340 | Juni 1976

SCHRIFTENREIHE SCHIFFBAU

P. Oltmann

Nachstrommessungen mit einem Schiffsmodell der Serie 60



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P. Oltmann

Hamburg, Technische Universität Hamburg-Harburg, 1976

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INSTITUT FÜR SCHIFFBAU DER UNIVERSITÄT HAMBURG



Juni 1976

Bericht Nr. 340

Institut für Schiffbau der Universität Hamburg

Nachstrommessungen

mit einem Schiffsmodell der Serie 60

von

P. Oltmann, Hamburg

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Zusammenfassung

Der Bericht stellt eine Dokumentation von Nachstrommessungen mit einem Schiffsmodell der bekannten Serie 60 dar. Es wurde im Rahmen einer experimentellen Untersuchung das vollständige nominelle Nachstromfeld in der Propellerebene des Schiffsmodells bei verschiedenen Driftwinkeln β aufgemessen. Vollständig heißt in diesem Zusammenhang, daß neben der Axialkomponente V_x auch die für Propelleruntersuchungen relevanten Komponenten in radialer und tangentialer Richtung V_r und V_t ermittelt wurden. Der untersuchte Driftwinkelbereich erstreckte sich von $\beta = -12^{\circ}$ bis $\beta = +12^{\circ}$ bei einer Schrittweite von $\Delta\beta = 2^{\circ}$. Die Geschwindigkeit des Schiffsmodells war konstant und betrug $V_m = U \approx 2.01$ m/s ($F_n = 0.30$).

Die Ergebnisse, die in graphischer und tabellarischer Form vorliegen, zeigen deutlich, daß infolge der Schräganströmung mit konstantem Driftwinkel β auf den beiden Seiten des Schiffsrumpfes gravierende Unterschiede der Strömungszustände festzustellen sind. Diese Unterschiede erklären sich nicht allein aus einer Superposition des normalen Nachstromfeldes für Geradeausfahrt ($\beta = 0^{\circ}$) mit der Seitengeschwindigkeit $v = -U \sin \beta$, sondern sie beinhalten daneben auch die Veränderungen der Körpergrenzschicht, Ablösungserscheinungen sowie Wirbelbildungen im Bereich der hinteren Schulter und der Kimm.

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Einleitung

Die vorliegende experimentelle Untersuchung über die Veränderungen des gesamten nominellen Nachstromfeldes eines Schiffsmodells der bekannten Serie 60 infolge Schräganströmung mit jeweils konstantem Driftwinkel β ist als eine folgerichtige Fortführung von Schrägschleppversuchen anzusehen, die zu einem früheren Zeitpunkt mit dem selben Schiffsmodell durchgeführt wurden. Dabei wurden in einer Versuchsreihe neben der Längskraft X, der Seitenkraft Y und dem Giermoment N am Gesamtsystem "Schiffsrumpf + Ruder + Propeller" auch die zeitlichen Mittelwerte des Propellerschubes T sowie des Drehmoments Q gemessen, s. Oltmann (1974). In einer weiteren Versuchsserie wurden außer den Kräften am System "Schiffsrumpf + Ruder" parallel zur Fahrtrichtung verlaufende Längsschnitte durch das Wellenbild auf beiden Seiten der Strömung mit Hilfe einer Wellensonde aufgemessen. Aus diesen Längsschnitten wurden dann über eine modifizierte Fourier-Transformation die wellenbedingten Widerstands- und Querkraftanteile errechnet. Einzelheiten s. Sharma und Bellows (1975).

Bei der erstgenannten Versuchsserie galt das Hauptinteresse dem Verhalten der Längskraftkomponente X, zumal in der einschlägigen Fachliteratur nur sehr spärliche Angaben darüber zu finden sind. Bei der mathematischen Darstellung der Längskraft X bzw. des entsprechenden Beiwertes X' = $2X/\rho u^2 L^2$ in Abhängigkeit vom Driftwinkel ß wird im allgemeinen vorausgesetzt, daß es sich um eine symmetrische Funktion handelt, und daß die durch den rotierenden Propeller bedingte Unsymmetrie vernachlässigt werden kann. Im Gegensatz dazu zeigen die Meßergebnisse jedoch eine sehr ausgeprägte Unsymmetrie, die beispielsweise bei einer mathematischen Simulation von Schiffsmanövern keinesfalls vernachlässigt werden sollte. Die ergänzenden Messungen des Propellerschubes T machen außerdem deutlich, daß die Wechselwirkungen zwischen Schiffsrumpf und Propeller einen nicht unwesentlichen Einfluß auf das Verhalten der Längskraft X ausüben.

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Die Wechselwirkungen zwischen Schiffsrumpf und Propeller wiederum werden entscheidend vom Nachstromfeld des Schiffes bzw. des Schiffsmodells geprägt. Da bislang keine Veröffentlichungen über die quantitativen Veränderungen des Nachstromfeldes infolge von Driftbewegungen bekannt sind, erschien es folgerichtig, zumindest das nominelle Nachstromfeld bei unterschiedlichen Driftwinkeln aufzumessen, um dadurch eine bessere Ausgangsbasis für weitergehende theoretische Untersuchungen, beispielsweise auch über die Wechselwirkung zwischen Propeller und gelegtem Ruder, zu erhalten.

Versuchsdurchführung

Die Nachstrommessungen wurden mit dem HSVA-Modell Nr. 1512 durchgeführt, das der Urform 4210 W (L/B = 7.50, B/T = 2.50, $C_{\rm B} = 0.60$) der Serie 60 entspricht, vgl. Todd (1963), und dessen Hauptabmessungen in Tabelle 1 wiedergegeben sind. Den Spantenriß sowie eine Seitenansicht des Schiffsmodells zeigt die Abb. 2. Die Modellgeschwindigkeit war bei der gesamten Versuchsserie konstant und betrug $V_{\rm m} = U \simeq 2.01$ m/s, entsprechend einer Froude-Zahl von $F_{\rm n} = 0.30$. Die einleitend erwähnten Schrägschleppversuche, Oltmann (1974), wurden im übrigen mit der gleichen Geschwindigkeit durchgeführt, so daß eine direkte Korrelation besteht.

Für die Messungen standen in der HSVA zwei Versuchseinrichtungen zur Verfügung. Dabei handelte es sich einmal um die standardmäßige Nachstromharke zur Bestimmung der Axialkomponente $\textit{V}_{\mathbf{v}},$ bestehend aus Rohren zum Messen des Gesamtdruckes und des statischen Druckes, sowie zum anderen um eine Fünflochkegelsonde, die eine Aufmessung des Nachstromfeldes in allen drei relevanten Ebenen ermöglicht. Obwohl es außer Zweifel stand, daß für die geplante experimentelle Untersuchung nur eine Aufmessung des kompletten Nachstromfeldes in Frage kam, wurde zu Beginn der Versuchsserie ein Vergleich der beiden Versuchseinrichtungen in der Weise vorgenommen, daß mit beiden jeweils eine normale Nachstrommessung bei einem Driftwinkel von β = 0[°] durchgeführt wurde. Der Vergleich, auf der Basis der Axialkomponente V_{x} , war insbesondere auch deshalb notwendig, weil zum Zeitpunkt der Messungen (Herbst 1974) in der HSVA noch keine einschlägigen Erfahrungen über die Übereinstimmung von Meßergebnissen, ermittelt mit den beiden Versuchseinrichtungen, vorhanden waren. Von diesem Vergleich sollte außerdem die weitere Durchführung der restlichen, letztendlich interessierenden Versuche mit unterschiedlichen Driftwinkeln abhängig gemacht werden, da eine Durchführung der aufwendigen Untersuchung nur bei einem zuverlässigen Meß- und Auswerteverfahren zu verantworten war.

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Modellmaßstab 1 : 40

Länge zwischen den Loten	4.572	m		
Länge in der Wasserlinie	4.649	m		
Breite auf Spanten	0.610	m		
Tiefgang	0.244	m		
Verdrängung	0.408	m ³		
Gewichtsschwerpunkt, hinter VL	2.355	m		
HSVA-Stockpropeller Nr. 764				
(rechtsdrehend)				
Durchmesser	0.164	m.		
Steigungsverhältnis	1.011			
Flächenverhältnis	0.640			
Flügelzahl	4			

Besondere Schwierigkeiten für einen direkten Vergleich der aufgemessenen Axialkomponente V, entstanden dadurch, daß die jeweiligen Messungen auf unterschiedlichen Radien erfolgten. Während mit der konventionellen Nachstromharke vier Radien untersucht wurden (r = 32, 52, 72 und 92 mm), waren es bei der Messung mit den Fünflochkegelsonden fünf Radien (r = 30, 47.5, 65, 82.5 und 100 mm)¹⁾. Die genannten Schwierigkeiten wurden umgangen, indem eine harmonische Analyse des axialen Nachstroms mit einer anschließenden Bildung des sogenannten Volumenmittels der einzelnen harmonischen Komponenten, was einer Mittelwertbildung über die Propellerkreisfläche entspricht, durchgeführt wurde. Die Ergebnisse dieser Vergleichsrechnung, über die im folgenden Abschnitt detailliert berichtet wird, lassen deutlich erkennen, daß, immer bezogen auf die Axialkomponente V., keine gravierenden Diskrepanzen bezüglich der beiden Meßsysteme festzustellen sind.

¹⁾Der Vollständigkeit halber muß erwähnt werden, daß die Messung mit den Fünflochkegelsonden erst durchgeführt werden konnte, nachdem die feststehende Ruderhacke, s. Abb. 2, entfernt worden war.

Nach zufriedenstellender Klärung der vorangehend angeschnittenen Fragestellung wurden die Nachstrommessungen bei verschiedenen Driftwinkeln im Bereich $-12^{\circ} \leq \beta \leq +12^{\circ}$ mit einer Schrittweite von $\Delta\beta = 2^{\circ}$ durchgeführt, wobei die Messung für $\beta = 0^{\circ}$ nochmals wiederholt wurde. Die Entscheidung zur Untersuchung von sowohl positiven als auch negativen Driftwinkeln wurde getroffen, um etwaige Unsymmetrien des Modellrumpfes feststellen zu können. Das gleiche gilt auch für die Entscheidung, jeweils den gesamten Umfangswinkelbereich $0^{\circ} \leq \phi \leq 360^{\circ}$ mit $\Delta\phi = 10^{\circ}$ zu untersuchen.

Ergebnisse

1. Vergleichsmessungen (Driftwinkel $\beta = 0^{\circ}$)

Wie bereits im vorangegangenen Abschnitt ausgeführt, dienten die sogenannten Vergleichsversuche als notwendige Entscheidungshilfe für die Fortsetzung der experimentellen Nachstromuntersuchung. Die wichtigsten Ergebnisse dieser Vorversuche sind in den Abb. 4 bis 9 sowie im Anhang A zusammengefaßt. Dabei gibt Abb. 4 die mit der konventionellen Nachstromharke ermittelte Axialkomponente V_x wieder, während in den Abb. 5 bis 8 die 3-dimensionale Aufmessung des Nachstromfeldes mittels der Fünflochkegelsonden dargestellt ist. In Abb. 9 wurde sodann ein direkter Vergleich der auf unterschiedliche Weise und auch an unterschiedlichen Radien ermittelten Axialkomponente V, vorgenommen, indem die Meßpunkte beider Versuchsserien zu einem einheitlichen Isotachen-Bild vereinigt wurden. Man erkennt aus dieser Darstellung, daß sich eine der schlanken Schiffsform entsprechende axiale Geschwindigkeitsverteilung ergibt. Allerdings darf nicht übersehen werden, daß derartige Darstellungen auch etwas von dem Einfühlungsvermögen des jeweiligen Bearbeiters beeinflußt werden und infolgedessen nicht unbedingt ein objektives Bild wiedergeben müssen.

Die gewünschte Objektivität beim Vergleich der Meßergebnisse wurde dadurch hergestellt, indem eine harmonische Analyse der Axialkomponente $V_{\mathbf{x}}$ des Nachstroms an den unterschiedlichen Radien entsprechend der Beziehung

$$\frac{V_{\rm x}}{V_{\rm m}} = \alpha_{\rm o} + \sum_{\rm n=1}^{20} (\alpha_{\rm n} \cos n \, \phi^{*} + b_{\rm n} \sin n \, \phi^{*})$$
$$= A_{\rm o} + \sum_{\rm n=1}^{20} A_{\rm n} \cos (n \, \phi^{*} + \alpha_{\rm n})$$
(1)

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durchgeführt wurde¹⁾. Daran anschließend erfolgte eine Bestimmung des Volumenmittels der harmonischen Komponenten²⁾.

$$\tilde{a}_{n} = \frac{2}{1 - \tilde{r}_{o}^{2}} \int_{\tilde{r}_{o}}^{1} \tilde{r} a_{n}(\tilde{r}) d\tilde{r}$$
(2)

mit $\tilde{r} = \frac{r}{R}$

und $\tilde{r}_{0} = 0.2$

(Für die Sinuskoeffizienten b_n gilt entsprechendes!)

Die numerischen Ergebnisse für die beiden Versuche sind im Anhang A in tabellarischer Form (Tabelle A1 bis A4) zusammengefaßt worden. Im Hinblick auf den notwendigen Vergleich sind insbesondere die Tabellen A1 und A3 von vorrangigem Interesse, da entsprechend der konventionellen, 1-dimensionalen Messung

¹⁾Der bei der harmonischen Analyse zu berücksichtigende Umfangswinkel φ^{*} stimmt nicht mit dem Umfangswinkel φ der Nachstrommessung überein. Es gilt, von hinten gesehen:



²⁾Für die Digitalisierung der Meßwerte und die Durchführung der entsprechenden Rechnungen möchte der Berichter Frau I. Schweeren und Herrn J. Laudan von der HSVA ganz besonders danken.

in Tabelle A3 auch nur der Umfangswinkelbereich $0^{\circ} \leq \phi \leq 180^{\circ}$ berücksichtigt wurde. Vergleicht man nun in beiden Tabellen die Volumenmittelwerte \tilde{a}_n , dann zeigt sich deutlich, daß die auftretenden Unterschiede nicht gravierend sind. Insbesondere bei dem Term \tilde{a}_o , der der mittleren, dimensionslosen Axialgeschwindigkeit in der Meßebene (Propellerebene) entspricht, ergibt sich, bezogen auf den angegebenen Wert der 1-dim. Messung (Tabelle A1), eine Abweichung von rd. 3.3%. Und selbst bei einer Berücksichtigung des entsprechenden Wertes \tilde{a}_o der Tabelle A2 (3-dim. Messung, $0^{\circ} \leq \phi \leq 360^{\circ}$) beträgt die relative Abweichung nur etwa 3.9%. Die beiden Versuchseinrichtungen mit ihren unterschiedlichen Meßprinzipien können also unter Beachtung üblicher Meßungenauigkeiten als gleichwertig erachtet werden.

2. Nachstrommessungen mit unterschiedlichen Driftwinkeln

Die Ergebnisse der kompletten Versuchsreihe, bei der das gesamte Nachstromfeld in der Propellerebene des HSVA-Modells Nr. 1512 über einen Driftwinkelbereich von $-12^{\circ} \leq \beta \leq +12^{\circ}$ (zur Vorzeichendefinition bei β s. Abb. 1) untersucht wurde, ist in den Abb. 10 bis 61 zusammengestellt. Die große Anzahl der Abbildungen erklärt sich daraus, daß für jede der insgesamt dreizehn Versuchsserien mit unterschiedlichen Driftwinkeln jeweils vier Abbildungen erstellt wurden, wobei die drei relevanten Geschwindigkeitskomponenten in Axial-, Radialund Tangentialrichtung als Funktion des Umfangswinkels ϕ sowie eine vektorielle Darstellung der sog. Transversalkomponente aufgetragen sind. Daneben sind im Anhang B die zugehörigen Meßwerte in tabellarischer Form (Tabellen B1 bis B14) zusammengefaßt. Diese Ergänzung wurde vor allem deshalb vorgenommen, um dem Leser die Möglichkeit zu geben, eigene Schlüsse bzw. Konsequenzen aus den Meßergebnissen zu ziehen.

Wenngleich die Ergebnisse dieser Nachstrommessungen weitestgehend für sich selbst sprechen, so muß doch kurz auf einige

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Unstimmigkeiten hingewiesen werden. Im vorangegangenen Abschnitt wurde bereits angedeutet, daß die Untersuchung von sowohl negativen als auch positiven Driftwinkeln unter anderem dazu dienen sollte, etwaige Unsymmetrien am Rumpf des Schiffsmodells festzustellen. Die vorliegenden Ergebnisse deuten jedoch an, daß zumindest dieser Teilaspekt der Untersuchung nicht befriedigend gelöst werden konnte. Der Grund dafür ist, daß während der Hauptversuchsreihe bei der Einstellung des Driftwinkels $\beta = 0^{\circ}$ das Schiffsmodell augenscheinlich nicht genau in Tanklängsrichtung ausgerichtet worden ist, so daß auch bei den restlichen Versuchsserien mit einer Ungenauigkeit der Driftwinkeleinstellung gerechnet werden muß. Man erkennt dies deutlich aus den Abb. 10 bis 13, die, bezogen auf den Umfangswinkel $\phi = 180^{\circ}$, eine stark ausgeprägte Unsymmetrie der einzelnen Geschwindigkeitskomponenten ausweisen, wie sie vergleichsweise bei der entsprechenden Serie der sogenannten Vorversuche, Abb. 5 bis 8, nicht aufgetreten war. Um diesen Einstellungsfehler wenigstens in etwa zu korrigieren, empfiehlt es sich bei einer Weiterverwendung der im Anhang B aufgeführten numerischen Werte eine Mittelwertbildung unter Berücksichtigung der folgenden Beziehungen vorzunehmen

$$2 V_{\mathbf{x}}(\beta, \phi) = \left[V_{\mathbf{x}}(-\beta, \phi) + V_{\mathbf{x}}(+\beta, 2\pi - \phi) \right]$$

$$2 V_{\mathbf{r}}(\beta, \phi) = \left[V_{\mathbf{r}}(-\beta, \phi) + V_{\mathbf{r}}(+\beta, 2\pi - \phi) \right]$$

$$2 V_{\mathbf{t}}(\beta, \phi) = \left[V_{\mathbf{t}}(-\beta, \phi) - V_{\mathbf{t}}(+\beta, 2\pi - \phi) \right]$$
(3)

Eine andere kleine Unstimmigkeit bezieht sich auf den in Abb. 26 dargestellten Verlauf der Axialkomponente V_x bei einem Driftwinkel von $\beta = +4^{\circ}$. Dabei handelt es sich bei den drei Meßpunkten im Bereich $330^{\circ} \leq \phi \leq 350^{\circ}$ für r = 82.5 mm mit Sicherheit um Ausreißer, zumal derartige Anomalien bei dem entsprechenden negativen Driftwinkel, Abb. 22, nicht zu beobachten sind. Um die Auswirkungen bei einer Weiterverarbeitung in Grenzen zu halten, wurden deshalb die zugehörigen numerischen

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Werte in der Tabelle B6 entsprechend Abb. 22 korrigiert.

Um zumindest einen vorläufigen quantitativen Überblick über die Veränderungen des Nachstromfeldes infolge Schräganströmung zu gewinnen, wurde in Abb. 62 die nominelle Nachstromziffer w, ermittelt aus der Axialkomponente V, als Funktion des Driftwinkels ß aufgetragen. Die eingezeichneten Punkte stellen dabei Mittelwerte dar, die aus den beiden jeweils zusammengehörigen Versuchsserien unter Anwendung von Gl. (2) ermittelt wurden. Da der Schiffsrumpf mit einem Tragflügel von kleinem Seitenverhältnis gleichgesetzt werden kann, bieten sich zur Unterscheidung zwischen der der Strömung zugewendeten und der abgewendeten Rumpfseite die in der Strömungsmechanik gebräuchlichen Bezeichnungen Druck- bzw. Saugseite an, und zur Erleichterung sind in den einzelnen Abbildungen die beiden Rumpfseiten auch entsprechend gekennzeichnet. Man erkennt aus dem Diagramm der Abb. 62, daß auf der Druckseite, d.h. auf der der Strömung zugewendeten Rumpfseite, bei kleineren Driftwinkeln eine stetige Zunahme der mittleren Axialgeschwindigkeit stattfindet, die dann ab $|\beta| \approx 8^{\circ}$ praktisch konstant bleibt. Auf der Saugseite dagegen findet zunächst ein deutlicher Abfall der mittleren Axialgeschwindigkeit statt, ehe auch hier eine stetige Zunahme einsetzt. Das Diagramm macht also nochmals deutlich, daß die Strömungszustände auf beiden Rumpfseiten bei Schräganströmung sehr unterschiedlich sind.

