ,8
 ' " U "ú Í Dªæ< 8 â†M_x • i - T " A T < ' Y

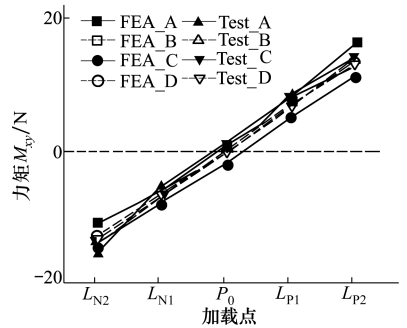
,%9 +æM_y • i μ < " { g !+e U P₁ Í D^ææ " 7 L_{é0} "M_{xy} *^BL • %
 È- M_{xy} { g !" Y g3Ü\ 'ã . +Í D^ææ L₁₀



a) 力矩M_x-加载点曲线



b) 力矩M_y-加载点曲线



c) 力矩M_{xy}-加载点曲线

+ xæx.úA # A O¹¹ 6K} p ± ± È- M qí D^ææ 3ì

= ¼ A O¹; P Ú ± ± .ú Í D^ææ < ± ± t D^ææ

væ6ö	ω _x	ω _y	ω _{xy}
L ₁₀	!ž xđ ž 0	!ž @đ ž	ßž đžß ß
L _{1ß}	!ž x" đ ž x	!ž " đ ž	ßž x" đžß x
P ₁	!ž !0 đ ž ! x	!ž @đ ž	ßž !! đžß !!
L _{éß}	!ž !" đ ž x	!ž đ ž x	!ž !" đ ž " 0
L _{é0}	!ž đ ž x	!ž @đ ž	!ž !" đ ž !

g! D^æ A O¹¹ è6ö 03ñ 3ì ± ± > A "Fö*U
 / 34 & i A ó F %ö6o & • > E = y 3 ½ " @ĐÄ
 æ" - TM < %om.g " < Z D w • .g A O¹ • > "D_{é6ö}
 = • .g 6K} p • > "n g • > ± ± • FÜ% A @ĐÄ É
 - = • " m.g %

$$E_{\phi 6} = \frac{\sum_{i=\beta}^n |D_w - D_{\phi 6_i}|}{\sum_{i=\beta}^n |D_{\phi 6_i}|} \quad \%0$$

= ± A O¹¹ P Ú ± ± (κ¹ È- M ± ± A

1 ["]	ö ₁	> ₁	ß ₁	Ö ₁
κ _x	!	! " x	!	ß ®
κ _y	ß xß	. xß	ß ß!	0 ! 0
κ _{xy}	. 0®	x	. ß!	. ®
M _x	! ®	0 ßß	! " ®	ß !
M _y	0! 0!	® !	ßx ß	® 0
M _{xy}	ß. !	ß. ß	ß0	. ß!

ú = • " Z ,8 ' " A O¹; è6ö ± ± κ_x 1 κ_y A

D^æ < "κ_{xy} A ,% & D^æ T "E 6* \ *^ » κ_{xy} \ E®ô
 Á D™i TM < @ĐÄÄ] "A =æ - ' k T % = • "
 Z A O¹¹ è6ö ± ± M_x 1 M_{xy} A ,% & D^æ < "M_y ± ± A
 μ T "s û + x&o Z ,8 ' M_y ' Y ÒDp!" ' •
 > / 6* : T "s Ä] ± ± A GD^æ T %E®ô
 3 ½ ,8 ' "A O¹; è6ö ± ± (' • > ' Y - ?!
 £ AE®ô Ä)3 @ĐÄÄ] ± ± È- ; 6K} p , L
 @ĐÄÄ] ± ± È- æ% & - ?! % ' K! ÒE®ô è6ö
 N & Ä)3 @ç A O¹ • > E = y³ O¹ @î" @ñ Fö
 *U Ä)3 @ç \ š 5S5 u Á ± ± 3 ½ \ = y ± ± %

ú† \ G Ó p i ± ± - EC ± ± - A/£

úž† K MÄü E

Y ' /8 Z e *U ± ± *^ ! | " | " M["] | 3ñ = ± ± &
 / o 5 - g , " E u \$ Bà] = %κ_{xy} | o" £ N \$ Bà
] = %κ_x | o g , 4 * • "E - ' ÇFü-A/£ U : 9 ω
 8 "ð ± ± , 2(%^ TM < %ßo Ä o 5 - \ G Ó
 - Kb⁻ 8

$$D = \frac{H}{\beta 0} \sum_{i=\beta}^n \delta_{\theta} \theta = ! " ! " \pm x^{! 0} \%0$$