Während in Abb. 62 nur die nominelle Nachstromziffer, basierend auf der Axialkomponente V_x , betrachtet wurde, ist in Abb. 63 zum Vergleich zusätzlich die bei früheren Schrägschleppversuchen ermittelte effektive Nachstromziffer – Mittelwert aus Schub- und Momentenidentität – aufgetragen. Als Basis für ihre Ermittlung diente das in Abb. 3 wiedergegebene Freifahrtdiagramm des Stockpropellers Nr. 764. Die zugehörigen Ergebnisse der Schrägschleppversuche, Oltmann (1974), sind im übrigen zur besseren Orientierung nochmals im Anhang C zusammengestellt. Die Verwendung dieses normalen Freifahrtdiagramms (Driftwinkel $\beta = 0^{\circ}$) für die Ermittlung der effektiven Nachstromziffer bei Schräganströmung ist genau genommen unkorrekt, s.a. Suhrbier

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(1974). Andererseits zeigen beispielsweise Messungen von Gutsche (1964) oder von Meyne und Nolte (1969), daß die Beiwerte $K_{\rm T}$ und $K_{\rm Q}$ sich bei kleinen bis mittleren Driftwinkeln, wie sie auch in der vorliegenden Versuchsreihe untersucht wurden, nicht wesentlich ändern und daß infolgedessen die angedeutete Vorgehensweise zumindest für Vergleichszwecke statthaft ist.

Betrachtet man jetzt die in Abb. 63 aufgetragenen nominellen und effektiven Nachstromziffern, dann ist zunächst festzustellen, daß bei $\beta = 0^{\circ}$ die mittlere effektive Zuströmgeschwindigkeit größer ist als der Volumenmittelwert der nominellen Zuströmgeschwindigkeit. Dies ist eine häufig in der schiffbaulichen Modellversuchstechnik gemachte Beobachtung, vgl. Pohl (1963). Während nun bei positiven Driftwinkeln die Unterschiede zwischen nomineller und effektiver Nachstromziffer nicht gravierend sind, wobei die effektive Nachstromziffer gleichfalls nach einem deutlichen Anstieg bei kleinen positiven Driftwinkeln mit zunehmendem Driftwinkel einen stetigen Abfall zeigt, treten bei negativen Driftwinkeln dagegen erhebliche Differenzen auf. Besonders auffällig ist dabei, daß die mittlere effektive Zuströmgeschwindigkeit im untersuchten Bereich negativer Driftwinkel nahezu konstant bleibt, während der Volumenmittelwert der nominellen Zuströmgeschwindigkeit doch deutlichen Änderungen unterliegt.

Schlußfolgerungen

Wenngleich der Bericht im wesentlichen als eine Dokumentation der durchgeführten Nachstrommessungen bei Schräganströmung anzusehen ist, und die in graphischer und tabellarischer Form vorliegenden Ergebnisse auch weitgehend für sich selbst sprechen, lassen sich doch einige allgemeine Anmerkungen zu den Messungen und den Ergebnissen machen.

Die vorliegenden Ergebnisse dürften insbesondere für theoretische Untersuchungen von Wechselwirkungen zwischen den drei Systemkomponenten Schiffsrumpf, Propeller und Ruder unter dem Einfluß von Schiebe- oder Drehbewegungen von Interesse sein, zumal bei derartigen Betrachtungen nicht mehr mit einer einfachen Superposition des normalen Nachstromfeldes für Geradeausfahrt mit der Seitengeschwindigkeit $v = -U \sin\beta$ gearbeitet werden kann. Obwohl diese Vorgehensweise, beispielsweise für die Bestimmung von Schub- und Drehmomentenschwankungen bei einem freifahrenden Propeller (ohne Schiffsrumpf) infolge Schräganströmung zulässig ist, vgl. Rader (1974), muß bei Untersuchungen der angedeuteten Art den wirklichen Änderungen des Nachstromfeldes hinter dem Schiffsrumpf Rechnung getragen werden. Diese Änderungen resultieren bei Schräganströmung des Schiffsrumpfes in erster Linie aus den unterschiedlichen Strömungszuständen auf beiden Rumpfseiten, verbunden mit Ablösungserscheinungen der Körpergrenzschicht sowie mit Wirbelbildungen im Bereich der hinteren Schulter und der Kimm.

Als Ergänzung ist zunächst eine theoretische Zusatzuntersuchung in der Form geplant, daß mit am Institut für Schiffbau bzw. an anderen Instituten vorhandenen Rechenprogrammen Propellerrechnungen zur Ermittlung des mittleren Schubes und Drehmoments unter Vorgabe der aufgemessenen Nachstromfelder durchgeführt werden. Dadurch wird ein besserer Vergleich mit den angeführten Schrägschleppversuchen ermöglicht.

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Bezeichnungen

$A_{\rm E}$	Abgewickelte und gestreckte Flügelfläche des Propellers
^A o	Propellerkreisfläche = $\pi D^2/4$
В	Breite des Schiffsmodells
CB	Völligkeitsgrad der Verdrängung = $\nabla / L BT$
D^{-}	Propellerdurchmesser
F	Froude-Zahl = $U / \sqrt{g L}$
g	Erdbeschleunigung
J	Fortschrittsziffer des Propellers = V_A / nD
^K o	Drehmomentenbeiwert = $Q/\rho n^2 D^5$
K _T	Schubbeiwert = $T/\rho n^2 D^4$
L	Länge des Schiffsmodells (zwischen den Loten)
Ν	Komponente des hydrodynamischen Momentes um die Körperachse z
п	Propellerdrehzahl
Oxyz	Schiffsfestes Koordinatensystem
Р	Propellersteigung
\mathcal{Q}	Propellerdrehmoment
T	Propellerschub
Т	Tiefgang des Schiffsmodells
U	Resultierende Geschwindigkeit von <i>O</i> in der horizontalen Ebene
и, v	Komponenten der Geschwindigkeit U in Richtung der Körperachsen x und y
V	Schiffsgeschwindigkeit
V _A	Propellerfortschrittsgeschwindigkeit = $V(1-w)$
V _m	Geschwindigkeit des Schiffsmodells $\hat{=} U$
V _r	Radialkomponente des Nachstroms (positiv, wenn nach innen gerichtet)
V _t	Tangentialkomponente des Nachstroms (positiv, wenn gegen Zählrichtung von ¢ gerichtet)
ω	Nachstromziffer = $(V - V_A) / V$
Х,У	Komponenten der hyrodynamischen Kraft in Richtung der Körperachsen x und y
Ζ	Flügelzahl des Propellers
β	Driftwinkel = - arctan (v / u)
η _o	Wirkungsgrad des freifahrenden Propellers

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ρ	Dichte des Wassers
φ	Umfangswinkel
φ *	Modifizierter Umfangswinkel, s. Fußnote S. 8
∇	Verdrängungsvolumen



Abb. 1 Koordinatensystem



Spantenriß des HSVA-Modells Nr. 1512 einschl. Seitenansicht Abb. 2

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Abb. 3 Freifahrtdiagramm HSVA-Propeller Nr. 764

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Abb. 4 Ergebnisse der 1-dim. Nachstrommessung, Driftwinkel $\beta = 0^{\circ}$ Axialkomponente $V_{\rm x}/V_{\rm m}$



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Abb. 9 Vergleich der Nachstrommessungen (1-dim. und 3-dim.) Axialkomponente $V_{\rm x}/V_{\rm m}$



Ergebnisse der 3-dim. Nachstrommessung, Driftwinkel β Axialkomponente $v_{\rm x}/v_{\rm m}$ Abb. 10

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Axialkomponente $V_{\rm X}/V_{\rm m}$



- 31 -




- 33 -



- 34 -



- 35 -



- 36 -



- 37 -







- 40 -



- 41 -



42 -_



- 43 -







- 45 -



- 46 -



- 47 -



- 48 -

Tangentialkomponente V_{t}/V_{m}







- 51 -





Tangentialkomponente $V_{\rm t}/V_{\rm m}$

52 --



- 53 -



- 54 -



- 55 -





- 57 -



42 ErgeDnisse der 3-dim. Nachstrommessung, ur Axialkomponente V_X/V_m









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- 65 -





- 67 -




- 68 -



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Tangentialkomponente v_t/m



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	Nachstrommessung	(1-dimensional)		SVA-Modell Nr. 1512		Versuch Nr. N35/74			UTILUMINAL P- U			etrachteter bereich:		$0^{-} < \phi < 180^{-}$		[1	0	65	22					0	8				1 L	
				H							ſ	ฉั					ž	u n	0.706	1110		-0.060	0.026	-0.044	0.015	-0.020	0.010		10.01	300.0	-0.011	0.001	-0.00	00.00	-0.00		>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>
.652	с с		- 13.1416 - 3.1416	-3.1416	-3.1416	0.0000	-3.1416	-3.1416	0.0000	0.0000	-3.1416	0.0000	-3.1416	-3.1416	0.0000	154	ರ	u		-3.1416	10.1410 1410	1416	-3.1416	-3.1416	-3.1416	-3.1416	1410	0111.01	- 1416	-3.1416	-3.1416	-3.1416	-3.1416	-3.1426	-3.1416	-2.1410 	、 + - - - - - - - - - - - - -
r/R=0	۹n		0.1120	0.0770	0.0458	0.0198	0.0329	0.0156	0.0063	0.0022	0.0049	0.0016	0.0027	0.0015	0.0007	r/R=1	A	u.		0.1730		0,0339	0.0235	0.0180	0.0153	0.0143	0.0115		0.0076	0.0066	0.0055	0.0048	0.0037	0.0032	0.0025	1200.0	
52.0 mm +	p^{u}_{q}		0.000	0.0000	0.0000	0.0000	0,0000	0.000.0	0.0000	0,0000.0	0.0000	0.0000	00000	0.0000.0	0.0000	-2.0 mm →	q	ц,		0.0000		00000.0	0.0000	0.0000	0.000	0.0000	0.0000			0.000.0	0.0000	0.0000	0.0000	0.0000	0.0000		>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>
4 1 1 1	a_n	0.7345	-0.1129	-0.0770	-0.0458 -0.0541	0.0198	-0.0329	-0.0156	0.0063	-0.01020	-0.0049	0.0016	-0.0027	-0.0015	-0.0008 -0.0008	11 J	ø	un n	0.8423	-0.1730		0120.0-	-0.0235	-0.0180	-0.0153	-0.0143	-0.0115		-0.0076	-0.0066	-0.0055	-0.0048	-0.0037	-0.0032	-0.0025		-0.000
402	α ⁿ		- 72.74446 - 74.4446 - 74.4466 - 74.44666 - 74.44666 - 74.44666 - 74.44666 - 74.446666 - 74.446666666666666666666666666666666666	-3.1416	-3.1416	0.000	-3.1416	-3.1416	00000	0.0000	-3.1416	0.0000	-3.1416	-3.1416	-3.1416	.903	2	u 5		13.1416		-3.1416	00000	-3.1416	0.0000	-3.1416	0000	014100	-1416		-3.1416	0.0000	-3.1416	0.0000	-3.1416	0.0000	
r/R=0	An		0.0973	0.0359	0.0064	0.0038	0.0090	0.0069	0.0046	0.0019	0.0012	0.0025	0.0010	0.0015	0.0012	r/R=0	Ч	u		0.7475	769T.0	0.0642	0.0230	0.0509	0.0212	0.0394	0.0221	0.0014		0.0186	0.0227	0.0171	0.0187	0.0134	0.0146	0.0100	+ + + > - >
52.0 mm →	ц Р		00000	0.0000	0.0000	0.000.0	0000000	0.000.0	0.0000	0.0000	0.0000	0,0000	0.0000	0.000.0	0.0000	72.0 mm →	9	с 1	•	0.0000	0,000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0,000	0.0000	0.0000	0.0000	0.0000	0.0000		· · · · ·
н. М.	a n	0.5104	-0.0973	0.0470 0.0479 0.0479	0.0064 -0.0213	0.0038	-0.0090	-0.0069	0.0046	-0.0051 0.0019	-0.0012	0.0025	-0.0010	-0.0015	-0.0002	[= J	ø	u n	0.8183	10.1410	101101	-0.0642	0.0230	-0.0509	0.0212	-0.0394	0.0221			0.0186	-0.0227	0.0171	-0.0187	0.0134	-0.0146	0.0100 1110	+++0.01
	5	0		ν . π	 נה ים		ωσ	10	===		14	51	910	- 00 - 1 + 1	5010		5	:	0	~ ~	 א ער	n-==	י גר	10	-	~	σ,	D 7	10	7 V 1 V) 	15	10	17		 5 C C C C C C	- n V -

Harmonische Analyse des axialen Nachstroms einschl. Volumenmittel der harm. Komponenten

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Anhang A

.816	a n			Nachstrommessung	(3-dimensional)	HSVA-Modell Nr. 1512	Versuch Nr. N36/74	Driftwinkel B= 0 ⁰	Betrachteter Bereich:	0 [°] < ¢ < 360 [°]	
• r/R= 0	An	00000000000000000000000000000000000000		an An	0.1292 0.1962 0.0237	0.0739	0.0156	0.0099 0.0131 0.0032 0.0032 0.0032	0.0015	0.0000	0.0005
5.0 mm -	ч Ф	-0.0012 -0.0019 -0.0019 -0.0019 -0.0005 -0.000		r 2	-0.0061 -0.0027 -0.0006	0.0036 -0.0003	-0.0017 -0.0022	0.0002 -0.0003 -0.0004 -0.0004 0.0004	0.0003	-0.0004	0.0005
n= 1	a_{n}	-0.7756 -0.1391 -0.2069 -0.00455 -0.00544 -0.00544 -0.00544 -0.0054 -0.0056		ăn	0.6792 -0.1291 -0.1961 0.0237	-0.0738 0.0275	-0.0364	0.0099 -0.0131 0.0032 -0.0012 0.0006	0.0014	0.0024	0.0002
.596	ч в		.255	an G	-3.1088 -3.0712 -3.0889	-3.1252 -3.0249	-2.9397	-3.0932 -3.0932 -3.0573 -3.14169 -0.4636	0.8761	0.9502 95020 0.95020 0.95050000000000	0.8199
+ r/R= 0	Чn	0.1299 0.2494 0.0736 0.04199 0.00192 0.00192 0.00192 0.00192 0.00192 0.00192 0.00193 0	+ r/R= 1	An	0.2102 0.1378 0.0759	0.0426	0.0270 0.0230 0.0214	0.0186 0.0071 0.0036 0.0001 0.0001	0.0023	0.0017 0.0015 0.0015	0.0021
47.5 mm -	p_n^{u}		· ww 0.00	p_n^{u}	0.0069 0.0040	-0.0007	0.0039 0.0047 0.0012	0.0009 0.0006 0.0008 0.0008 0.0008 0.0008	-0.0018		-0.0015
л. Г	a_n	0.00000000000000000000000000000000000	n= 1.	a n	0.8376 -0.2101 -0.1375 -0.0758	-0.0426	-0.0273 -0.0225 -0.0214	-0.0186 -0.0071 -0.0035 0.0000	0.0015	0.0014 0.0014 1000.00	0.0014
.376	ч ч		.035	ч ч	3.0614 3.0614	3.1091 2.8643	-3.0913 2.8517 -3.1026	-0.1107 -2.8791 -0.1107 -0.0713	-0.1599	-0.4002 -0.4002 -0.5191	-0.8442
+ $r/R=0$	An	0.000000000000000000000000000000000000	+ $r/R=1$	A _n	0.1829 0.1373 0.0648	0.0492	0.0278 0.0059 0.0256	0.0009 0.0009 0.0014 4100.0028	0.0031	0.0028 0.0028 0.0016	0.0012
30.0 mm -	u_q	-0.00067 0.00067 0.00067 0.00067 0.000056 0.000056 0.000056 0.000056 0.000056 0.000056 0.000056 0.000056 0.000056 0.000056 0.000056 0.000056 0.000055 0.000055 0.00050	82.5 mm -	p_{n}^{u}	-0.0178 -0.0110 -0.0042	-0.0016	0.0014 -0.0017 0.0010	0.0001 0.0018 0.00018 0.0001 0.0001	0.0005	0,000	0.0009
	a n		=4	a n	0.8283 -0.1820 -0.1369 -0.0647	-0.0492	-0.0278 -0.0057 -0.0256	0.0009 -0.0067 0.0009 0.0014 0.0028	0.0031	0.0026 0.0026	0.0008
	۲	00004000000000000000000000000000000000		r,	0105	·⊐ ۳	o~∞	0040K	17.7	0 1- 00 0	20

Harmonische Analyse des axialen Nachstroms einschl. Volumenmittel der harm. Komponenten

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5.0 mm + r/R = 0.816	b_n A_n α_n	$\begin{array}{cccccccccccccccccccccccccccccccccccc$		Nachstrommessung	(3-dimensional)	HSVA-Modell Nr. 1512	Versuch Nr. N36/74	Driftwinkel 8= 0 ⁰		Betrachteter Bereich:	$0^{\circ} < \phi < 180^{\circ}$		
n= 6	an	-0.7761 -0.1768 -0.17661 -0.0048 -0.00488 -0.00760 -0.00760 -0.00760 -0.00760 -0.0079 -0.00288 -0.0028 -0.0028		ă n	0.6833	-0.1100 -0.1980 -0.01999 -0.0741	-0.0517	-0.0380 0.0091 -0.0137 0.0028	-0.0015 -0.0002 0.0016	0.0002	0.0022	0.0001	-0.000-0
.596	ц с	и и и и и и и и и и и и и и	.255	a b		200000 200000 200000 200000 200000	-3.1416		00000	0.0000	0.000	0.0000	0.0000
+ r/R= 0	An	0.000000000000000000000000000000000000	+ r/R= 1	4 n		0.01710 0.17394 0.07194 7173 7275 7275 7275	0.0276	0.0179 0.0166 0.0052 0.0052	0.0021	0.0034	0.0037	0.0012	0.0019
47.5 mm	p ^u		00°0 mm	p^{u}_{q}			0.0000			0.0000	0.0000	0.0000	0.0000
11 54	an	0.000000000000000000000000000000000000	r= 1	a n	0.8316		-0.0276	-0.0179 -0.0166 -0.0052	0.0029	0.0034	0.0037	0.0012	0.0019
.376	и в		.035	and a	· · · · · · · · · · · · · · · · · · ·		-3.1416	-3.1416 -3.1416 -3.1416 -416 -416		0.0000	0.0000	0.0000	0.000
r/R=0	4 n	00000000000000000000000000000000000000	r/R=1.	4n		0.1720 0.1401 0.0697 0.0502	0.0303	0.0283 0.0021 0.0081	0.0003	0.0035	0.0027	0.0009 0.0008	0.0008
- mm 0.05	p^{u}		82.5 mm -	n d			0.0000	0.0000	00000	0.0000	0.0000	0.0000	0.0000
11 N	a Lu		11 54	a n	0.8409	-0.1725 -0.1401 -0.0697 -0.0502	-0.0303	-0.0283 0.0021 -0.0081	0.0003	0.0035	0.0027	0.0009 0.0008	0.0008
	5	04024004000040024000000000000000000000		٦	0	HONJU	-100	α ο ο τ ι τ	1003		170	87 87 67	20

Harmonische Analyse des axialen Nachstroms einschl. Volumenmittel der harm. Komponenten

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16	ъ ^с	00000000000000000000000000000000000000		essung	ional)	Nr. 1512	N36/74	Γβ= 0 ⁰	Bereich:	360 ⁰	
+ r/R= 0.8	4 n	0.1405 0.00490 0.00776 0.00776 0.00774 0.00752 0.00752 0.00753 0.00755		chstromm	3-dimensi	-Modell	such Nr.	iftwinke]	achteter	180 ⁰ <	
65.0 mm	p_n^{u}			Na	Ŭ	HSVA	Ver	Dr	Betr		
" *	an	0.1776 0.1776 0.1776 0.1776 0.1776 0.1776 0.1776 0.00949 0.000562 0.00776		ãn	0.6747 0.1294 -0.1951	-0.0263	-0.0535 -0.0141 -0.0357	-0.0115 -0.0132 -0.0043	-0.0017	-0.0034 -0.0034 -0.0005	0.0001
.596	ц в		.255	a a	0.0000	-3.1416	-3.1416 0.0000 -3.1416	-3.1416 -3.1416 -3.1416	-3.1416		0.0000
r/R=0	A n	0.1372 0.00859 0.00859 0.00859 0.003859 0.003859 0.003859 0.003859 0.00373 0.00373 0.00373 0.00373 0.00373 0.00373 0.00373 0.00373 0.00373 0.00373 0.00373 0.00373 0.00375 0.000375 0.000375 0.00055 0.00055 0.00055 0.00055 0.00055 0.00055 0.00055 0.00055 0.00055 0.00055 0.00055 0	• r/R= 1	4n	0.2006	0.0795 0.0426 0.0281	0.0279 0.0240 0.0257	0.0198 0.0098 0.0029 0.0029	0.0016	0.0004 0.0019 0.0018	0.0001
- uu 5.7t	p^{u}_{p}		- mm 0.00	p^{u}	0.0000	0.0000	0.0000 0.0000 0.0000	0.0000000000000000000000000000000000000	0.0000		0.0000
<i>L</i>	a n	0.6625 0.15724 0.15724 0.003859 0.003859 0.003859 0.003859 0.003859 0.003859 0.003859 0.003859 0.003859 0.003859 0.003859 0.003859 0.003859 0.000059 0.000059 0.000059 0.000059 0.000059 0.000059 0.000059 0.000059 0.000059 0.000059 0.000059 0.000059 0.000059 0.000059 0.000059 0.000059	n= 1	an	0.8433 0.2006 -0.1363	0.0795 -0.0426 0.0281	-0.0279 0.0240 -0.0257	0.0198 -0.0098 -0.0048	-0.0016	-0.0004 -0.0019 -0.0018	0.0001
.376	σu	-33.00000000000000000000000000000000000	.035	и в	0.0000	-3.1416 0.0000	-3.1416 0.00000 -3.1416		-3.1416	- 3.1416 - 3.1416 - 3.1416 - 3.1416	-3.1416
r/R=0	4 n	0.0708 0.0494 0.0494 0.0494 0.00169 0.00142 0.00142 0.00142 0.00142 0.00251 0.00251 0.00251 0.0014 0.0014 0.0014 0.0017 0.0002 0.00000000000000000000000000000	r/R=1	4n	0.1346	0.0588 0.0491 0.0087	0.0261 0.0043 0.0237	0.0005 0.0060 0.0033	0.0035	0.0041 0.0039 0.0010	0.0001
30.0 mm →	$u_{\tilde{q}}$		82.5 mm +	p u q	0.0000	0.0000	0.0000	000000000000000000000000000000000000000	000000	00000.0	0.0000
r= 7	a ⁿ	0.431 0.0494 0.0482 0.04832 0.04832 0.00000000000000000000000000000000000	7" 2"	a ⁿ	0.8152 0.1904 -0.1346	0.0588 -0.0491 0.0087	-0.0261 0.0043 -0.0237	-0.0005 -0.0060 0.0033	-0.0035 -0.0035 -0.0058	-0.0041 -0.0039 -0.0010	-0.0001
	ц	040747474 00007074000000000000000000000		r.	040	m.⊐t In	9~8	6646	7 <u>4</u> 7,	9780	20

Anhang B

$\begin{array}{c} 0\\ 10\\ 230\\ 40\\ 500\\ 70\\ 900\\ 1110\\ 1200\\ 1300\\ 1400\\ 1700\\ 1200\\ 2200\\ 2240\\ 2200\\ 2200\\ 2200\\ 2200\\ 2200\\ 2000\\ 3300\\$	φ	$\begin{smallmatrix} 0 \\ 1 \\ 2 \\ 0 \\ 3 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0$	¢
$ \begin{array}{c} \textbf{x} \\ \textbf{0.35374} \\ \textbf{0.9942} \\ \textbf{0.99472} \\ \textbf{0.9973} \\ \textbf{0.876853} \\ \textbf{0.66330} \\ \textbf{0.5559779} \\ \textbf{0.66421} \\ \textbf{0.99186643} \\ \textbf{0.99930} \\ \textbf{0.9933} \\ \textbf{0.99186643} \\ \textbf{0.9933} \\ \textbf{0.99186643} \\ 0.9918664444444444444444444444444444444444$	r= 65 V _v /V _m	0.2705 2.444507 0.2444507 0.66633114958976 0.66633114958976 0.66559948976 0.6559948976 0.65515975 0.666359948976 0.65558218685 0.666826735 0.6554326 0.5558218685 0.555821865 0.555821865 0.555821865 0.555821865 0.555855 0.555855 0.555855 0.5558555 0.5558555 0.5558555555555555555555555555555555555	r = 30 V_x/V_m
m 0.046 0.099 0.162 0.110 0.099 0.162 0.110 0.009 0.009 0.000 0.002 0.000 0.002 0.000 0.002 0.000 0.0017 0.0017 0.004 0.0017 0.004 0.0017 0.004 0.00252 0.0017 0.0044 0.0028 0.0045 0.0045 0.0045 0.0045 0.0045 0.0045 0.0045 0.0045 0.0045 0.0045 0.0045 0.0045 0.01102 0.0045 0.01102 0.0045 0.01102 0.0045 0.01102 0.0045 0.01102 0.0045 0.01102 0.0045 0.01102 0.0045 0.01102 0.0045 0.01102 0.0045	.0 mm	$\begin{array}{c} 0.0895\\ 0.0244\\ 0.0277\\ 0.12692\\ 0.11692\\ 0.115329\\ 0.00781\\ 0.115329\\ 0.00781\\ 0.0000\\ 0.00781\\ 0.0085\\ 0.0085\\ 0.0098\\ 11342\\ 0.009\\ 0.009\\ 0.009\\ 0.009\\ 0.009\\ 0.009\\ 0.009\\ 0.009\\ 0.009\\ 0.000\\ 0.009\\ 0.009\\ 0.000\\ 0.009\\ 0.000\\ $.0 mm · V _r /V _m
$ \begin{array}{c} t \\ 0.031 \\ -0.0035 \\ 0.016 \\ 0.079 \\ 0.101 \\ 0.087 \\ 0.1138 \\ 0.1138 \\ 0.1155 \\ 0.1138 \\ 0.1155 \\ 0.1121 \\ 0.0084 \\ 1.155 \\ 0.1121 \\ 0.0084 \\ 1.155 \\ 0.1121 \\ 0.0093 \\ -0.1124 \\ 1.155 \\ 0.1124 \\ -0.1150 \\ -0.1150 \\ -0.1150 \\ -0.1138 \\ -0.0072 \\ -0$	+ $r/R=$ (V_{+}/V_{m}	$\begin{array}{c} -0.016\\ -0.1124\\ -0.124\\ -0.0801\\ -0.0034\\ 0.0034\\ 0.0052\\ 0.0052\\ 0.0054\\ 0.0034\\ 0.0034\\ 0.0034\\ 0.0034\\ 0.00334\\ -0.00314\\ -0.00314\\ -0.00334\\ -0.00334\\ -0.00334\\ -0.00334\\ -0.00334\\ -0.00334\\ -0.00599\\ -0.00599\\ -0.0055\\ -0.00355\\ -0.00355\\ -0.00355\\ -0.00355\\ -0.00355\\ -0.00355\\ -0.00355\\ -0.0035\\ -0.00349\\ -0.00599\\ -0.0056\\ -0.00349\\ -0.0056\\ -0.0056\\ -0.0034\\ -0.0056\\ -0.0$	+ $r/R=0$ V_t/V_m
\circ m 0.310 0.555 0.915 0.924 0.955 0.9942 0.9957 0.9942 0.9945 0.9945 0.9945 0.9945 0.9942 0.9957 0.9942 0.9957 0.9942 0.9957 0.9944 0.9957 0.5615 0.9942 0.9957 0.9644 0.5675 0.5626 0.5626 0.57646 0.9958 0.9958 0.9958 0.9958 0.9958 0.9258 0.99580 0.99580 0.99580 0.99580000000000000000000000000000000000	$v_0.816$	0.238 0.424 0.573 0.6273 0.6570 0.65570 0.65570 0.55108 0.33528 0.22323 0.33892 0.33892 0.33892 0.33892 0.33892 0.33892 0.55710 0.5570 0.5570 0.55108 0.33293 0.22323 0.33892 0.33892 0.5570 0.5487 0.4419 0.5487 0.4411 0.581).376 <i>V_o/V_m</i>
x m 33320000000000000000000000000000000000	$r = 8$ $V_{\rm w}/V_{\rm m}$	0.26553 0.61953 0.89931 0.889929 0.887700 0.887700 0.613539 0.61359 0.61359 0.61359 0.61359 0.61359 0.61359 0.61359 0.61359 0.6159 0	r = 4 $V_{\rm x}/V_{\rm m}$
m 994 90 1149 1149 1149 1149 1149 1149 11	2.5 mm. v_/v_	$\begin{array}{c} 0.026522\\ 0.0116576401\\ 0.116576401\\ 0.0000000000000000000000000000000000$	7.5 mm <i>V_r/V_m</i>
m 93 -0.0034 -0.00573564 -0.00573564 0.0059990 0.11123366322218 -0.00.00594564 -0.00111233663222 -0.001111110018 -0.001111111111122 -0.0011111111111122 -0.00111111111111122 -0.00111111111111122 -0.0011111111111111122 -0.001111111111111111111111111111111111	$+ r/R = 2$ V_{+}/V_{m}	$\begin{array}{c} 0.000\\ -0.089\\ -0.084\\ -0.031\\ 0.074\\ 0.098\\ 0.120\\ 0.1135\\ 0.1142\\ 0.1136\\ 0.078\\ 0.078\\ 0.078\\ 0.078\\ 0.0058\\ -0.00691\\ -0.0058\\ -0.00591\\ -0.00591\\ -0.00591\\ -0.00594\\ -0.00594\\ -0.00594\\ 0.100\\ 0.100\\ 0.100\\ \end{array}$	+ $r/R = ($ V_t/V_m
\circ m 0.863 0.905 0.972 0.941 0.940 0.962 0.952 0.952 0.9556 0.95566 0.9556 0.9556 0.9556 0.9556 0.9556 0.95566 0.9556 0.9556 0.	1.035 <i>V_/V_</i>	0.266 0.628 0.878 0.9901 0.9901 0.998346 0.9988346 0.9988346 0.762230 0.762430 0.762430 0.758258 0.758258 0.758258 0.992666 0.99266 0.992666 0.992666 0.992666 0.9926666 0.992	0.596 <i>V_O/V_m</i>
m 2657470531154895595840521435038866011712 000000000000000000000000000000000	$r = 10$ $V_{\rm w}/V_{\rm m}$	Na (1 HSVA Ver Dr:	
m 5990 0990 990 9662 31 916 30 00 00 00 00 00 00 00 00 00 00 00 00	0.0 mm V_/V_	chstro -dimen -Model such N lftwin] Tabel	
mm 7 -0.0006 0.00176 0.00176 0.00176 0.00176 0.00176 0.00111128 0.0011112 0.1112128 0.0011112 0.111128 0.0011111334 0.11111111111 0.111111111111111111111111111111111111	$ \rightarrow r/R = : $ $ \dot{V}_{\perp}/V_{\perp} $	ommessu hsiona l Nr. Ir. N36 kel β=	
m 811181497600686280399779093584488378 0.9995659068862803997790993584488378 0.99999996655206865362807899999999999999999999999999999999999	V.255	ng 1512 /74 0 ⁰	

	r= 3	0.0 mm	+ r/R = 0	0.376	r = 4	7.5 mm	+ r/R=	0.596				
¢	v _x /v _m	v_r / v_m	v_t / v_m	v_{o}/v_{m}	$v_{\rm x}/v_{\rm m}$	v_r/v_m	v_t/v_m	v _o /v _m				
0 10 20 30	0.192 0.174 0.309 0.392	-0.053 -0.055 -0.002 0.030	0.053 -0.088 -0.108 -0.121	0.206 0.202 0.327 0.412	0.248 0.261 0.420 0.603	-0.104 -0.070 0.045 0.134	0.060 -0.070 -0.107 -0.070	0.276 0.279 0.435 0.621	Na (3	chstrc -dimen	ommessu nsional	ng _)
50 60 70 80	0.471 0.478 0.493 0.478	0.120 0.137 0.137 0.114	-0.073 -0.044 -0.017 -0.003	0.491 0.499 0.512 0.491	0.806 0.813 0.824 0.797	0.170 0.145 0.119 0.098	0.045 0.081 0.111 0.119	0.825 0.830 0.840 0.812	HSVA	-Model	l Nr.	1512
90 100 110 120 130	0.445 0.418 0.415 0.428 0.423	0.097 0.088 0.076 0.072 0.068	0.012 0.009 0.004 -0.006 -0.015	0.456 0.427 0.422 0.434 0.428	0.765 0.705 0.636 0.583 0.535	0.079 0.065 0.047 0.035 0.024	0.129 0.125 0.122 0.099 0.064	0.780 0.719 0.649 0.593 0.539	Ver	such N	Ir. N69	/74
140 150 160 170 180	0.405 0.405 0.365 0.287 0.215	0.080 0.096 0.111 0.124 0.113	-0.011 -0.005 0.009 0.033 0.024	0.413 0.416 0.382 0.315 0.244	0.533 0.543 0.497 0.391 0.295	0.037 0.055 0.066 0.072 0.072	0.047 0.047 0.062 0.074 0.036	0.537 0.548 0.505 0.404 0.306	Dri	ftwinl	kel β=	00
190 200 210 220 230	0.222 0.283 0.325 0.362 0.404	0.096 0.087 0.082 0.086 0.084	-0.022 -0.049 -0.050 -0.040 -0.045	0.243 0.300 0.339 0.374 0.415	0.255 0.396 0.482 0.566 0.636	0.072 0.048 0.033 0.024 0.022	-0.027 -0.064 -0.080 -0.090 -0.107	0.267 0.404 0.490 0.573 0.645				
240 250 260 270 280	0.459 0.507 0.550 0.591 0.620	0.093 0.108 0.129 0.143 0.158	-0.056 -0.058 -0.055 -0.059 -0.047	0.472 0.522 0.568 0.611 0.641	0.696 0.750 0.805 0.864 0.891	0.029 0.034 0.049 0.067 0.086	-0.122 -0.132 -0.125 -0.120 -0.105	0.708 0.763 0.816 0.874 0.901		•		
290 300 310 320 330	0.650 0.643 0.629 0.583 0.539	0.175 0.180 0.183 0.141 0.080	-0.029 0.005 0.038 0.075 0.125	0.674 0.668 0.656 0.605 0.559	0.901 0.904 0.931 0.897 0.827	0.098 0.118 0.147 0.164 0.178	-0.091 -0.069 -0.053 -0.013 0.053	0.911 0.914 0.944 0.912 0.848		Tabe:	lle B2	
340 350	0.449 0.313	0.029	0.134 0.137	0.470 0.342	0.648	0.122 0.011	0.106	0.667 0.438	÷.,			
	n= 6	5.0 mm	+ r/R=	0.816	r= 8	2.5 mm	$\rightarrow r/R=$	1.035	r = 10	0.0 mm	+ r/R=	1.255
	1 0						÷ · ··					
ф	$v_{\rm x}/v_{\rm m}$	v_r/v_m	v_t/v_m	v _o /v _m	$v_{\rm x}/v_{\rm m}$	$v_{\rm r}/v_{\rm m}$	v_t/v_m	$v_{\rm o}/v_{\rm m}$	$v_{\rm x}/v_{\rm m}$	v_r / v_m	v _t /v _m	v_{o}/v_{m}
φ 10 20 40 50 60 70 90 1120 100 10	v_x / v_m 0.298 0.296 0.9953 0.99532 0.99532 0.99532 0.99532 0.99525 0.99525 0.99525 0.99525 0.99525 0.99525 0.99525 0.66122 0.665748 0.665748 0.66574866 0.66574866 0.9954995 0.995495 0.995555 0.995555 0.995555 0.995555 0.995555 0.995555 0.995555 0.995555 0.995555 0.9955555 0.995555555555	<pre>v r /vm 0.001 0.057 0.153 0.163 0.097 0.092 0.0831 0.079 0.0425 0.0015 0.0059 0.045 0.0059 0.025 0.0053 0.026 0.025 0.055</pre>	v_t / v_m 0.145 -0.090 -0.063 0.092 0.118 0.093 0.099 0.125 0.148 0.162 0.148 0.162 0.148 0.162 0.108 0.099 0.145 0.108 0.099 0.145 0.148 0.162 0.1050 -0.050 -0.050 -0.050 -0.134 -0.134 -0.134 -0.134 -0.134 -0.134 -0.136 -0.156 -0.136 -0.136 -0.156 -0.156 -0.156 -0.136 -0.136 -0.156 -0.156 -0.156 -0.156 -0.156 -0.156 -0.156 -0.156 -0.156 -0.156 -0.057 -0.0	vm 11546655171484199195043754966883996711	<pre>/ vm</pre>	Vr/Vm 0.173 0.168 0.122 0.095 0.0994 0.094 0.099 0.055 0.045 0.027 0.011 0.005 0.015 0.015 0.016 0.0016 0.002 -0.024 0.025 0.025 0.025 0.025 0.025 0.024 0.024 0.024 0.024 0.024 0.024 0.024 0.024 0.025 0.055 0.025 0.055 0.025 0.055 0.0	Vt/Vm -0.119 -0.104 -0.013 0.052 0.061 0.070 0.075 0.084 0.100 0.100 0.128 0.143 0.143 0.143 0.143 0.143 0.143 0.143 0.150 0.135 0.113 0.103 0.113 0.103 0.113 0.103 0.1149 -0.135 0.149 -0.149 -0.135 0.150 -0.149 -0.135 0.149 -0.135 0.113 0.103 0.114 0.150 0.114 0.150 0.114 0.150 0.114 0.1150 0.114 0.1150 0.114 0.1150 0.114 0.1150 0.114 0.114 0.114 0.1150 0.114 0.1150 0.114 0.1150 0.114 0.1150 0.114 0.1150 0.114 0.1150 0.114 0.1150 0.114 0.1150 0.114 0.1150 0.114 0.1150 0.114 0.1150 0.114 0.1150 0.114 0.1140 0.1150 0.1140 0.1140 0.1150 0.1150 0.1150 0.0150 0.0150 0.0150 0.0150 0.000 0.1150 0.000 0.0150 0.000 0.000 0.0000 0.0000 0.0000 0.0000 0.00000 0.000000	v_o / v_m 0.87774 0.87774 0.9343 0.99550 0.99550 0.99558 0.99558 0.99558 0.99558 0.99558 0.99558 0.99558 0.9959 0.995	v_x 99573 0.9668 0.99560 0.99668 0.99953 0.99668 0.99953 0.99953 0.99953 0.99953 0.99953 0.99953 0.99953 0.99953 0.99953 0.99953 0.99953 0.999444 0.99955 0.9953 0.999445 0.999445 0.999445 0.999455 0.99955 0.99955 0.99955 0.99555 0.005555 0.005555 0.005555 0.005555 0.005555 0.005555 0.005555 0.005555 0.0055555 0.0055555 0.0055555 0.00555555 0.00555555 0.00555555 0.0055555555	v_r / v_m 0.103 0.093 0.079 0.075 0.072 0.063 0.055 0.040 0.023 0.003 -0.017 -0.035 -0.022 -0.015 -0.022 -0.0282 -0.029 -0.0229 -0.0229 -0.0229 -0.0229 -0.0229 -0.0229 -0.0229 -0.0229 -0.0229 -0.0207 0.055 -0.0229 -0.0207 0.0207 0.0207 -0.0229 -0.0207 0.0207 -0.035 -0.0229 -0.027 -0.035 -0.026 -0.026 -0.026 -0.026 -0.027 -0.035 -0.026 -0.026 -0.026 -0.026 -0.026 -0.027 -0.035 -0.026 -0.026 -0.026 -0.026 -0.027 -0.035 -0.026 -0.068 -0.068 -0.068 -0.068 -0.068 -0.068 -0.068 -0.068 -0.068 -0.068 -0.068 -0.068 -0.068 -0.086 -0.086 -0.086 -0.086 -0.086 -0.086 -0.086 -0.086 -0.086 -0.086 -0.086 -0.086 -0.086	<pre>vt/vm -0.012 0.0098 0.0046 0.0535 0.0057 0.0057 0.0057 0.0057 0.0057 0.1126 0.1132 0.1122 0.1128 0.1122 0.1128 0.007 0.1128 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.00000 0.00000 0.00000 0.00000 0.00000 0.000000</pre>	V m 12274277052407552408555272442077878225568755556 000000000000000000000000000000000