< Z "Qⁱ g i = ! " ! " \pm x^{! 0} # , o - ± ± | D_i G Ó
 - Kb% f > A O¹³ ¼ Ä É " M_y = ! & K MÄ = y0-
 C *^ TM < %x0 Ä TM < %®(/ø D^ææ } - 8
 ω_x "0- @ý ω %

$$\vec{M} = \sqrt{M_x^0 + M_{xy}^0}$$

$$M_x = \vec{M} \cdot \begin{pmatrix} - \\ 0 \end{pmatrix}$$

$$M_{xy} = \frac{1}{EI} \left(-\omega \right) \quad (1)$$

æœœ€J' o>yÓ- Ç; "κ_x 1 κ_{xy} 3 X \ » δ¹ ω ±±* • %f > &/ T 3 ½ - "3 ω - EJ' o Z±± ±θ° o+±>yÓ ç • Ä - ω ±±- EJ' o % ' UTM < %ß Z L- @Qφ â ! " ß0±±ò â %

g\$ Bà- <±±| κ_x | 1 | κ_{xy} | Ž # "M\$ Bàδ_{-x} i - < "f > o 5 -J' o XFü±±3ÓCE"t @\$ Bà α₁ ! "£ †J' o>yÓXFüα ! ß# "f > TM< %oo Z Ž # "xWδ Z 6 W%ç(/ø" " # p i =y \$ Bà⁻ 8 2(â

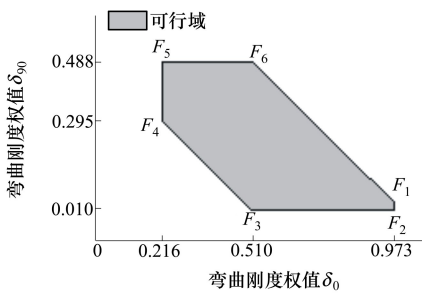
$$\delta_{-x} = ! !! \beta$$

$$! " \beta j \delta_1 + \delta_1 j !$$

$$! 0 \beta j \delta_1 j ! \text{ (2)}$$

$$! !! \beta j \delta_1 j ! \cdot \quad (3)$$

æœœf > TM< %oo - "δ ±± =y - + " m.g " £ Z =y Dæy%æ± p i } 4 - • m.g %



$$+ "æ p i \delta \pm \pm =y$$

$$= \cdot \hat{a} \ddagger =y Dæy%æ \hat{A} \pm \pm p i \delta \} 4$$

=y Dæy%æ	p i δ } 4	
	δ ₁	δ ₁
F _ß	! Ž®	! Ž0"
F ₀	! Ž®	! Ž! ß
F	! Žß	! Ž! ß
F _x	! Žß	! Ž "
F _.	! Žß	! Ž
F	! Žß	! Ž

úž† p i - EC ±±±o ? @DÄ

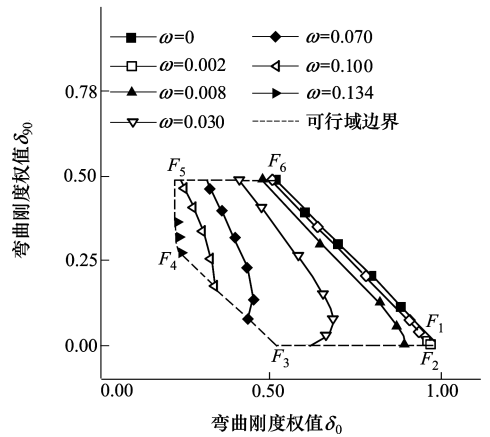
Y ' Fô*U XU₁ • " /8 @DÄDæ# & mL-lo ? ±±æ/8E =y@DÄ% H / ß0= ß' & TM< %ooE =y0-C " * ^ ' Ä κ_x 1 κ_{xy} 3 X \ » δ¹ ω ±±* •

κ_x %ß₁ " δ₁ " ω o¹ κ_{xy} %ß₁ " δ₁ " ω o% κ_{xy} = ! Ä : 9 ω 8 δ » κ_{xy} = ! ±±0VP 3i æ/8 " - TM< %oo m.g

$$\kappa_{xy} = \dot{u} \left(-\omega \right) d_{\beta} \% \delta_1 o +$$

$$\text{œ} = \left(-\omega \right) d \% \delta_1 o = ! \quad (4)$$

f > TM< %oo%oo+ Ä0VP 3i δ₁ - δ₁ " - + m.g %û + Z ,8 ' "ω ...U- Wa*y i ω^ß â € ω â ! "ω^ß Ò# "...U0VP 3i δ₁ - δ₁ - Äκ_{xy} = ! " € ω = ω^ß # "0VP 3i δ₁ - δ₁; =y ,%Ñ » %æ_x + 3%æ_x ±±p i S ' TM< %oo Ä ω^ß = ! ßxx+€ ω â ω^ß " ß0# "κ_{xy} • T » ! %