	z= 30.0 mm	+ r/R = 0.376	r= 47.5 mm	→ r/R= 0.596	
φ	$v_{\rm x}/v_{\rm m}$ $v_{\rm r}/v_{\rm m}$	$v_t / v_m = v_o / v_m$	$v_{\mathbf{x}}/v_{\mathbf{m}} v_{\mathbf{r}}/v_{\mathbf{m}}$	$v_t/v_m v_o/v_m$	
0 10 20	0.345 -0.035 0.464 0.012 0.595 0.112	5 -0.109 0.363 -0.160 0.491 -0.133 0.614	0.386 -0.059 0.590 0.040 0.769 0.122	-0.135 0.413 -0.155 0.611 -0.082 0.782	Nachstrommessung
50 40 50	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	-0.112 0.687 -0.071 0.706 -0.038 0.740	0.867 0.157 0.875 0.143 0.891 0.138	-0.029 0.882 0.018 0.887 0.046 0.903	(3-dimensional)
50 70 80 90	0.748 0.149 0.766 0.148 0.754 0.138 0.742 0.120	-0.006 0.763 0.026 0.780 0.047 0.768 0.065 0.754	0.885 0.127 0.877 0.114 0.855 0.092 0.833 0.070	0.055 0.896 0.074 0.888 0.095 0.865 0.111 0.843	HSVA-Modell Nr. 1512
100 110 120	0.714 0.098 0.684 0.080 0.638 0.071	0.075 0.724 0.092 0.695 0.100 0.649	0.811 0.053 0.792 0.034 0.757 0.024	0.116 0.821 0.125 0.802 0.127 0.768	Versuch Nr. N54/74
130 140 150	0.584 0.059 0.515 0.047 0.436 0.031	0.103 0.596 0.101 0.526 0.112 0.452	0.717 0.014 0.636 0.010 0.535 0.002	0.125 0.728 0.121 0.648 0.133 0.551	
170 170 180	0.366 0.036 0.255 0.055 0.286 0.117 0.369 0.150	5 0.100 0.381 5 0.057 0.267 7 -0.023 0.310 5 0.058 0.002	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	Driftwinkel B= -2
200 210 220	0.473 0.148 0.546 0.131 0.553 0.092	-0.021 0.496 0.011 0.562 0.042 0.562	0.601 $0.1060.640$ $0.0800.575$ 0.035	-0.037 0.611 -0.008 0.645 0.004 0.576	
230 240 250.	0.552 0.064 0.531 0.048 0.515 0.030	0.062 0.559 0.060 0.537 0.061 0.520	0.530 -0.001 0.516 0.001 0.492 0.000	0.006 0.530 -0.027 0.517 -0.057 0.495	
260 270 280	0.498 0.017 0.477 0.002 0.448 -0.003	0.0620.5020.0590.4810.0640.453	0.521 0.028 0.566 0.057 0.612 0.086	-0.081 0.529 -0.102 0.578 -0.094 0.626	
290 300 310	$\begin{array}{rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr$	0.075 0.421 0.081 0.406 0.075 0.401	0.642 0.109 0.621 0.122 0.600 0.140	-0.084 0.656 -0.052 0.635 -0.021 0.616	Tabelle B3
330 340 350	0.393 -0.034 0.387 -0.034 0.348 -0.044 0.270 -0.095	0.083 0.403 0.115 0.406 0.096 0.364 0.022 0.287	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	0.016 0.536 0.092 0.417 0.078 0.298 -0.035 0.282	
			L		
	r = 65.0 mm	+ r/R = 0.816	r= 82.5 mm	→ r/R= 1.035	$r = 100.0 \text{ mm} \rightarrow r/R = 1.255$
	r = 65.0 mm	$\rightarrow r/R= 0.816$	r= 82.5 mm	→ r/R= 1.035	r= 100.0 mm + r/R= 1.255
φ 0 10 20 40 50 70 900 110 130 150 150 150 150 150 150 150 15	$r = 65.0 \text{ mm}$ $V_x / V_m V_r / V_m$ $0.444 = -0.002$ $0.750 0.087$ $0.941 0.157$ $0.968 0.160$ $0.906 0.118$ $0.898 0.110$ $0.929 0.122$ $0.920 0.116$ $0.878 0.090$ $0.856 0.073$ $0.878 0.090$ $0.856 0.073$ $0.878 0.090$ $0.856 0.073$ $0.878 0.090$ $0.856 0.073$ $0.878 0.090$ $0.856 0.073$ $0.878 0.090$ $0.856 0.073$ $0.654 -0.002$ $0.448 -0.021$ $0.297 -0.009$ $0.397 0.058$ $0.552 0.092$ $0.659 0.084$	+ $r/R= 0.816$ v_t/v_m v_o/v_m -0.173 0.477 -0.140 0.768 -0.036 0.955 0.009 1.001 0.026 0.914 0.045 0.906 0.057 0.938 0.074 0.930 0.092 0.887 0.107 0.866 0.113 0.849 0.123 0.816 0.121 0.766 0.121 0.766 0.110 0.726 0.110 0.725 0.117 0.464 0.029 0.298 0.029 0.298 0.134 0.575 0.117 0.464 0.029 0.298 -0.093 0.412 -0.111 0.570 -0.066 0.667	$r=82.5 \text{ mm} \\ v_x/v_m v_r/v_m \\ 0.632 0.029 \\ 0.809 0.070 \\ 0.983 0.141 \\ 1.008 0.152 \\ 0.917 0.122 \\ 0.906 0.118 \\ 0.948 0.126 \\ 0.947 0.122 \\ 0.902 0.102 \\ 0.877 0.086 \\ 0.854 0.069 \\ 0.814 0.046 \\ 0.762 0.023 \\ 0.722 0.002 \\ 0.670 -0.009 \\ 0.598 -0.023 \\ 0.479 -0.031 \\ 0.257 -0.071 \\ 0.346 0.004 \\ 0.530 0.055 \\ 0.668 0.064 \\ 0.64$	→ $r/R=$ 1.035 v_t/v_m v_o/v_m 0.115 0.643 0.004 0.812 -0.074 0.996 -0.064 1.022 0.006 0.925 0.029 0.914 0.014 0.957 0.033 0.955 0.069 0.910 0.087 0.886 0.087 0.886 0.087 0.882 0.100 0.822 0.107 0.770 0.998 0.729 0.094 0.677 0.117 0.610 0.107 0.492 0.040 0.270 0.120 0.366 -0.171 0.559 -0.156 0.689	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$

.86 -

	r= 30	0.0 mm	$\rightarrow r/R=$	0.376	r = 4	7.5 mm	→ r/R=	0.596		·		
¢	v _x /v _m	v_r/v_m	v_t/v_m	v _o /v _m	v _x /v _m	v_r/v_m	v _t /v _m	v_{o}/v_{m}				
0 10 20 30 40	0.326 0.329 0.447 0.481 0.451	-0.039 -0.050 -0.025 -0.026 -0.033	0.046 -0.090 -0.112 -0.128 -0.118	0.332 0.345 0.462 0.498 0.468	0.377 0.306 0.343 0.376 0.419	-0.096 -0.144 -0.099 -0.009 0.061	0.120 0.028 -0.046 -0.070 -0.001	0.407 0.339 0.360 0.383 0.423	Na (3	chstro 3-dimen	ommessu nsional	ing 1)
50 60 70 80	0.443 0.470 0.494 0.519	-0.030 -0.012 0.002 0.009	-0.112 -0.108 -0.106 -0.106	0.458 0.482 0.505 0.530	0.476 0.531 0.558 0.534	0.109 0.100 0.088 0.065	0.031 0.042 0.057 0.067	0.489 0.542 0.568 0.542	HSVA	-Model	l Nr.	1512
100 110 120 130	0.541 0.558 0.577 0.585 0.591	0.014 0.027 0.043 0.068	-0.100 -0.095 -0.084 -0.078	0.551 0.568 0.586 0.595	0.515 0.505 0.498 0.519 0.536	0.049 0.033 0.008 -0.001	0.061 0.040 0.009	0.521 0.509 0.499 0.519	Ver	such N	Ir. N55	/74
 140 150 160 170 180	0.577 0.565 0.492 0.373 0.286	0.114 0.140 0.145 0.145 0.145	-0.052 -0.016 0.019 0.064 0.030	0.590 0.582 0.513 0.405 0.310	0.597 0.673 0.626 0.489 0.329	0.043 0.093 0.117 0.122 0.083	-0.007 0.017 0.050 0.093 0.072	0.598 0.680 0.639 0.512 0.347	Dri	ftwink	cel β=	+20
190 200 210 220 230	0.273 0.393 0.460 0.508 0.551	0.046 0.025 0.023 0.039 0.047	-0.057 -0.097 -0.104 -0.095 -0.106	0.282 0.406 0.472 0.518 0.563	0.277 0.436 0.512 0.564 0.613	0.011 -0.005 -0.010 0.000 0.001	-0.035 -0.092 -0.105 -0.090 -0.098	0.280 0.445 0.523 0.571 0.621				
240 250 260 270 280	0.606 0.663 0.705 0.737 0.745	0.059 0.074 0.095 0.111 0.123	-0.113 -0.107 -0.089 -0.081 -0.060	0.619 0.676 0.717 0.750 0.757	0.679 0.750 0.789 0.807 0.815	0.017 0.040 0.063 0.076 0.086	-0.107 -0.103 -0.089 -0.081 -0.067	0.688 0.758 0.796 0.814 0.823		-		
290 300 310 320 330 340	0.754 0.756 0.762 0.744 0.723 0.611	0.132 0.141 0.157 0.149 0.124 0.071	-0.028 0.001 0.015 0.039 0.091	0.766 0.769 0.778 0.759 0.739 0.629	0.842 0.862 0.867 0.853 0.861 0.768	0.103 0.118 0.125 0.129 0.148 0.109	-0.047 -0.028 -0.020 0.012 0.064	0.849 0.871 0.876 0.863 0.876 0.783		Tabe	lle B4	
350	0.431	0.012	0.151	0.457	0.579	0.025	0.166	0.603				
	r= 65 V /V	5.0 mm	$\rightarrow r/R=$	0.816 v /v	r= 8 v /v	2.5 mm	$\rightarrow r/R = V/V$	1.035 v /v	r=10 v/v	0.0 mm	$\rightarrow r/R=$	1.255 v /v
ň	'x''m 0.399	'r''m -0.048	"t''m 0.183	о́т 0 442	x'm 0 398	'r'm -0 042	"t'm 0 207	о́т 0 451	x'm	'r'm 0 106	't''m 0.055	о'т 0 046
0 120 340 560 780 900 112340 112340 112340 112340 112340 112340 112340 112340 112340 112340 112340 112340 1122340 100 100 100 100 100 100 100 100 100 1	0.3992627900.46817900.882776612600951770.2883000.55709951770.2883000.55709553370.4770.2883000.55709553370.4770.288800.9900.5533247770.288800.9900.5900.5900.5900.5900.5900.5900	$\begin{array}{c} -0.048\\ 0.007\\ 0.128\\ 0.192\\ 0.156\\ 0.130\\ 0.084\\ 0.077\\ 0.0422\\ 0.0025$	$\begin{array}{c} 0.183\\ 0.089\\ -0.061\\ -0.004\\ 0.101\\ 0.144\\ 0.144\\ 0.152\\ 0.162\\ 0.163\\ 0.155\\ 0.162\\ 0.155\\ 0.163\\ 0.155\\ 0.053\\ 0.053\\ 0.053\\ 0.053\\ 0.053\\ 0.127\\ -0.109\\ -0.109\\ -0.109\\ -0.109\\ -0.109\\ -0.085\\ 0.085\\ -0.085\\ -0.085\\ -0.085\\ -0.030\\ -0.$	2607798 4407798 447030084348 986643488 98664348 98664348 9887 65570959597 9777781376 88919 000000000000000000000000000000000	0.34849269680911511448399499659995688755	$\begin{array}{c} -0.042\\ 0.017\\ 0.136\\ 0.19\\ 0.098\\ 0.080\\ 0.080\\ 0.080\\ 0.067\\ 0.044\\ 0.024\\ 0.016\\ 0.010\\ 0.024\\ 0.016\\ 0.010\\ 0.024\\ 0.064\\ 0.078\\ -0.028\\ -0.012\\ -0.028\\ -0.028\\ -0.012\\ -0.028\\ -0.012\\ -0.028\\ -0$	0.2078 -0.002 0.046 0.1433 0.1634 0.1507 0.1507 0.1507 0.1507 0.1507 0.1507 0.1507 0.1507 0.1289 0.00990 0.00990 0.014372 -0.1272 -0.1272 -0.12884 -0.15083 -0.155844 -0.155844 -0.155844 -0.155844 -0.155844 -0.155844 -0.155844 -0.155844 -0.155844 -0.155844 -0.155844 -0.155844 -0.155844 -0.155844 -0.155844 -0.155844 -0.155844 -0.1558544 -0.1558544 -0.1558544 -0.1558544 -0.1558544 -0.1558544 -0.1558544 -0.1558544 -0.1558544 -0.1558544 -0.1558544 -0.1558544 -0.1558544 -0.1558544 -0.15575744 -0.1558544 -0.1558544 -0.1558544 -0.1558544 -0.15575744 -0.1558544 -0.15575744 -0.1558544 -0.15575744 -0.1558544 -0.15575744 -0.1558544 -0.15575744 -0.1558544 -0.15575744 -0.1558544 -0.15575744 -0.1558544 -0.05757574 -0.057574457 -0.057574 -0.057574 -0.057574 -0.057574457574 -0.0575745757457575757575757575757575757575	0.4518 0.4518 0.99311 0.99311 0.99311 0.99347111 0.9934711 0.9934711 0.99347111 0.99347111 0	0.9340 0.99482 0.99518 0.99518 0.99518 0.99447 0.99519 0.99519 0.99519 0.99519 0.99519 0.99519 0.99519 0.99519 0.99519 0.99519 0.99519 0.99519 0.99519 0.99519 0.557052 0.557052 0.557052 0.557052 0.557959 0.99519	$\begin{array}{c} 0.106\\ 0.098\\ 0.075\\ 0.056\\ 0.056\\ 0.038\\ 0.027\\ 0.016\\ 0.004\\ -0.003\\ 0.012\\ 0.0032\\ 0.0325\\ -0.0032\\ 0.0325\\ -0.0032\\ 0.0325\\ -0.0032\\ 0.0325\\ -0.0034\\ -0.0032\\ 0.0032\\ 0.0032\\ -0.0032\\ 0.0032\\ -0.0032\\ 0.0032\\ -0.0032\\ 0.0032\\ -0.0032\\ 0.0032\\ -0.0032\\ 0.0032\\ -0.003\\ -$	$\begin{array}{c} 0.0551\\ 0.0093\\ 0.0099\\ 0.1076\\ 0.1123\\ 0.1128\\ 0.1128\\ 0.1128\\ 0.1128\\ 0.1128\\ 0.1128\\ 0.1128\\ 0.1128\\ 0.1128\\ 0.1128\\ 0.11129\\ 0.11129\\ 0.11129\\ 0.11129\\ 0.11129\\ 0.11129\\ 0.11129\\ 0.11129\\ 0.11129\\ 0.11129\\ 0.0051\\ 1.129\\$	$\begin{array}{c} 6825986355221049396435996639929999998999988493296435998683592000000000000000000000000000000000000$

	r= 3	0.0 mm	+ r/R=	0.376	r= 4	7.5 mm	+ r/R=	0.596				
φ	$v_{\rm x}/v_{\rm m}$	v _r /v _m	v_t / v_m	v _o /v _m	$v_{\mathbf{x}}/v_{\mathbf{m}}$	v_r/v_m	v_t/v_m	v_{o}/v_{m}				
-0 10 20 30	0.456 0.524 0.638 0.703	-0.022 0.023 0.080 0.123	-0.083 -0.153 -0.122 -0.100	0.464 0.546 0.655 0.721	0.493 0.628 0.764 0.829	-0.065 0.032 0.100 0.140	-0.134 -0.159 -0.092 -0.056	0.515 0.649 0.776 0.842	Na (:	.chstro 3-dime	ommessu nsiona	ung l)
40 50 60 70 80	0.713 0.728 0.734 0.740 0.735	0.139 0.151 0.141 0.130 0.116	-0.068 -0.043 -0.020 0.006 0.032	0.729 0.744 0.748 0.751 0.745	0.824 0.836 0.840 0.832 0.815	0.139 0.146 0.143 0.136 0.118	-0.028 0.000 0.023 0.046 0.065	0.836 0.849 0.852 0.845 0.826	HSVA	-Model	ll Nr.	1512
90 100 110 120 130	0.729 0.714 0.697 0.664 0.623	0.104 0.089 0.071 0.053 0.037	0.057 0.073 0.092 0.097 0.101	0.739 0.723 0.707 0.673 0.633	0.804 0.789 0.767 0.731 0.699	0.101 0.083 0.062 0.044 0.028	0.085 0.098 0.114 0.116 0.113	0.814 0.799 0.777 0.741 0.709	Ver	such 1	Nr. N61	+/74
140 150 160 170	0.585 0.559 0.497 0.364	0.026 0.010 0.015 0.030	0.102 0.111 0.101 0.079	0.594 0.570 0.508 0.373	0.647 0.583 0.491 0.344	0.009 -0.022 -0.023 -0.006	0.112 0.127 0.110 0.052	0.657 0.597 0.504 0.348	Dri	ftwin	<el β="</td"><td>-4⁰</td></el>	-4 ⁰
190 200 210 220	0.429 0.564 0.638 0.642	0.125 0.181 0.179 0.172 0.136	-0.048 -0.014 0.022 0.070	0.468 0.592 0.662 0.660	0.563 0.685 0.720 0.650	0.152 0.141 0.123 0.082	-0.057 -0.019 0.013 0.037	0.586 0.700 0.731 0.656				
230 240 250 260 270	0.655 0.660 0.646 0.634	0.106 0.083 0.060 0.041 0.024	0.102 0.111 0.127 0.137 0.141	0.671 0.675 0.675 0.662 0.650	0.610 0.604 0.586 0.559 0.529	0.051 0.038 0.015 -0.006 -0.022	0.047 0.032 0.027 0.021 0.002	0.614 0.606 0.587 0.559 0.529		-		
280 290 300 310 320	0.614 0.589 0.573 0.564 0.557	0.011 -0.004 -0.015 -0.025 -0.023	0.140 0.142 0.142 0.137 0.140	0.630 0.606 0.590 0.581 0.575	0.505 0.481 0.476 0.476 0.478	-0.028 -0.040 -0.047 -0.044 -0.074	-0.002 0.015 0.031 0.020 0.033	0.505 0.483 0.479 0.479 0.485		Tabe	elle BS	5
330 340 350	0.547 0.502 0.429	-0.017 -0.022 -0.054	0.163 0.132 0.050	0.571 0.519 0.436	0.478 0.461 0.416	-0.115 -0.151 -0.184	0.087 0.068 -0.010	0.499 0.490 0.455				
-												
	r= 6	5.0 mm	+ r/R=	0.816	r= 8	2.5 mm	$\rightarrow r/R=$	1.035	r= 10	0.0 mm	→ r/R=	1.255
ф	r=6 $V_{\rm r}/V_{\rm m}$	5.0 mm $V_{\rm r}/V_{\rm m}$	+ $r/R=$ V_{+}/V_{m}	0.816 V_/V_m	r = 8 V_{y}/V_{m}	2.5 mm V./V.	$ \rightarrow r/R = V_{+}/V_{m}$	1.035 <i>v_/v_</i>	r = 10 V_{y}/V_{m}	0.0 mm V_/V_	+ $r/R=$ V_{+}/V_{-}	1.255 v_/v_
ϕ 10 20 40 50 70 80 90 100 120 130 150 120 130 120 230 230 240 230 240 240 240 240 240 240 240 24	r = 6 V_x / m 0.514 0.728 0.9200 0.9928 0.9921 0.89221 0.89221 0.88529 0.6622299 0.653990 0.653990 0.653990 0.652391 0.662895 0.66285 0.664855	5.0 mm Vr/Vm -0.044 0.062 0.138 0.157 0.130 0.140 0.135 0.119 0.135 0.119 0.135 0.119 0.130 0.047 0.047 0.047 0.047 0.021 -0.023 0.074 0.125 0.125 0.100 0.058 0.057 0.0557	+ r/R= Vt/Vm -0.155 -0.150 -0.071 -0.035 -0.019 0.021 0.042 0.061 0.021 0.042 0.061 0.077 0.094 0.119 0.124 0.112 0.108 -0.101 -0.035 -0.039 -0.104 -0.025 -0.039 -0.046 -0.111 -0.116 -0.1116 -0.1116 -	$\begin{array}{c} 0.816 \\ V_{0}/V_{m} \\ 0.539 \\ 0.746 \\ 0.940 \\ 0.902 \\ 0.938 \\ 0.932 \\ 0.932 \\ 0.938 \\ 0.932 \\ 0.931 \\ 0.8851 \\ 0.753 \\ 0.753 \\ 0.753 \\ 0.753 \\ 0.547 \\ 0.478 \\ 0.588 \\ 0.723 \\ 0.588 \\ 0.753 \\ 0.588 \\ 0.6611 \\ 0.664 \\ 0.653 \\ 0.664 \\$	$r = 8$ V_{X} / V_{m} 0.400 0.714 1.016 0.9714 0.9916 0.9911 0.9916 0.991 0.9	2.5 mm Vr/Vm -0.056 0.052 0.143 0.156 0.122 0.143 0.124 0.124 0.143 0.124 0.143 0.124 0.143 0.124 0.091 0.065 0.027 -0.040 0.079 0.095 0.095 0.095 0.095 0.056 0.056 0.040 0.055 0.040 0.055 0.040 0.055 0.040 0.055 0.040 0.055 0.040 0.055 0.040 0.055 0.040 0.055 0.040 0.055 0.040 0.055 0.040 0.055 0.055 0.040 0.055 0.040 0.055 0.055 0.040 0.055 0.055 0.055 0.055 0.055 0.055 0.040 0.055	+ p/R= V _t /V _m -0.176 -0.179 -0.086 -0.061 -0.054 -0.020 -0.020 -0.021 0.024 0.050 0.071 0.100 0.108 0.098 0.103 0.144 0.129 0.024 -0.134 -0.134 -0.134 -0.158 -0.158 -0.205 -0.202 -0.222 -0.2248	$\begin{array}{c} 1.035 \\ \nu_{o} / \nu_{m} \\ 0.441 \\ 0.738 \\ 0.988 \\ 1.030 \\ 0.920 \\ 0.9220 \\ 0.9220 \\ 0.923 \\ 0.9223 \\ 0.923 \\ 0.9223 \\ 0.9225 \\ 0.923 \\ 0.923 \\ 0.923 \\ 0.923 \\ 0.923 \\ 0.923 \\ 0.925 \\ 0.923 \\ 0.925 \\ 0.923 \\ 0.925 \\ 0.923 \\ 0.925 \\ 0.923 \\ 0.925 \\ 0.$	r = 10 v x 99458 0.99558 0.99558 0.99558 0.99449 0.9958 0.99449 0.9957 0.99449 0.9958 0.99449 0.9958 0.99449 0.9958 0.99449 0.9958 0.99449 0.9958 0.9958 0.99449 0.9958 0.9957 0.9958 0.9958 0.9958 0.9958 0.9957 0.9958 0.9958 0.9957 0.9958 0.9957 0.9958 0.9957 0.9958 0.9957 0.9958 0.9957 0.9957 0.9588 0.9578 0.9588 0.9588 0.9588 0.9588 0.9588 0.9588 0.9588 0.0588	0.0 mm Vr/Vm 0.107 0.084 0.075 0.082 0.105 0.114 0.109 0.105 0.096 0.052 0.052 0.053 0.005 0.055 0.024 -0.055 0.025 0.055 0.0279 0.055 0.055 0.0279 0.055 0.054 0.055 0.0053 0.055 0.05	<pre></pre>	$\begin{array}{c} 1.255 \\ \nu_{0} / \nu_{m} \\ 9.255 \\ 0.9254 \\ 0.99552 \\ 0.99552 \\ 0.99552 \\ 0.9959 \\ 0.9959 \\ 0.9999 \\ 0.999 \\ 0.999 \\ 0.999 \\ 0.999 \\ 0.999 \\ 0.999 \\ 0.999 \\ 0.991 \\ 0.8776 \\ 9.889 \\ 0.987 \\ 0.888 \\ 9.999 \\ 0.888 \\ 0.637 \\ 0.888 \\ 9.999 \\ 0.888 \\ 0.637 \\ 0.888 \\ 9.999 \\ 0.888 \\ 0.988 \\ 0.888 \\ 0.988 \\ 0.888 \\ 0.988 \\ 0.888 \\ 0.995 \\ 0.888 \\ 0.995 \\ 0.888 \\ 0.995 \\ 0.888 \\ 0.995 \\ 0.888 \\ 0.995 \\ 0.888 \\ 0.995 \\ 0.888 \\ 0.995 \\ 0.888 \\ 0.995 \\ 0.99$

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	r= 3	0.0 mm	→ r/R=	0.376	r= 4	7.5 mm	$\rightarrow r/R=$	0.596				
φ.	$v_{\rm x}/v_{\rm m}$	v_r / v_m	v_t / v_m	v _o /v _m	$v_{\rm x}/v_{\rm m}$	v _r /v _m	v_t / v_m	v_{o}/v_{m}				
0 10	0.458 0.463	-0.013 -0.029	0.020 -015	0.459 0.478	0.498 0.464	-0.117 -0.220	0.088 -0.014	0.519 0.514	Na	chstro	mmessu	ng
20 30	0.572	-0.017	-0.158 -0.184	0.594	0.545	-0.166	-0.070 -0.087	0.574	· (3	-dimen	nsiona:	1)
40	0.599	-0.042	-0.177 -0.177	0.627	0.558	-0.093	-0.052 -0.043	0.568 0.566				
60 70 80	0.635	-0.028 -0.009 0.010	-0.176 -0.172 -0.171 -0.171	0.660 0.678 0.688	0.573 0.587 0.581	-0.065 -0.050 -0.036	-0.050 -0.041 -0.030	0.578 0.590 0.583	HSVA	-Model	l Nr.	1512
100	0.685	0.041	-0.169	0.707	0.565	-0.016	-0.039	0.566	Ver	such N	Ir. N56	/74
120 130	0.700	0.087	-0.136	0.718	0.629	0.036	-0.036	0.631				
140 150	0.686	0.145	-0.094 -0.046	0.707	0.672	0.084	-0.024	0.678	-			0
160 170	0.604	0.190	-0.005	0.633	0.713	0.152	0.036	0.730	Dri	ftwink	tel β=	+40
180 190	0.373	0.144	-0.001	0.400	0.446	0.090	0.043	0.457				
200 210	0.528	0.021	-0.115	0.540	0.524	-0.024	-0.104	0.535				
220 230	0.610	0.037	-0.112	0.621	0.690	0.007	-0.107	0.699				
240	0.690	0.065	-0.113	0.702	0.782	0.048	-0.113	0.791				
260	0.739	0.102	-0.083	0.751	0.836	0.094	-0.075	0.844				
280	0.764	0.131	-0.047	0.777	0.864	0.118	-0.041	0.873				
300	0.770	0.139 0.144	0.005	0.783	0.870	0.134	0.007	0.881		Tabe	lle B6	
320	0.750	0.137	0.056	0.764	0.854	0.125	0.042	0.864				
340 350	0.677	0.087	0.121	0.693	0.793	0.098	0.110	0.806				
	r= 6	5.0 mm	+ r/R=	0.816	r= 8	2.5 mm	→ r/R=	1.035	r= 10	0.0 mm	+ r/R=	1.255
¢	r= 6 V _x /V _m	5.0 mm <i>V_r/V_m</i>	+ $r/R=$ v_t/v_m	0.816 .v _o /v _m	r= 8 V _x /V _m	2.5 mm V _r /V _m	$ \begin{array}{c} \rightarrow r/R=\\ V_t/V_m \end{array} $	1.035 <i>v_o/v_m</i>	$r = 10$ $V_{\rm x}/V_{\rm m}$	0.0 mm <i>v_r/v_m</i>	$ \rightarrow r/R = \frac{V_t}{V_t} $	1.255 v _o /v _m
¢ 0 10	r = 6 v_{x}/v_{m} 0.557 0.398	V_{r}/V_{m} -0.044 -0.216	+ $r/R=$ v_t/v_m 0.184 0.066	0.816 vo/vm 0.588 0.458	r = 8 v_{x}/v_{m} 0.616 0.465	v_{r}/v_{m} -0.060 -0.096	$ \overrightarrow{r/R} = \frac{V_t/V_m}{0.015} $	1.035 <i>V_O/V_m</i> 0.619 0.475	r = 10 $V_{\rm x}/V_{\rm m}$ 0.900 0.866	0.0 mm v_{r}/v_{m} 0.091 0.123	$ \overrightarrow{r/R} = \frac{V_t/V_m}{0.120} $	1.255 v_{o}/v_{m} 0.912 0.885
¢ 0 10 20 30	$r = 6$ v_{x} / v_{m} 0.557 0.398 0.437 0.493	V_r / V_m -0.044 -0.216 -0.135 -0.021	+ r/R= V _t /V _m 0.184 0.066 -0.057 -0.073	0.816 vo/vm 0.588 0.458 0.461 0.499	r = 8 v_x / v_m 0.616 0.465 0.405 0.678	v_r / v_m -0.060 -0.096 -0.017 0.112	+ r/R= Vt/Vm 0.015 -0.002 0.001 0.086	1.035 Vo/Vm 0.619 0.475 0.405 0.693	r = 10 V_{x}/V_{m} 0.900 0.866 0.887 0.921	0.0 mm v_r/v_m 0.091 0.123 0.107 0.072	+ r/R= V _t /V _m 0.120 0.138 0.149 0.172	1.255 vo/vm 0.912 0.885 0.906 0.906
¢ 0 10 20 30 40 50	r= 6 V / V m 0.557 0.398 0.437 0.493 0.556 0.572	V_{r}/V_{m} -0.044 -0.216 -0.135 -0.021 0.072 0.102	+ r/R= V _t /V _m 0.184 0.066 -0.057 -0.073 0.056 0.118	0.816 Vo/Vm 0.588 0.458 0.458 0.461 0.499 0.563	r = 8 V_{x}/V_{m} 0.616 0.465 0.405 0.678 0.858 0.858	2.5 mm V _r /V _m -0.060 -0.096 -0.017 0.112 0.118 0.101	<pre></pre>	1.035 V / V m 0.619 0.475 0.405 0.693 0.878 0.914	r = 10 $V_{\rm x}/V_{\rm m}$ 0.900 0.866 0.887 0.921 0.929 0.913	0.0 mm V _r /V _m 0.091 0.123 0.107 0.072 0.032 0.010	<pre></pre>	1.255 Vo/Vm 0.912 0.885 0.906 0.940 0.947 0.930
φ 10 20 30 40 50 60 70	r= 6 V/Vm 0.557 0.398 0.437 0.493 0.556 0.568	5.0 mm V _r /V _m -0.044 -0.216 -0.135 -0.021 0.072 0.102 0.065 0.044	+ r/R= V _t /V _m 0.184 0.066 -0.057 -0.073 0.056 0.118 0.117 0.120	0.816 Vo/Vm 0.588 0.458 0.461 0.499 0.563 0.593 0.588	r= 8 V / V m 0.616 0.465 0.405 0.678 0.858 0.858 0.890 0.779 0.714	2.5 mm Vr/Vm -0.060 -0.096 -0.017 0.112 0.118 0.101 0.056 0.078	<pre></pre>	1.035 Vo/Vm 0.619 0.475 0.405 0.693 0.878 0.914 0.801 0.801	r = 10 V_x/V_m 0.900 0.866 0.887 0.921 0.929 0.913 0.869 0.885	0.0 mm vr/vm 0.091 0.123 0.107 0.072 0.032 0.010 0.012	<pre></pre>	1.255 V / V m 0.912 0.806 0.940 0.940 0.947 0.930 0.885
φ 0 10 20 30 40 50 60 70 80	r= 6 V _x /V _m 0.557 0.398 0.437 0.493 0.556 0.552 0.565 0.568 0.5502	5.0 mm Vr/Vm -0.044 -0.216 -0.135 -0.021 0.072 0.102 0.065 0.044 0.037 0.228	<pre></pre>	0.816 v /v m 0.588 0.458 0.459 0.563 0.580 0.583 0.583 0.561	r= 8 V / V m 0.616 0.465 0.405 0.678 0.858 0.890 0.779 0.744 0.736	v_r/v_m -0.060 -0.096 -0.017 0.112 0.118 0.101 0.056 0.038 0.046	<pre></pre>	1.035 V /V m 0.619 0.475 0.405 0.693 0.878 0.914 0.801 0.765 0.756	r= 10 V _x /V _m 0.900 0.866 0.887 0.921 0.929 0.913 0.869 0.845 0.804	0.0 mm Vr/Vm 0.091 0.123 0.107 0.072 0.032 0.010 0.010 0.012 0.004 -0.003	<pre></pre>	1.255 Vo/Vm 0.912 0.885 0.906 0.940 0.940 0.947 0.947 0.885 0.861 0.820
φ 0 10 20 30 40 50 60 70 80 90 100	r= 6 V /Vm 0.557 0.398 0.437 0.493 0.556 0.568 0.550 0.568 0.550 0.507 0.501	5.0 mm Vr/Vm -0.044 -0.216 -0.135 -0.021 0.072 0.102 0.065 0.044 0.037 0.028 0.030	+ r/R= V _t /V _m 0.184 0.066 -0.057 -0.073 0.056 0.118 0.117 0.120 0.109 0.101 0.084	0.816 Vo/Vm 0.588 0.458 0.458 0.461 0.499 0.563 0.593 0.583 0.583 0.583 0.583 0.552 0.518 0.505	r= 8 v/vm 0.616 0.465 0.405 0.678 0.858 0.858 0.890 0.779 0.736 0.667 0.600	2.5 mm V _r /V _m -0.060 -0.096 -0.017 0.112 0.118 0.101 0.056 0.038 0.046 0.036 0.030	<pre></pre>	1.035 Vo/Vm 0.619 0.475 0.405 0.693 0.878 0.914 0.801 0.765 0.756 0.686 0.616	r = 10 V_{x}/V_{m} 0.900 0.866 0.887 0.921 0.929 0.913 0.869 0.845 0.804 0.727 0.697	0.0 mm v _r /v _m 0.091 0.123 0.107 0.072 0.032 0.010 0.012 0.004 -0.003 -0.009 0.009	<pre></pre>	1.255 v / v m 0.912 0.885 0.906 0.940 0.940 0.930 0.855 0.865 0.865 0.865 0.865 0.865 0.865 0.865 0.742 0.742 0.709
φ 10 20 30 40 50 60 70 80 90 100 110 120	r= 6 V _x /V _m 0.557 0.398 0.437 0.493 0.556 0.557 0.568 0.550 0.568 0.5501 0.530 0.580	5.0 mm v_r / v_m -0.044 -0.216 -0.135 -0.021 0.072 0.065 0.044 0.037 0.028 0.030 0.034 0.045	<pre></pre>	0.816 v /v m 0.588 0.458 0.458 0.563 0.580 0.580 0.580 0.5562 0.5109 0.5509	r= 8 V / V m 0.616 0.465 0.405 0.405 0.678 0.858 0.890 0.774 0.736 0.660 0.586 0.586 0.640	v_r/v_m -0.060 -0.096 -0.017 0.112 0.118 0.101 0.056 0.038 0.046 0.030 0.030 0.041 0.059	<pre></pre>	1.035 V /V m 0.619 0.475 0.405 0.693 0.878 0.914 0.801 0.765 0.756 0.686 0.616 0.596 0.650	r= 10 V_x/V_m 0.900 0.866 0.887 0.921 0.929 0.929 0.929 0.929 0.929 0.929 0.929 0.929 0.929 0.929 0.929 0.929 0.869 0.869 0.804 0.727 0.697 0.759	0.0 mm V _r /V _m 0.091 0.123 0.107 0.072 0.032 0.010 0.012 0.004 -0.003 -0.009 0.009 0.035 0.044	<pre></pre>	1.255 Vo/Vm 0.912 0.8855 0.906 0.940 0.8855 0.940 0.940 0.8855 0.940 0.940 0.8855 0.940 0.940 0.8855 0.940 0.940 0.8855 0.940 0.8855 0.940 0.8855 0.940 0.8855 0.8855 0.940 0.8855 0.8855 0.8855 0.8855 0.8855 0.8855 0.8855 0.8855 0.8855 0.8855 0.8855 0.8855 0.8700 0.8855 0.8700 0.8855 0.8700 0.8770 0.8770 0.8750 0.8770 0.7725 0
φ 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140	r= 6 V /Vm 0.557 0.398 0.437 0.493 0.556 0.572 0.568 0.550 0.568 0.550 0.568 0.550 0.580 0.580 0.586 0.586 0.645	5.0 mm Vr/Vm -0.044 -0.216 -0.135 -0.021 0.072 0.102 0.065 0.044 0.037 0.028 0.030 0.034 0.034 0.045 0.050 0.078	<pre>* r/R= Vt/Vm 0.184 0.066 -0.057 -0.073 0.056 0.118 0.117 0.120 0.109 0.101 0.084 0.065 0.051 0.036 0.040</pre>	0.816 v /v m 0.588 0.458 0.459 0.563 0.5930 0.583 0.55095 0.5589 0.5588 0.5583 0.5585 0.5583 0.5583 0.5583 0.5583 0.5583 0.5583 0.5583 0.5	r= 8 r_x/r_m 0.616 0.465 0.405 0.678 0.858 0.879 0.744 0.736 0.667 0.667 0.586 0.586 0.654 0.654 0.707	2.5 mm V _r /V _m -0.060 -0.096 -0.017 0.112 0.118 0.101 0.056 0.038 0.046 0.036 0.036 0.036 0.030 0.041 0.059 0.059 0.059 0.059 0.059	<pre></pre>	1.035 Vo/Vm 0.619 0.475 0.405 0.693 0.878 0.914 0.801 0.765 0.756 0.686 0.616 0.596 0.650 0.663 0.718	r= 10 V_V/V_m 0.900 0.866 0.921 0.929 0.913 0.869 0.845 0.869 0.845 0.869 0.845 0.869 0.727 0.697 0.719 0.759 0.753	0.0 mm Vr/Vm 0.091 0.123 0.107 0.072 0.032 0.010 0.012 0.004 -0.003 -0.009 0.009 0.035 0.044 0.039 0.039	<pre></pre>	1.255 V o / V m 0.912 0.885 0.9040 0.9866 0.940 0.98551 0.8820 0.7302 0.7756 0.756
φ 10 20 30 40 50 60 70 80 100 120 130 140 150 160	r= 6 V / V m 0.557 0.398 0.437 0.493 0.556 0.557 0.568 0.557 0.568 0.5501 0.580 0.597 0.597 0.598 0.557 0.598 0.557 0.558 0.557 0.558 0.572 0.558 0.558 0.572 0.558 0.572 0.558 0.572 0.5550	$\begin{array}{c} 5.0 \text{ mm} \\ v_r / v_m \\ -0.044 \\ -0.216 \\ -0.135 \\ -0.021 \\ 0.072 \\ 0.065 \\ 0.044 \\ 0.037 \\ 0.028 \\ 0.030 \\ 0.034 \\ 0.045 \\ 0.050 \\ 0.078 \\ 0.113 \\ 0.119 \end{array}$	<pre> r/R= Vt/Vm 0.184 0.066 -0.057 -0.073 0.056 0.118 0.117 0.120 0.101 0.084 0.065 0.051 0.036 0.040 0.046 0.070 </pre>	0.816 v / v m 0.588 0.458 0.4993 0.5983 0.5583 0.55628 0.558519 0.558519 0.558519 0.558512 0.558512 0.5773	$r = 8$ V_{X}/V_{m} 0.616 0.465 0.405 0.678 0.858 0.890 0.7736 0.667 0.667 0.660 0.586 0.654 0.707 0.651 0.7810 0.781	$\begin{array}{c} 12.5 \text{ mm} \\ v_r / v_m \\ -0.060 \\ -0.096 \\ -0.017 \\ 0.112 \\ 0.118 \\ 0.101 \\ 0.056 \\ 0.038 \\ 0.046 \\ 0.036 \\ 0.030 \\ 0.041 \\ 0.059 \\ 0.009 \\ 0.102 \\ 0.009 \\ 0.000 \\ 0.$	<pre></pre>	1.035 V /V m 0.619 0.475 0.405 0.693 0.878 0.878 0.801 0.765 0.756 0.686 0.616 0.6596 0.6596 0.6678 0.794	r= 10 V / V m 0.900 0.866 0.887 0.921 0.929 0.929 0.929 0.929 0.929 0.929 0.929 0.929 0.929 0.929 0.929 0.929 0.929 0.929 0.929 0.929 0.743 0.759 0.753 0.753 0.796	0.0 mm Vr/Vm 0.091 0.123 0.107 0.072 0.032 0.010 0.012 0.004 -0.003 -0.009 0.009 0.009 0.035 0.044 0.039 0.039 0.039 0.039 0.039 0.039	<pre></pre>	1.255 Vo/Vm 0.912 0.8855 0.9040 0.940 0.947 0.9430 0.8861 0.8861 0.88620 0.7732 0.7756 0.7756 0.7558 0.8512
φ 0 10 20 30 40 50 60 70 80 90 100 120 130 140 150 160 170 180	r= 6 V /Vm 0.557 0.398 0.437 0.493 0.5565 0.565 0.565 0.568 0.550 0.501 0.580 0.580 0.580 0.580 0.580 0.586 0.580 0.586 0.586 0.586 0.586 0.586 0.580 0.586 0.580 0.586 0.572 0.580 0.572 0.580 0.572 0.580 0.572 0.580 0.572 0.580 0.572 0.580 0.572 0.580 0.572 0.580 0.572 0.593 0.557 0.593 0.557 0.598 0.572 0.5577 0.55770	5.0 mm Vr/Vm -0.044 -0.216 -0.135 -0.021 0.072 0.102 0.065 0.044 0.037 0.028 0.030 0.034 0.045 0.050 0.078 0.119 0.106 0.041	<pre>* r/R= Vt/Vm 0.184 0.066 -0.057 -0.073 0.056 0.118 0.117 0.120 0.101 0.109 0.101 0.084 0.065 0.051 0.036 0.040 0.046 0.070 0.118 0.091</pre>	0.816 v /v m 0.588 0.458 0.4599 0.5633 0.55095 0.55095 0.55891 0.55891 0.55891 0.55891 0.55891 0.56518 0.5589 0.5583 0.5654 0.5633 0	r= 8 r_x/r_m 0.616 0.465 0.678 0.858 0.8799 0.744 0.736 0.667 0.667 0.667 0.6667 0.6640 0.654 0.654 0.7810 0.7811 0.630 0.451	2.5 mm Vr/Vm -0.060 -0.096 -0.017 0.112 0.118 0.101 0.056 0.038 0.046 0.036 0.036 0.036 0.036 0.041 0.059 0.059 0.079 0.079 0.079 -0.079 -0.079 -0.070 0.099 -0.070 0.099 -0.070 -0.059 -0.070 -0.059 -0.070 -0.059 -0.070 -0.059 -0.070 -0.059 -0.070 -0.038 -0.070 -0.059 -0.079 -0.059 -0.079 -0.079 -0.079 -0.079 -0.079 -0.079 -0.079 -0.079 -0.079 -0.079 -0.079 -0.079 -0.079 -0.0079 -0.0079 -0.0079 -0.0079 -0.003	<pre></pre>	1.035 V /V m 0.619 0.475 0.405 0.693 0.878 0.914 0.765 0.6801 0.7566 0.6616 0.6596 0.6633 0.752 0.7942 0.6253 0.752 0.4653	$r = 10$ V_x / V_m 0.900 0.866 0.921 0.929 0.913 0.929 0.923 0.869 0.845 0.727 0.697 0.759 0.759 0.759 0.759 0.759 0.75844 0.7585 0.3552	0.0 mm Vr/Vm 0.091 0.123 0.107 0.072 0.032 0.010 0.012 0.004 -0.003 -0.009 0.0035 0.044 0.039 0.039 0.039 0.039 0.062 0.062 0.028 -0.077	<pre></pre>	1.255 Vo/Vm 0.912 0.9885 0.9940 0.9947 0.98851 0.8860 0.88620 0.88620 0.88620 0.7709 0.7756 0.8812 0.77565 0.8815 0.8157 0.377
φ 10 20 30 40 50 60 70 80 100 120 130 140 150 160 170 180 190 200	r = 6 V_X / V_m 0.557 0.398 0.437 0.556 0.557 0.568 0.557 0.568 0.5501 0.580 0.580 0.580 0.580 0.580 0.580 0.580 0.580 0.580 0.580 0.580 0.580 0.572 0.580 0.580 0.580 0.572 0.580 0.580 0.572 0.580 0.572 0.580 0.572 0.580 0.572 0.580 0.572 0.580 0.572 0.580 0.572 0.580 0.572 0.572 0.580 0.572 0.580 0.572 0.580 0.572 0.580 0.572 0.580 0.572 0.580 0.572 0.580 0.572 0.580 0.572 0.580 0.572 0.5757 0.572 0.5757 0.572 0.5757 0.572 0.572 0.580 0.572 0.5757 0.572 0.5757 0.572 0.572 0.572 0.5757 0.572 0.572 0.572 0.572 0.5757 0.572 0.5757 0.572 0.5757 0.572 0.5757 0.5777 0.5777 0.5777 0.5779 0.5779 0.5779 0.5779 0.5779 0.5779	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	<pre> r/R= Vt/Vm 0.184 0.066 -0.057 -0.073 0.056 0.118 0.117 0.120 0.101 0.084 0.065 0.051 0.036 0.040 0.046 0.070 0.118 0.091 -0.046 -0.120 </pre>	0.816 Vo /Vm 0.5888 0.4593 0.55883 0.55883 0.55589 0.5559	$r = 8$ V_X / V_m 0.616 0.465 0.405 0.678 0.858 0.890 0.7736 0.660 0.7744 0.7736 0.660 0.6586 0.6540 0.767 0.660 0.6540 0.7810 0.630 0.451 0.356 0.603	$\begin{array}{c} 12.5 \text{ mm} \\ v_r/v_m \\ -0.060 \\ -0.096 \\ -0.017 \\ 0.112 \\ 0.118 \\ 0.101 \\ 0.056 \\ 0.038 \\ 0.046 \\ 0.036 \\ 0.036 \\ 0.041 \\ 0.059 \\ 0.059 \\ 0.059 \\ 0.059 \\ 0.059 \\ 0.059 \\ 0.059 \\ 0.070 \\ 0.099 \\ 0.102 \\ 0.070 \\ 0.099 \\ 0.102 \\ 0.070 \\ -0.003 \\ -0.108 \\ -0.048 \end{array}$	<pre></pre>	1.035 v_{o}/v_{m} 0.619 0.475 0.405 0.693 0.878 0.914 0.801 0.765 0.6586 0.6616 0.6618 0.66638 0.7650 0.6658 0.6659 0.6658 0.65580 0.655800 0.65580000000000000000000000000000000000	r= 10 V / V m 0.900 0.866 0.921 0.9229 0.923 0.869 0.869 0.869 0.8804 0.7297 0.7593 0.7593 0.75824 0.75852 0.35522 0.3663	0.0 mm Vr/Vm 0.091 0.123 0.107 0.072 0.032 0.010 0.012 0.004 -0.003 0.009 0.009 0.009 0.009 0.035 0.044 0.039 0.039 0.035 0.044 0.039 0.039 0.062 0.028 -0.077 -0.072 0.057 -0.069	<pre> r/R= Vt/Vm 0.120 0.138 0.149 0.172 0.165 0.164 0.165 0.164 0.165 0.164 0.129 0.123 0.132 0.132 0.132 0.132 0.142 0.152 0.187 0.1093 -0.152 </pre>	1.255 V 0 / V m 0.912 0.9885 0.9940 0.9947 0.98861 0.88620 0.9861 0.88620 0.7732 0.7756 0.77565 0.6512 0.6512 0.37156 0.6512 0.37156 0.6512 0.6157 0.6832 0.64157 0.6832 0.64157 0.6832 0.64157 0.6852 0.64157 00
φ 0 10 20 30 40 50 60 70 80 90 100 120 130 140 150 160 170 180 190 220 220	$r = -6$ V_X / V_m 0.557 0.398 0.437 0.493 0.557 0.568 0.557 0.568 0.550 0.5645 0.5645 0.7650 0.642 0.7650 0.612 0.5750 0.612 0.5750 0.612 0.5750 0.6751 0.5796 0.751 0.579 0.5796 0.751 0.5796 0.751 0.579 0.751 0.579 0.5796 0.751 0.579 0.57 0.57 0.57 0.57 0	5.0 mm Vr/Vm -0.044 -0.216 -0.135 -0.021 0.072 0.102 0.065 0.044 0.037 0.028 0.030 0.034 0.045 0.050 0.078 0.119 0.106 0.041 -0.054 -0.026 -0.026 0.031	<pre>* r/R= Vt/Vm 0.184 0.066 -0.057 -0.073 0.056 0.118 0.117 0.120 0.109 0.101 0.084 0.065 0.051 0.036 0.040 0.046 0.070 0.118 0.091 -0.046 -0.120 -0.134 -0.109</pre>	0.816 v_0 / v_m 0.588 0.4561 0.588 0.4563 0.55832 0.55852 0.558512 0.558512 0.558512 0.558512 0.558512 0.558512 0.558512 0.558512 0.558512 0.576336 0.57723 0.576336 0.57773 0.576376 0.57777 0.57777 0.57777	r= 8 r/rm 0.616 0.465 0.405 0.678 0.858 0.859 0.774 0.736 0.667 0.667 0.686 0.654 0.654 0.654 0.654 0.6554 0.6554 0.6551 0.6351 0.60351 0.60351 0.60351 0.60351 0.7258	2.5 mm Vr/Vm -0.060 -0.096 -0.017 0.112 0.118 0.101 0.056 0.038 0.046 0.036 0.030 0.041 0.059 0.059 0.070 0.059 0.070 0.029 0.070 0.029 0.079 -0.003 -0.015 0.030	<pre></pre>	1.035 V_0/V_m 0.619 0.475 0.405 0.693 0.878 0.878 0.801 0.765 0.6596 0.6596 0.6596 0.6596 0.6596 0.6596 0.6596 0.6595 0.6595 0.4615 0.628 0.415 0.628	r= 10 V / V m 0.900 0.866 0.921 0.929 0.869 0.759 0.753 0.753 0.3552 0.3552 0.3693 0.3693 0.3552 0.3552 0.3693 0.3693 0.3552 0.3693 0.3693 0.3552 0.3693 0.3693 0.3552 0.3693 0.3693 0.3552 0.3693 0.3693 0.3552 0.3693 0.3693 0.3552 0.3693 0.3693 0.3552 0.3693 0.3693 0.3552 0.3693 0.3693 0.3552 0.3693 0.3693 0.3552 0.3693 0.3693 0.3552 0.3693 0.3693 0.3552 0.3693 0.3693 0.3552 0.3693 0.3693 0.3693 0.3552 0.3693 0.3693 0.3693 0.3552 0.3693	0.0 mm Vr/Vm 0.091 0.123 0.107 0.072 0.032 0.010 0.012 0.004 -0.003 -0.009 0.035 0.044 0.039 0.039 0.044 0.039 0.044 0.039 0.044 0.039 0.044 0.039 0.044 0.039 0.044 0.039 0.044 0.039 0.044 0.039 0.044 0.052 0.052 0.052 0.052 0.052 0.052 0.052 0.052 0.052 0.052 0.055	<pre></pre>	1.255 Vo/Vm 0.9125 0.9945 0.9945 0.9947 0.9947 0.9947 0.9947 0.9947 0.9866 0.9947 0.98620 0.9947 0.98620 0.9947 0.98620 0.88620 0.88620 0.88620 0.77050 0.77656 0.8515 0.637155 0.6851 0.8851