$$+ \text{œ} : 9 \omega 8 =y 7 \kappa_{xy} = ! \pm \delta 0VP 3i \delta_1 - \delta_1$$

$$\beta o \in \omega \hat{a} ! " \omega^{\beta} \hat{O} \# \hat{a}$$

$$! o ? TM< %oo 3 X \hat{A} \delta_1^1 \delta_1 \pm \pm * \cdot = \cdot D \hat{e} < \hat{a}$$

$$\delta_1 |_{\kappa_{xy}=!} = f \% \delta_1 " \omega o " \omega \hat{a} ! " \omega^{\beta} \hat{O} \% \beta ! o$$

$$\delta_1 |_{\kappa_{xy}=!} = g \% \delta_1 " \omega o " \omega \hat{a} ! " \omega^{\beta} \hat{O} \% \beta \beta o$$

$$\text{œœœ} 3 TM< \% \beta ! o S ' \kappa_x \% \delta_1 " \delta_1 " \omega o \hat{A} \hat{a}$$

$$\kappa_x |_{\kappa_{xy}=!} = \kappa_x \% \delta_1 " f \% \delta_1 " \omega o " \omega o " \omega \hat{a} ! " \omega^{\beta} \hat{O}$$

%ßoo

$$\text{œœœf} > TM< \% \beta oo \hat{A} U \$ Bà \kappa_{xy} = ! \pm \pm \hat{Z} \# 8 " \kappa_x$$

$$- \delta_1 \gg \omega \pm \pm 3i \ddot{u} " - + @m.g \% 4 5 + ; + \text{ (5)}$$

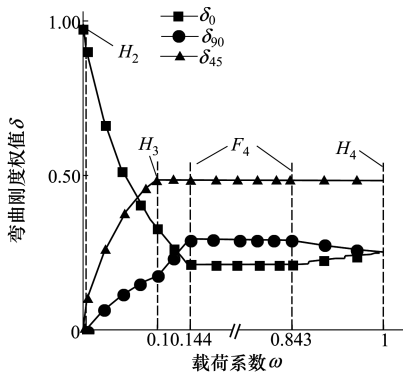
$$- " \in \omega \hat{a} ! " \omega^{\beta} \hat{O} \# " F 30VP 3i \gg \delta_1 3 g$$

$$7 8 0WF 3 " F 30VP 3i 6 7 wF 3 \% A \delta_1$$

$$- T i \# \kappa_x \hat{A} - < i \%$$

= ' † p i δ - EC ± ý % æ 4 ; & Á! , 2 (• ω

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		δ ₁	δ ₁
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F ₀	! !! 0	! 0	! !! β
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H	! β!	!	! β0
F _x	! βxx! x	! 0β	! 0 "
H _x	β	! 0"	! 0"



+ Æ! œ = y 7 - E p i C ± ± ± δ q p 3 i

β o ∈ ω â ! " ! !! 0 0 # " K 1 ω Æ T δ₁ : " δ₁ ü < " δ_x Æ T % δ - EC ± g = y D æ y H_β F_β %
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o ∈ ω â ! !! " ω^β Æ # " K 1 ω Æ T δ₁ ü < " δ₁ 1 δ_x Æ T " A δ_x Æ r T » δ₁ % ω = ! β g 3 * y " δ - EC ± 3 g 0 W F 3 â = y ² ± ± H_θ H¹ = y D æ y 7 ± ± H F_x %

x o ∈ ω â ω^β ω⁰ Æ # " K 1 ω Æ T δ₁ δ₁ 1 δ_x : " δ - EC ± % † U = y D æ y % æ_x 7 %
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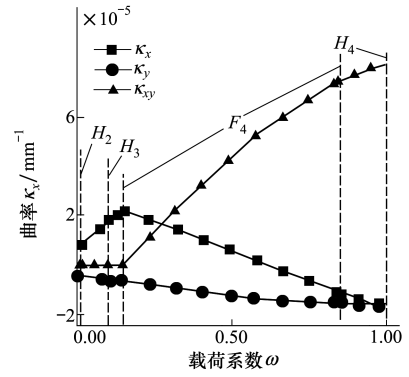
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+ Æ Æ œ = y 7 - E p i C ± ± ± κ - ω 3 i

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