φ 0 10 20 30 40 50 70 80 90 100 120 120 140 150 160 170 180 190 220 240 240 240 240 240 240 24	r = 6 V_X / V_m 0.557 0.398 0.4377 0.4936 0.5572 0.568 0.55507 0.5586 0.5586 0.5685 0.5685 0.5685 0.5685 0.5686 0.5686 0.5686 0.5686 0.5686 0.5686 0.5686 0.5686 0.5686 0.5696 0.5799 0.6961 0.8143 0.8143	5.0 mm Vr/Vm -0.044 -0.216 -0.135 -0.021 0.072 0.065 0.044 0.037 0.028 0.030 0.034 0.045 0.058 0.058 0.058 0.078	<pre> r/R= Vt/Vm 0.184 0.066 -0.057 -0.073 0.056 0.118 0.117 0.120 0.109 0.101 0.084 0.065 0.051 0.036 0.040 0.046 0.070 0.118 0.091 -0.046 -0.120 -0.134 -0.109 -0.110 </pre>	$\begin{array}{c} 0.816 \\ v \ / v_m \\ 0.5888 \\ 0.4593 \\ 0.55980 \\ 0.55883 \\ 0.555883 \\ 0.5558891 \\ 0.5558891 \\ 0.5558891 \\ 0.5558891 \\ 0.5558891 \\ 0.5558891 \\ 0.5558891 \\ 0.555789 \\ 0.555789 \\ 0.555789 \\ 0.555789 \\ 0.555789 \\ 0.555789 \\ 0.55789 \\ 0.55789 \\ 0.55789 \\ 0.55789 \\ 0.55789 \\ 0.55789 \\ 0.55789 \\ 0.55789 \\ 0.55789 \\ 0.55789 \\ 0.55789 \\ 0.55789 \\ 0.55789 \\ 0.55789 \\ 0.55789 \\ 0.55789 \\ 0.5777 \\ 0.8851 \\ 0.5777 \\ 0.5777 \\ 0.581 \\ 0.57777 \\ 0.5777 \\ 0.5777 \\ 0.5777 \\ 0.5777 \\ 0.5777 \\ 0.5777 \\ 0.5$	r = 8 V_X/V_m 0.616 0.465 0.465 0.858 0.8590 0.7744 0.7667 0.6686 0.6586 0.65840 0.65840 0.65840 0.6581 0.6258 0.6258 0.77955 0.8584	$\begin{array}{c} 12.5 \text{ mm} \\ v_r/v_m \\ -0.060 \\ -0.096 \\ -0.017 \\ 0.112 \\ 0.118 \\ 0.101 \\ 0.056 \\ 0.038 \\ 0.046 \\ 0.036 \\ 0.030 \\ 0.041 \\ 0.059 \\ 0.079 \\ 0.079 \\ 0.079 \\ -0.003 \\ 0.079 \\ -0.003 \\ 0.079 \\ -0.003 \\ 0.079 \\ -0.003 \\ 0.079 \\ -0.003 \\ 0.079 \\ -0.003 \\ 0.079 \\ -0.003 \\ 0.079 \\ -0.003 \\ 0.079 \\ -0.030 \\ 0.079 \\ -0.030 \\ 0.078 \\ -0.015 \\ 0.030 \\ 0.060 \\ 0.078 \\ \end{array}$	<pre> r/R= Vt/Vm 0.015 -0.002 0.001 0.086 0.147 0.177 0.174 0.165 0.134 0.092 0.094 0.104 0.092 0.099 0.146 0.105 -0.160 -0.160 -0.158 -0.158 </pre>	1.035 v_{o}/v_{m} 0.619 0.475 0.693 0.878 0.914 0.865 0.6593 0.914 0.865 0.666 0.666 0.6596 0.666 0.665 0.655 0.555 0.655 0.6550 0.6550 0.6552 0.65500 0.65500 0.65500 0.655000 0.655000 0.6550000000000	r= 10 V v m 0.900 0.866 0.921 0.9229 0.9229 0.869 0.9213 0.9229 0.9213 0.9229 0.9213 0.9217 0.7259 0.7759 0.7759 0.7754 0.75852 0.3572 0.3572 0.3572 0.3572 0.366330 0.9933 0.9933	0.0 mm Vr/Vm 0.091 0.123 0.107 0.072 0.032 0.010 0.012 0.004 -0.0039 0.009 0.0035 0.044 0.039 0.062 0.062 0.0059 -0.069 -0.0569	<pre> r/R= Vt/Vm 0.120 0.138 0.149 0.176 0.165 0.164 0.165 0.164 0.165 0.129 0.123 0.132 0.132 0.137 0.142 0.142 0.152 0.152 0.152 0.169 -0.169 -0.140 -0.128 </pre>	1.255 V 0 / V m 0.98856 0.9947 0.98851 0.98851 0.988520 0.988520 0.886224 0.8862429 0.77377565 0.7755525 0.7755525 0.3468151 0.889945 0.889945 0.86157755 0.5468151 0.889945 0.889945 0.889945 0.88592 0.885925 0.89575 0.89575 0.89575 0.895755 0.895755 0.895755 0.895755 0.895755 0.895755 0.895755 0.8957555 0.8957555 0.9957555 0.99575555555 0.99575555555555555555555555555555555555
φ 0 10 20 30 40 50 60 70 80 900 110 120 130 140 150 170 180 220 230 240 220 230 240 260 230 240 200 200 200 200 200 200 20	r = -6 V_X/V_m 0.557 0.398 0.437 0.493 0.5577 0.5577 0.5577 0.5577 0.5577 0.55776 0.8435 0.8425 0.8425 0.8425 0.8425 0.8425 0.8425 0.8425 0.8425 0.8425 0.8425 0.5812 0.	5.0 mm Vr/Vm -0.044 -0.216 -0.135 -0.021 0.072 0.102 0.065 0.044 0.037 0.028 0.030 0.034 0.045 0.058 0.113 0.106 0.041 -0.026 -0.028 0.041 -0.026 0.041 -0.026 0.058 0.031 0.058 0.078 0.078 0.031 0.058 0.078 0.071 0.026 0.0102 0.055 0.021 0.025 0.021 0.025 0.025 0.024 0.025 0.025 0.025 0.024 0.025 0.025 0.025 0.025 0.024 0.025 0.055	<pre> r/R= Vt/Vm 0.184 0.066 -0.057 -0.073 0.056 0.118 0.117 0.120 0.109 0.046 0.070 0.046 0.070 0.118 0.091 -0.120 -0.134 -0.109 -0.110 -0.096 -0.110 -0.096 -0.067 </pre>	0.816 v_0 / v_m 0.5888 0.45619 0.558619 0.558628 0.55862891 0.55862891 0.55851233628999 0.57763482299 0.5777214 0.5777214 0.5777214 0.885972 0.89292 0.99292 0.9	r= 8 V / V m 0.616 0.465 0.465 0.465 0.465 0.465 0.465 0.465 0.465 0.465 0.465 0.7744 0.6660 0.6580 0.6584 0.6584 0.6585 0.6585 0.6551 0.6551 0.6551 0.6555 0.6558 0.65555 0.65555 0.65555 0.65555 0.65555 0.655555 0.65555 0.655555 0.655555 0.6555	2.5 mm Vr/Vm -0.060 -0.096 -0.017 0.112 0.118 0.101 0.056 0.036 0.036 0.036 0.036 0.036 0.030 0.041 0.059 0.059 0.079 0.059 0.079 0.003 -0.003 -0.003 -0.003 -0.003 -0.004 0.059 0.079 0.003 -0.003 -0.004 0.003 -0.004 0.005 0.00	<pre></pre>	1.035 v_0/v_m 0.619 0.4755 0.4053 0.878 0.878 0.8765 0.6866 0.6596 0.66638 0.7566 0.66166 0.66596 0.66638 0.78294 0.66538 0.65538 0.55548 0.65538 0.65538 0.65538 0.65538 0.65538 0.65538 0.65538 0.55548 0.555568 0.555568 0.555568 0.555568 0.555568 0.555568 0.555568 0.555568 0.555568 0.555568 0.555568 0.555568 0.555568 0.555568 0.555568 0.555568 0.555568 0.55556880000000000000000000000000000000	r= 10 V v m 0.866 0.929 0.8821 0.9293 0.8821 0.9293 0.8845 0.9293 0.8845 0.9293 0.8845 0.9293 0.8845 0.9293 0.8845 0.9293 0.8845 0.7597 0.7754 0.7754 0.535723 0.8955 0.9955 0.8955 0.8955 0.9955 0.9955 0.9955 0.8955 0.8955 0.9955	0.0 mm Vr/Vm 0.091 0.123 0.107 0.072 0.032 0.010 0.012 0.004 -0.003 0.009 0.035 0.044 0.039 0.035 0.044 0.039 0.0628 -0.0608 -0.0688 -0.0688 -0.0688 -0.0688 -0.0688 -0.0688 -0.0688 -0.0778 -0.0886 -0.08888 -0.08888 -0.08888 -0.08888 -0.0888888888 -0.088888888888888888888888888888888888	<pre> r/R= Vt/Vm 0.120 0.138 0.149 0.172 0.165 0.165 0.164 0.165 0.164 0.165 0.169 0.169 -0.169</pre>	1.255 Vo/Vm 0.98866 0.9947 0.98861 0.9947 0.98861 0.9947 0.98861 0.9947 0.98861 0.9947 0.98861 0.9947 0.98861 0.9947 0.98861 0.9947 0.88620 0.9775668 0.6637153 0.6637155 0.6637155 0.6657557 0.6859547
φ 0 10 20 30 40 50 70 80 90 100 120 130 140 150 160 170 120 230 240 230 240 230 240 250 260 270 270 270 270 270 270 270 27	r = 6 V_X / V_m 0.557 0.398 0.437 0.552 0.5568 0.557 0.5568 0.55507 0.5586 0.5586 0.5586 0.5586 0.5586 0.5586 0.5680 0.5686 0.56961 0.3779 0.66961 0.88462 0.5579 0.66961 0.88462 0.9266	5.0 mm Vr/Vm -0.044 -0.216 -0.135 -0.021 0.072 0.065 0.044 0.037 0.028 0.030 0.034 0.041 0.058 0.058 0.058 0.058 0.058 0.058 0.058 0.058 0.078 0.124 -0.058 0.058 0.078 0.124 -0.058 0.078 0.124 -0.058 0.058 0.078 0.124 -0.058 0.058 0.078 0.126 -0.028 0.058 0.058 0.058 0.078 0.058 0.078 0.058 0.058 0.058 0.078 0.058 0.058 0.058 0.058 0.058 0.078 0.058 0.058 0.058 0.058 0.058 0.058 0.058 0.058 0.058 0.078 0.058 0.058 0.078 0.058 0.058 0.058 0.078 0.058 0.058 0.078 0.058 0.078 0.1130 0.124	<pre> r/R= Vt/Vm 0.184 0.066 -0.057 -0.073 0.056 0.118 0.117 0.120 0.101 0.084 0.065 0.051 0.036 0.040 0.046 0.070 0.118 0.091 -0.120 -0.134 -0.109 -0.110 -0.096 -0.120 -0.134 -0.109 -0.110 -0.096 -0.049 -0.049 -0.043 </pre>	0.816 v / v_m 888 0.456193300 0.55883200 0.555883200 0.555883195339 0.55588310 0.55588310 0.55588310 0.55588310 0.55588310 0.55588310 0.55588310 0.55588310 0.55588310 0.55588310 0.55588310 0.55588310 0.55588310 0.55588310 0.55588310 0.55588310 0.555783310 0.5557777885570 0.5889223360 0.593360 0.557777885570 0.5889223360 0.593560 0.593560 0.593560 0.593560 0.593560 0.59	r = 8 V_X (16) 0.4655 0.4658 0.4678 0.4678 0.7746 0.6699 0.7745 0.6658 0.65840 0.65840 0.65840 0.65840 0.65840 0.65840 0.65858 0.659758 0.66258 0.62588 0.62588 0.62588 0.62588 0.62588 0.62588 0.62588 0.62588 0.62588 0.62588 0.62588 0.62588 0.	2.5 mm Vr/Vm -0.060 -0.096 -0.017 0.112 0.118 0.101 0.056 0.038 0.046 0.030 0.041 0.059 0.079 0.079 0.079 0.079 0.079 0.079 0.007 0.108 -0.048 -0.148 -0.148 -0.148 -0.048 -0.148 -0.148 -0.048 -0.148 -0.148 -0.148 -0.048 -0.148	<pre> r/R= Vt/vm 0.015 -0.002 0.001 0.086 0.147 0.177 0.174 0.165 0.134 0.092 0.094 0.104 0.092 0.099 0.145 0.160 -0.160 -0.168 -0.15 -0.158 -0.15</pre>	1.035 v_{o}/v_{m} 0.619 0.4755 0.6938 0.9141 0.7560 0.66196 0.65950 0.65950 0.65950 0.65950 0.65950 0.66196 0.6998 0.9998 0.9994 0.99994 0.99994 0.99994 0.999400 0.999400 0.99940000000000	r= 10 V x 0.866 0.8887 0.99219 0.8867 0.99199 0.8845 0.88027 0.8865 0.88027 0.7759 0.77546 0.77585 0.77585 0.77585 0.77585 0.77585 0.75852 0.66933 0.99440 0.99440 0.9955 0.0955 0.0955 0.0955 0.0955 0.0955 0.000 0.9955 0.0000 0.00000 0.000000 0.00000000	0.0 mm Vr/Vm 0.091 0.123 0.107 0.072 0.032 0.010 0.012 0.004 -0.0039 0.028 0.028 0.028 0.0262 0.0262 0.0262 0.0277 -0.0366 0.0277 -0.0366 0.0277 -0.0366 0.0289 0.0044 0.0399 0.0277 -0.0366 0.0289 0.0044 0.0277 0.0366 0.0044 0.00277 -0.0366 0.0044 0.0028 0.0028 0.00577 -0.0059 0.0059 0.0057 -0.0059 0.0057 0.0059 0.0057 0.0059 0.0057 0.0059 0.0059 0.0057 0.0059 0.0059 0.0059 0.0057 0.0059 0.0059 0.0059 0.0059 0.0059 0.0059 0.0059 0.0059 0.0057 0.0059 0.0059 0.0059 0.0059 0.0059 0.0057 0.0059	<pre> r/R= Vt/Vm 0.120 0.138 0.149 0.176 0.164 0.165 0.164 0.165 0.164 0.129 0.123 0.132 0.137 0.142 0.137 0.142 0.148 0.149 0.148 0.193 -0.169 -0.148 -0.104 -0.082 -0.047 -</pre>	1.255 V 0/Vm 0.98866 0.99470 0.988622499 0.988622499 0.988622499 0.988622499 0.988622499 0.988617758 0.6889999999 0.0000 0.00000 0.0000 0.0000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.000000 0.00000000
φ 0 10 20 30 40 500 70 80 900 120 130 140 150 170 180 220 230 240 230 240 230 240 230 240 230 240 230 240 200 200 200 200 200 200 20	r = 6 V_X / V_m 0.557 0.398 0.437 0.4937 0.5562 0.5562 0.5563 0.55507 0.5586 0.5586 0.55865 0.55865 0.55865 0.55865 0.55865 0.56432 0.56437 0.569611 0.84366 0.9260 0.9943 0.9943	5.0 mm Vr/Vm -0.044 -0.216 -0.135 -0.021 0.072 0.065 0.044 0.037 0.028 0.030 0.034 0.044 0.037 0.028 0.030 0.044 0.058 0.031 0.058 0.078 0.058 0.114 0.054 0.058 0.058 0.114 0.12	<pre> r/R= Vt/Vm 0.184 0.066 -0.057 -0.073 0.056 0.118 0.117 0.120 0.109 0.101 0.084 0.065 0.051 0.036 0.046 0.070 0.118 0.091 -0.120 -0.134 -0.109 -0.110 -0.109 -0.110 -0.049 -0.033 -0.014 0.009 </pre>	0.816 v_0 / v_m 0.58881093300000000000000000000000000000000	r = 8 $r = 7$ $r =$	2.5 mm Vr/Vm -0.060 -0.096 -0.017 0.112 0.118 0.0101 0.056 0.036 0.036 0.036 0.036 0.036 0.036 0.036 0.030 0.041 0.059 0.059 0.079 0.059 0.079 0.059 0.079 0.003 -0.003 -0.048 -0.048 -0.048 0.015 0.030 0.048 -0.048 -0.048 0.015 0.030 0.059 0.079 -0.003 -0.005 0.012 0.122 0.122 0.122 0.122 0.122 0.124 0.144 0.144 0.145 0.122 0.124 0.144 0.145 0.122 0.124 0.144 0.145 0.124 0.145 0.122 0.124 0.144 0.145 0.124 0.145 0.124 0.144 0.145 0.145 0.145 0.036 0.041 0.059 0.079 0.003 0.041 0.030 0.041 0.057 0.030 0.041 0.056 0.030 0.079 0.030 0.041 0.030 0.041 0.057 0.030 0.041 0.048 0.048 0.141 0.145 0.122 0.124 0.144 0.1	<pre></pre>	1.035 V_0/V_m 0.619 0.4755 0.4053 0.8714 0.8715 0.8714 0.8055 0.6816 0.6618 0.6618 0.66590 0.66618 0.66618 0.87924 2.8412 0.87128 0.995476 0.9954	$r = 10$ V_x / V_m 0.866 0.8921 0.99169 0.8887 0.99169 0.88407 0.89507 0.89937 0.89937 0.89937 0.999440 0.99547 0.99507 00	0.0 mm Vr/Vm 0.091 0.123 0.107 0.072 0.032 0.010 0.012 0.004 -0.003 0.009 0.035 0.044 0.039 0.039 0.035 0.044 0.039 0.0628 -0.0036 0.028 -0.0036 0.0260 0.0257 -0.0366 0.044 0.0628 -0.0036 0.0644 0.0628 -0.0036 0.0644 0.0628 -0.0036 0.0644 0.0658 -0.0036 0.0644 0.0658 -0.0036 0.0644 0.0658 -0.0036 0.0644 0.0658 -0.0036 0.0644 0.0658 -0.0056 0.0644 0.0656 0.0644 0.0656 0.0644 0.0656 0.0644 0.0656 0.0644 0.0656 0.0644 0.0656 0.0656 0.0644 0.0656 0.0656 0.0644 0.0656 0.0656 0.0644 0.0656 0.0566 0.0577 0.0656 0.0566 0.0576 0.0566 0.0576 0.0566 0.0566 0.0576 0.0566 0.0566 0.0576 0.0566 0.0566 0.0576 0.0566 0.0566 0.0576 0.0566 0.0566 0.0576 0.0566 0.0566 0.0576 0.0566 0.0576 0.0566 0.0566 0.0576 0.0566 0.0576 0.0566 0.0576 0.0566 0.0576 0.0566 0.0576 0.0566 0.0576 0.0566 0.0576 0.0566 0.0576 0.0566 0.0576 0.0566 0.0576 0.0566 0.0566 0.0576 0.0566	<pre> r/R= Vt/Vm 0.120 0.138 0.149 0.172 0.161 0.165 0.164 0.165 0.164 0.165 0.165 0.164 0.165 0.165 0.165 0.165 0.164 0.123 0.165 0.165 0.164 0.123 0.165 0.164 0.165 0.164 0.165 0.164 0.165 0.164 0.165 0.164 0.165 0.164 0.165 0.164 0.165 0.164 0.165 0.165 0.164 0.165 0.165 0.164 0.165 0.165 0.165 0.165 0.164 0.165 0.165 0.164 0.165</pre>	1.255 v / v m $0.9886600 0.994470 0.98862299 0.9943551 0.098862299 0.99886229 0.99886229 0.9886229 0.09886229 0.00000 0.00000 0.00000 0.00000 0.000000$
φ 0 10 20 30 40 50 70 80 90 100 120 80 90 100 120 130 140 150 140 150 120 2340 2340 2340 2350	r = 6 V_X / V_m 0.5577 0.3938 0.4373 0.5562 0.55638 0.55638 0.55638 0.55638 0.55638 0.55638 0.55638 0.55638 0.55638 0.55638 0.556437 0.566437 0.56637 0.56637 0.56637 0.56637 0.556437 0.56637 0.56637 0.56637 0.56637 0.56637 0.56637 0.56637 0.56637 0.56637 0.56637 0.56637 0.56637 0.56637 0.56637 0.567522 0.56737 0.5773777 0.577377 0.57737777777777777777777777777	5.0 mm Vr/Vm -0.044 -0.216 -0.135 -0.021 0.072 0.102 0.065 0.044 0.037 0.028 0.030 0.030 0.034 0.045 0.050 0.041 -0.026 0.041 -0.054 -0.026 0.041 -0.058 0.031 0.058 0.008 0.1130 0.1141 0.130 0.130 0.130	<pre> r/R= Vt/Vm 0.184 0.066 -0.057 -0.073 0.056 0.118 0.117 0.120 0.101 0.084 0.065 0.051 0.036 0.040 0.046 0.070 0.118 -0.120 -0.120 -0.134 -0.120 -0.134 -0.120 -0.134 -0.110 -0.096 -0.046 0.070 0.046 0.070 0.046 0.071 0.046 0.070 0.04</pre>	$0.816 v_0 / v_m \\ 8.881 \\ 0.54561 \\ 9.55883 \\ 0.555883 \\ 0.55561 \\ 9.555883 \\ 0.5555883 \\ 1.9555883 \\ 1.9555883 \\ 1.9555883 \\ 1.9555833 \\ 1.95577633 \\ 1.95777633 \\ 1.957777 \\ 1.95777 \\ 1.95777 \\ 1.95777 \\ 1.95777 \\ 1.95777 \\ 1.95777 \\$	r = 8 $r = 7$ $r = 8$ $r = 7$ $r =$	2.5 mm Vr/Vm -0.060 -0.096 -0.017 0.118 0.101 0.056 0.038 0.046 0.030 0.041 0.059 0.070 0.079 0.079 0.079 0.070 0.0099 0.102 0.079 0.007 0.108 -0.048 -0.148 -0.048 -0.148 -0.048 -0.148 -0.048 -0.048 -0.148 -0.048 -0.148 -0.048 -0.148 -0.048 -0.148 -0.048 -0.148	<pre> r/R= Vt/vm 0.015 -0.002 0.001 0.086 0.147 0.177 0.174 0.165 0.177 0.174 0.165 0.134 0.092 0.0994 0.101 0.092 0.0999 0.145 0.060 -0.187 -0.158 -0.158 -0.158 -0.158 -0.158 -0.158 -0.158 -0.036 -0.036 -0.014 -0.036 -0.014 -0.0014</pre>	$1.035 V_0 m$ $0.4755 0.64750 0.64750 0.64750 0.64750 0.64750 0.64750 0.65950 0.65950 0.65950 0.65950 0.65950 0.65950 0.65950 0.65950 0.65950 0.65950 0.65950 0.65950 0.65950 0.65950 0.65950 0.65950 0.65950 0.65950 0.65950 0.595500 0.595500 0.59550 0.59550 0.59550 0.59550 0.59550 0.59550 0.59550 0.59550 0.59550 0.55550 0.55550 0.55550 0.55550 0.55550 0.59550 0.59550 0.59550 0.59550000000000$	r= 10 V x 900 0.8867 0.99139 0.888219 0.888219 0.888219 0.8880219 0.88902177533 0.87535728 0.9934015 0.9934015 0.993400 0.993400 0.9954800 0.9954800 0.9954800000000000000000000000000000000000	0.0 mm Vr/Vm 0.091 0.123 0.107 0.072 0.0010 0.002 0.0035 0.004 -0.0099 0.0035 0.004 0.0039 0.0035 0.0044 0.0039 0.0028 0.0028 0.0028 0.0026 0.0026 0.0027 -0.0059 0.0059 0.0059 0.0059 0.0057 -0.0059 0.0057 -0.0059 0.0057 -0.0059 0.0057 -0.0059 0.0057 -0.0059 0.0057 -0.0059 0.0057 -0.0059 0.0057 -0.0059 0.0057 -0.0059 0.0057 -0.0059 0.0057 -0.0059 0.0057 -0.0059 0.0057 -0.0059 0.0059 0.0057 -0.0059 0.0057 -0.0059 0.0059 0.0059 0.0057 -0.0059 0.0057 -0.0059 0.0057 -0.0059 0.0057 -0.0059 0.0057 0.0057 0.0059 0.0057 0.0059 0	<pre> r/R= Vt/Vm 0.120 0.138 0.149 0.164 0.165 0.164 0.165 0.164 0.123 0.165 0.164 0.123 0.137 0.142 0.132 0.137 0.142 0.148 0.193 -0.169 -0.148 -0.008 -0.129 -0.148 -0.008 -0.029 -0.027</pre>	1.255 V m 255 V 0 988660470510229902668257 0.8999430510229902668257753 0.988862499022668257753 0.998886249902668817753 0.688599999999999999999999999999999999999
φ 0 10 20 30 40 500 70 80 900 120 130 140 150 170 180 220 230 250 260 270 280 250 260 270 250 260 270 250 260 270 250 250 260 270 250 260 270 250 250 250 250 250 250 250 25	$ \begin{array}{c} r = & 6 \\ V_X \\ v_m \\ 0.5578 \\ 0.4937 \\ 0.5575 \\ 0.5562 \\ 0.5568 \\ 0.5565 \\ 0.5565 \\ 0.5565 \\ 0.5586 \\ $	5.0 mm Vr/Vm -0.044 -0.216 -0.135 -0.021 0.072 0.065 0.044 0.037 0.028 0.030 0.034 0.045 0.030 0.034 0.045 0.058 0.058 0.031 0.058 0.078 0.028 0.028 0.028 0.0137 0.026 0.044 0.037 0.028 0.030 0.044 0.037 0.028 0.044 0.037 0.028 0.044 0.037 0.028 0.030 0.044 0.037 0.028 0.030 0.044 0.037 0.030 0.044 0.037 0.030 0.044 0.037 0.030 0.045 0.058 0.058 0.078 0.058 0.078 0.058 0.078 0.031 0.058 0.031 0.058 0.0102 0.028 0.031 0.058 0.031 0.028 0.031 0.028 0.031 0.028 0.031 0.028 0.031 0.028 0.031 0.028 0.031 0.028 0.031 0.028 0.031 0.028 0.031 0.028 0.031 0.028 0.031 0.124 0.130 0.124 0.028 0.031 0.124 0.130 0.124 0.124 0.130 0.124 0.127 0.124 0.124 0.124 0.127 0.124 0.124 0.127 0.124 0.127 0.124 0.127 0.124 0.127 0.124 0.127 0.124 0.127 0.124 0.127 0.124 0.127 0.124 0.127 0.124 0.127 0.127 0.124 0.127 0.127 0.127 0.127 0.124 0.127 0.	<pre> r/R= Vt/Vm 0.184 0.066 -0.057 -0.073 0.056 0.118 0.117 0.120 0.109 0.101 0.084 0.065 0.051 0.0340 0.046 0.070 0.118 0.0946 0.070 0.110 -0.120 -0.134 -0.109 -0.134 -0.109 -0.134 -0.109 -0.049 -0.033 -0.048 0.058 </pre>	$0.816 v_{m} \\ v_{m} \\ 888109330053891233628299014455930055558891223362299014455930000000000000000000000000000000000$	$r = \frac{8}{7} \frac{1}{7} \frac{1}{10} \frac{1}{10}$	12.5 mm v_r/v_m -0.060 -0.096 -0.017 0.112 0.113 0.036 0.038 0.046 0.036 0.039 0.041 0.059 0.079 0.102 0.079 -0.003 -0.015 0.102 0.079 -0.048 -0.015 0.122 0.123 0.124 0.125 0.122 0.123 0.124	+ $r/R=$ V_t/v_m 0.015 -0.002 0.001 0.086 0.147 0.174 0.177 0.174 0.164 0.192 0.0991 0.0991 0.0991 0.0991 0.0991 0.0991 0.0091 0.0999 0.146 0.155 -0.0060 -0.1587 -0.060 -0.1581 -0.0687 -0.1581 -0.06846 -0.1591 -0.06846 -0.055 -0.002 -0.174 -0.1645 -0.1092 -0.002	1.035 V_{0}/V_{m} 0.47553 0.47553 0.44033 0.8056 0.87566 0.659563824 2.4203 0.659563824 2.57566 0.6661824 2.57666 0.6661824 2.57666 0.67817 0.999447 0.99447 0.99447 0.99447 0.99447 0.99447 0.99447 0.99447 0.99447 0.99447 0.99447 0.99447 0.99447	$r = 10$ $V_{x} 900$ 0.888219 0.888219 0.888229396654 $0.9916954277999933346522330553769401210$ $0.9956542777549875557669403999441218$ 0.99565777549033700 0.99565700 0.99570	0.0 mm Vr/Vm 0.091 0.123 0.107 0.072 0.012 0.0032 0.0032 0.0035 0.0039 0.0354 0.0039 0.0399 0.0354 0.0399 0.0399 0.0354 0.0039 0.0035 0.0044 0.0039 0.0035 0.0044 0.0039 0.00460 0.0057 -0.00366 0.0044 0.0057 0.0044 0.00566 0.0044 0.0057 0.0056 0.0057 0.0056 0.0057 0.0056 0.0057 0.0056 0.0057 0.0056 0.0057 0.0056 0.0057 0.0056 0.0057 0.0056 0.0057 0.0056 0.0057 0.0056 0.0056 0.0057 0.0056 0.0056 0.0057 0.0056 0.0056 0.0057 0.0056 0.0056 0.0057 0.0056 0.0056 0.0057 0.0056 0.0056 0.0057 0.0056 0.0056 0.0057 0.0056 0.0056 0.0057 0.0056 0.0056 0.0057 0.0056 0.0056 0.0057 0.0056 0.0056 0.0057 0.0056	<pre> r/R= Vt/vm 0.120 0.138 0.149 0.165 0.164 0.165 0.165 0.164 0.165 0.165 0.164 0.165 0.165 0.164 0.123 0.165 0.164 0.123 0.165 0.164 0.123 0.165 0.164 0.165 0.164 0.165 0.164 0.165 0.164 0.165 0.164 0.165 0.164 0.165 0.164 0.165 0.164 0.165 0.164 0.165 0.164 0.165 0.164 0.165 0.164 0.165 0.164 0.165 0.165 0.164 0.165 0.164 0.165 0.164 0.165 0.165 0.164 0.165 0.164 0.165 0.164 0.165 0.165 0.164 0.165</pre>	$1.255 / \nu_{m} \\ 255 / \nu_{m} $

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	r= 30.0)mm →	r /R= (0.376	r = 4	7.5 mm	$\rightarrow r/R=$	0.596				
¢	$v_{\rm x}/v_{\rm m}$	r''m	v_t / v_m	v_o/v_m	v _x /v _m	v_r/v_m	v_t / v_m	v_{o}/v_{m}				
0 10	0.524 0	0.001 0.052	-0.055	0.527 0.618	0.579	-0.097 0.029	-0.110 -0.164	0.597 0.726	Na	chstrc	mmessu	ıng
20 30	0.730 C 0.796 C).101).126	-0.134 -0.120	0.750 0.815	0.852	$0.091 \\ 0.118$	-0.106	0.864 0.924	(3	-dime	nsional	1)
40 50	0.795 C	D.136 D.154	-0.084	0.811	0.902	0.110 0.122	-0.052	$0.910 \\ 0.929$				
60 70	0.822 0	0.161	-0.034	0.839	0.936	0.134	-0.009	0.946	целл	-Modol	1 Nr	1510
80	0.834).141	0.027	0.846	0.919	0.124	0.039	0.928	прля	-model	T INT, •	1912
100	0.817 0	0.123	0.068	0.829	0.917	0.108	0.079	0.926	Ver	such N	r. N65	5/74
120	0.775 0	0.100	0.113	0.819	0.902	0.090	0.106	0.913				
130	0.688	0.053	$0.115 \\ 0.114$	0.744	0.834	0.057	0.134	0.847 0.801				
150 160	0.658 0 0.593 0	0.023 0.018	0.135 0.127	0.672 0.606	0.735	-0.008 -0.025	0.162 0.140	0.752 0.655	Dri	ftwink	el β=	-6 ⁰
170 180	0.454 C	0.031 0.140	0.086	0.463 0.448	0.485	-0.027	0.070	0.491 0.514				
190 200	0.519 0 0.664 0	0.208 0.196	-0.053	0.562	0.626	0.154 0.150	-0.060	0.647				
210	0.739	0.175	0.044	0.761	0.756	0.135	0.029	0.769				
230	0.726	0.097	0.132	0.744	0.603	0.065	0.075	0.611				
250	0.703	0.048	0.167	0.724	0.552	0.036	0.074	0.558		-		
270	0.659 (0.021	0.179	0.702	0.532	0.013	0.080	0.538 0.540				
280 290	0.656 -0 0.658 -0	0.016 0.044	0.183 0.181	0.682 0.684	0.570	-0.013	0.069 0.084	0.575 0.593				
300 310	0.650 -0 0.632 -0).056).059	0.183 0.187	0.678	0.609	-0.060 -0.070	0.094	0.620 0.657		Tabe	lle B7	
320 330	0.621 -0	0.034 0.011	0.187	0.649	0.666	-0.103	0.090	0.680				
340 350	0.605 -0 0.518 -0	0.009	0.148	0.623	0.630	-0.190	0.100	0.666				
	r= 65.0)mm →	r/R= (0.816	r = 8	2.5 mm	→ r/R=	1.035	r = 10	0.0 mm	$\rightarrow r/R=$	1.255
φ	v _x /v _m v	r''_{m}	v _t ∕v _m	v _o /v _m	$v_{\rm x}/v_{\rm m}$	v_r / v_m	v_t / v_m	v _o /v _m	$v_{\rm x}/v_{\rm m}$	v _r /v _m	v_t/v_m	v_{o}/v_{m}
0	0.598 -0	0.065	-0.147	0.619	0.634	-0.093	-0.029	0.641	0.924	0.119	-0.183	0.950
20	0.951 0	0.116	-0.093	0.962	0.950	0.105	-0.137	0.966	0.966	0.037	-0.103	0.992
40	0.921	0.110	-0.053	0.929	0.979	0.120	-0.085	0.995	0.962	0.109	-0.081	0.967
50 60	0.920 0	0.117 0.136	-0.037	0.928 0.966	0.927	0.121 0.143	-0.066	0.937 0.967	0.952 0.954	0.125 0.109	-0.066 -0.039	0.962
70 80	0.961 0).142).130	0.008 0.033	0.971 0.948	0.959	0.148 0.134	-0.024	0.971 0.954	0.954 0.951	0.113 0.119	-0.012 0.013	0.961 0.958
90 100	0.929 (0.933 ().121).110	0.056	0.939 0.942	0.937	0.130	0.036	0.946 0.951	0.946 0.943	0.116	0.036	0.953
110 120	0.932 0	0.096	0.103	0.942	0.947	0.102	0.085	0.956	0.941	0.078	0.084	0.948
130	0.909 0	0.072	0.114	0.919	0.930	0.072	0.106	0.939	0.945	0.055	0.098	0.952
150	0.800 -0	0.010	0.167	0.818	0.843	-0.001	0.155	0.857	0.849	-0.023	0.162	0.864
170	0.486 -0	0.054	0.058	0.492	0.488	-0.117	0.058	0.755	0.892	-0.075	0.147	0.455
190	0.652	0.120	-0.089	0.513	0.467	-0.028	-0.122 -0.205	0.483 0.650	0.429 0.639	-0.086 0.008	-0.152 -0.225	0.464
200 210	0.778 C 0.772 C).122).111	-0.042 -0.011	0.788 0.780	0.777	$0.103 \\ 0.118$	-0.133 -0.101	0.795	0.839 0.874	0.060 0.085	-0.173 -0.150	0.859 0.890
220 230	0.633 0 0.560 0	0.091 0.084	-0.011 -0.014	0.639 0.567	0.659	0.101	-0.093 -0.070	0.673	0.736 0.664	0.074	-0.142	0.753
240 250	0.570 C	0.089 0.085	-0.018	0.577	0.604	0.097	-0.110	0.622	0,684	0.061	-0.148	0.702
260 270	0.517 0	0.059 0.035	-0.015	0.520	0.579	0.067	-0.171	0.607	0.710	0.022	-0.179	0.732
280	0.556	0.013	-0.045	0.558	0.634	0.057	-0,202	0.668	0.825	0.002	-0.215	0.853
300	0.572 -0	0.011	-0.022	0.573	0.725	0.063	-0.247	0.769	0.903	0.002	-0.241	0.000
320	0.584 -0	0.028	0.001	0.585	0.704	0.113	-0.247	0.021	0.987	0.005	-0.255	1.020
1 2 2 0 1	r u 5877C	1.119	0.080	u.604	1 0.550	0.056	-0 151	0 577		0 066	0 210	0 0 0 4
340	0.566 -0	193	0.067	0.602	0.423	-0.119	-0.035	0.441	0.805	0.116	-0.224	0.844

- 90 -

1	r= 30.	0 mm -	→ r/R=	0.376	r= 4	7.5 mm	→ r/R=	0.596				
¢	$v_{\rm x}/v_{\rm m}$	v _r /v _m	v_t / v_m	v _o /v _m	$v_{\rm x}/v_{\rm m}$	v_r / v_m	v _t /v _m	v_{o}/v_{m}				
0 10	0.531 0.535 -	0.003	0.001 -0.126	0.531 0.549	0.563	-0.148 -0.238	0.061	0.585 0.621	Na	chstro	mmessu	ing
20 30	0.647 -	0.011 0.036	-0.165 -0.202	0.667 0.711	0.681 0.702	-0.184 -0.153	-0.085	0.711 0.725	(3	-dime:	nsiona	1)
40	0.659 -	0.070	-0.209	0.695	0.638	-0.121	-0.089	0.656 0.627				
60 70 80	0.678 -	0.067 0.044 0.018	-0.209 -0.210 -0.211	0.713 0.711 0.711	0.607 0.576 0.552	-0.070 -0.048 -0.022	-0.109 -0.116 -0.115	0.589	HSVA	-Model	l Nr.	1512
100	0.689	0.003	-0.209	0.720	0.548	0.008	-0.120	0.561	Ver	such N	Ir. N57	/74
120	0.733	0.058	-0.190 -0.178 -0.161	0.760	0.621	0.084	-0.079	0.610 0.631 0.647				
140	0.746	0.142	-0.110	0.767	0.701	0.102	-0.058	0.710				0
160 170	0.658	0.194	-0.005	0.686	0.756	0.151	0.023	0.771	Dri	ftwink	cel β=	+6~
180 190	0.440	0.113 0.025	-0.039 -0.128	0.456 0.521	0.522	0.040 -0.050	0.001	0.524 0.517				
200 210	0.661 0.730	0.027	-0.149 -0.156	0.678	0.677	-0.031 -0.015	-0.147	0.694 0.798				
220	0.742	0.055	-0.141 -0.138	0.758	0.836	0.022	-0.129	0.846 0.894				
240	0.847	0.092	-0.130 -0.115 -0.086	0.863	0.900	0.085	-0.108 -0.087	0.909		-		
270	0.876	0.151	-0.063	0.891	0.924	0.097	-0.041	0.925				
290	0.887	0.162	-0.006	0.902	0.945	0.131	0.010	0.954		Tabe	lle B8	
310 320	0.857	0.154 0.146	0.037 0.066	0.871	0.925 0.924	$0.111 \\ 0.104$	0.038	0.933 0.932				
330 340	0.837	0.137	0.117 0.132	0.856	0.949	0.123	0.097	0.962				
250	0.607	0.054	0.129	0.623	0.698	0.011	0.156	0.716		······		
	n= 65	0 mm -	+ n/R=	0.816	m = 8	2 5 mm	- m/D-	1 035	- 10	0 0 mm		1 955
φ	$r = 65.$ $\frac{v_{\rm x}}{v_{\rm m}}$	0 mm - <i>v_r/v_m</i>	$\rightarrow r/R=$ v_t/v_m	0.816 <i>v_o/v_m</i>	r= 8 V _x /V _m	2.5 mm 	$ \stackrel{*}{} \frac{r/R}{v_t/v_m} $	1.035 <i>v_o/v_m</i>	$r = 10$ $\frac{v_{\rm x}}{v_{\rm m}}$	0.0 mm <i>V_r/V_m</i>	$\rightarrow r/R= V_t/V_m$	1.255 v _o /v _m
φ 0 10	r = 65. $v_{\rm x}/v_{\rm m}$ 0.594 - 0.539 -	0 mm - V _r /V _m 0.097 0.240	<pre></pre>	0.816 v_{o}/v_{m} 0.618 0.590	r = 8 v_{x}/v_{m} 0.658 0.511	2.5 mm v_{r}/v_{m} -0.107 -0.233	$ \begin{array}{r} \neq r/R=\\ V_t/V_m\\ -0.016\\ -0.053 \end{array} $	1.035 v _o /v _m 0.667 0.564	r = 10 $\frac{V_{x}}{V_{m}}$ 0.942 0.776	0.0 mm $\frac{V_{r}}{V_{m}}$ 0.131 0.143	$\rightarrow r/R=$ V_t/V_m 0.144 0.167	1.255 V ₀ /V _m 0.962 0.807
ф 0 10 20 30	r = 65. v_x / v_m 0.594 - 0.539 - 0.654 - 0.654 - 0.689 -	0 mm V_{r}/V_{m} 0.097 0.240 0.175 0.133	+ r/R= V _t /V _m 0.141 0.015 -0.066 -0.087	0.816 V ₀ /V _m 0.618 0.590 0.680 0.707	r = 8 V_x/V_m 0.658 0.511 0.525 0.534	2.5 mm V _r /V _m -0.107 -0.233 -0.184 -0.117	+ r/R= Vt/Vm -0.016 -0.053 -0.005 0.019	1.035 v _o /v _m 0.667 0.564 0.556 0.547	r = 10 V_{x}/V_{m} 0.942 0.776 0.690 0.759	0.0 mm V _r /V _m 0.131 0.143 0.090 0.072	<pre></pre>	1.255 v _o /v _m 0.962 0.807 0.724 0.795
φ 00 20 30 40 50	r= 65. V _x /V _m 0.594 - 0.539 - 0.654 - 0.689 - 0.638 -	0 mm $\frac{V_r}{V_m}$ 0.097 0.240 0.175 0.133 0.084 0.035	<pre> r/R= Vt/Vm 0.141 0.015 -0.066 -0.036 -0.014 </pre>	0.816 Vo/Vm 0.618 0.590 0.680 0.707 0.656 0.639	r = 8 v_x / v_m 0.658 0.511 0.525 0.534 0.621 0.710	2.5 mm V _r /V _m -0.107 -0.233 -0.184 -0.117 -0.008 0.056	<pre> + r/R=</pre>	1.035 Vo [/] Vm 0.667 0.564 0.556 0.547 0.625 0.726	r= 10 V _x /V _m 0.942 0.776 0.690 0.759 0.919 0.982	0.0 mm V _r /V _m 0.131 0.143 0.090 0.072 0.056 0.019	+ r/R= Vt/Vm 0.144 0.167 0.199 0.225 0.233 0.243	1.255 V ₀ /V _m 0.962 0.807 0.724 0.795 0.950 1.011
ф 00 200 300 500 70	$r = 65.$ $\frac{v_{x} / v_{m}}{0.594} - 0.594 - 0.659 - 0.659 - 0.649 - 0.630 - 0.630 - 0.615 - 0.615 - 0.578 - $	0 mm v_r / v_m 0.097 0.240 0.175 0.133 0.084 0.035 0.023 0.014	+ r/R= vt/vm 0.141 0.015 -0.066 -0.087 -0.036 -0.014 -0.018 -0.002	0.816 V /V m 0.618 0.590 0.680 0.707 0.656 0.639 0.616 0.579	r= 8 V _x /V _m 0.658 0.511 0.525 0.534 0.621 0.710 0.717 0.673	2.5 mm V _r /V _m -0.107 -0.233 -0.184 -0.117 -0.008 0.056 0.044 0.024	+ $p/R=$ v_t/v_m -0.016 -0.053 -0.005 0.019 0.071 0.139 0.165 0.167	1.035 V / V m 0.667 0.564 0.556 0.547 0.625 0.726 0.737 0.694	r = 10 V x / V m 0.942 0.776 0.690 0.759 0.919 0.982 0.907 0.847	0.0 mm V _r /V _m 0.131 0.143 0.090 0.072 0.056 0.019 -0.013 -0.022	+ $r/R=$ v_t/v_m 0.144 0.167 0.199 0.225 0.235 0.243 0.228	1.255 Vo/Vm 0.962 0.807 0.724 0.795 0.950 1.011 0.937 0.877
Φ 0 10 20 30 50 60 70 80 90	$r = 65.$ $\frac{v_{x}}{v_{x}} = 0.594 - 0.594 - 0.6594 - 0.6639 - 0.6639 - 0.6439 - 0.6439 - 0.6436 - 0.6155 - 0.578 - 0.578 - 0.578 - 0.578 - 0.5741 - 0.576 - 0.5741 - 0.576 -$	0 mm V _r /V _m 0.097 0.240 0.175 0.133 0.084 0.035 0.023 0.014 0.001 0.029	+ r/R= vt/vm 0.141 0.015 -0.066 -0.087 -0.036 -0.018 -0.002 -0.002 -0.028	0.816 Vo/Vm 0.618 0.590 0.680 0.656 0.639 0.616 0.579 0.541 0.508	r= 8 v _x /v _m 0.658 0.511 0.525 0.534 0.621 0.710 0.717 0.673 0.594 0.561	2.5 mm v_r / v_m -0.107 -0.233 -0.184 -0.117 -0.008 0.056 0.044 0.020 0.020 0.047	+ p/R= V _t /V _m -0.016 -0.053 -0.005 0.019 0.071 0.139 0.165 0.129 0.097	1.035 Vo/Vm 0.667 0.564 0.556 0.547 0.625 0.726 0.737 0.694 0.608 0.572	r= 10 v /v m 0.942 0.776 0.690 0.759 0.919 0.982 0.907 0.847 0.788 0.728	0.0 mm V _r /V _m 0.131 0.143 0.090 0.072 0.056 0.019 -0.013 -0.022 0.012 0.012	+ $r/R=$ v_t/v_m 0.144 0.167 0.225 0.2235 0.2235 0.228 0.203 0.172	1.255 V ₀ /V _m 0.962 0.807 0.724 0.795 0.950 1.011 0.937 0.814 0.749
φ 0 10 20 30 40 50 60 70 90 100 110	$r = 65.$ $V_{\rm x}/V_{\rm m}$ 0.594 - 0.654 - 0.689 - 0.649 - 0.649 - 0.638 - 0.615 - 0.578 - 0.578 - 0.5541 0.506 - 0.530 - 0.565	0 mm v_r / v_m 0.097 0.240 0.175 0.084 0.035 0.023 0.014 0.001 0.029 0.074 0.115	+ r/R= v _t /v _m 0.141 0.015 -0.066 -0.087 -0.036 -0.014 -0.018 -0.002 -0.028 -0.028 -0.036 -0.036 -0.036 -0.036 -0.036 -0.036 -0.028 -0.036 -0.036 -0.036 -0.036 -0.002 -0.0028 -0.036 -0.036 -0.036 -0.0028 -0	0.816 v / v m 0.618 0.590 0.680 0.707 0.656 0.639 0.616 0.579 0.541 0.508 0.536 0.577	r= 8 V _x /V _m 0.658 0.511 0.525 0.524 0.524 0.710 0.717 0.673 0.594 0.561 0.561 0.629	2.5 mm V _r /V _m -0.107 -0.233 -0.184 -0.117 -0.008 0.056 0.044 0.024 0.024 0.024 0.024 0.024 0.024 0.024 0.024 0.024 0.024 0.024 0.024 0.027 0.098 0.124	+ p/R= v _t /v _m -0.016 -0.053 -0.005 0.019 0.019 0.165 0.167 0.129 0.097 0.087 0.087	1.035 v_{o} / v_{m} 0.667 0.564 0.556 0.547 0.625 0.726 0.737 0.694 0.608 0.572 0.617 0.648	r= 10 V /V m 0.942 0.776 0.690 0.759 0.919 0.982 0.907 0.847 0.788 0.728 0.728 0.706 0.689	0.0 mm Vr/Vm 0.131 0.143 0.090 0.072 0.056 0.019 -0.013 -0.022 0.012 0.014 0.054 0.065	+ $r/R=$ v_t/v_m 0.144 0.167 0.199 0.2255 0.2235 0.2355 0.228 0.2035 0.172 0.148 0.132	1.255 V ₀ /V _m 0.962 0.807 0.724 0.795 0.950 1.011 0.937 0.877 0.814 0.723 0.725 0.727 0.725 0.7755 0.7755 0.77
φ 0 10 20 30 40 50 60 70 80 90 100 110 120 130	$r = 65.$ v_{x} / v_{m} $0.594 - 0.6594 - 0.6639 - 0.615 - 0.615 - 0.615 - 0.578 - 0.515 - 0.578 - 0.541 - 0.576 - 0.565 - 0.592 - 0.592 - 0.592 - 0.592 - 0.592 - 0.592 - 0.592 - 0.592 - 0.592 - 0.592 - 0.592 - 0.592 - 0.592 - 0.597 - 0.592 - 0.597 - 0.592 - 0.597 - 0.592 - 0.597 - 0.592 - 0.597 - 0.592 - 0.597 - 0.592 - 0.597 - 0.592 - 0.597 - 0.592 - 0.597 - 0.592 - 0.597 - 0.597 - 0.597 - 0.597 - 0.597 - 0.592 - 0.597 - 0.592 - 0.597 - 0.592 - 0.597 - 0.592 - 0.597 - $	0 mm v_r/v_m 0.097 0.240 0.175 0.133 0.084 0.001 0.023 0.014 0.001 0.029 0.074 0.115 0.121 0.115	+ r/R= vt/vm 0.141 0.015 -0.066 -0.036 -0.014 -0.018 -0.022 -0.022 -0.028 -0.036 -0.036 -0.036 -0.036 -0.036 -0.036 -0.036 -0.036 -0.036 -0.036 -0.036 -0.028 -0.036 -0.036 -0.036 -0.036 -0.028 -0.036 -0.002 -0.003 -	0.816 V /V m 0.618 0.590 0.680 0.650 0.656 0.639 0.516 0.579 0.508 0.5577 0.604 0.588	r= 8 V _x /V _m 0.658 0.511 0.525 0.534 0.621 0.717 0.673 0.594 0.561 0.603 0.630 0.630 0.639 0.6398	2.5 mm V _r /V _m -0.107 -0.233 -0.184 -0.117 -0.008 0.056 0.044 0.024 0.020 0.044 0.024 0.020 0.047 0.098 0.124 0.116 0.113	+ p/R= V _t /V _m -0.016 -0.053 -0.005 0.019 0.165 0.167 0.129 0.097 0.087 0.089 0.083 0.056	1.035 v_{o} / v_{m} 0.667 0.556 0.5547 0.625 0.726 0.737 0.694 0.608 0.572 0.617 0.648 0.646 0.611	r = 10 v / v m 0.942 0.776 0.690 0.919 0.907 0.982 0.907 0.847 0.788 0.728 0.726 0.689 0.689 0.684	0.0 mm Vr/Vm 0.131 0.143 0.090 0.072 0.019 -0.013 -0.022 0.012 0.012 0.054 0.055 0.072 0.052 0.052 0.072 0.055	+ $r/R=$ v_t/v_m 0.144 0.167 0.199 0.225 0.233 0.243 0.235 0.225 0.255 0	1.255 Vo/Vm 0.962 0.807 0.724 0.795 0.950 1.017 0.877 0.814 0.749 0.723 0.705 0.712 0.696
φ 0 10 20 30 50 60 70 90 100 120 120 120 120 120 120 12	$r = 65.$ $V_{\rm X} / V_{\rm m}$ $0.594 - 0.6599 - 0.6649 - 0.6499 - 0.6499 - 0.6498 - 0.6498 - 0.6498 - 0.6498 - 0.6498 - 0.6498 - 0.5784 - 0.5784 - 0.5784 - 0.5506 - 0.5505 - 0.5505 - 0.5505 - 0.5577 - 0.6499 - 0.5792 - 0.5777 - 0.6499 - 0.5777 - 0.6499 - 0.5792 - 0.5777 - 0.6499 - 0.5792 - 0.5777 - 0.6499 - 0.5922 - 0.5777 - 0.6499 - 0.5792 - 0.5777 - 0.6499 - 0.5792 - 0.5777 - 0.6499 - 0.5777 - 0.6499 - 0.5777 - 0.6499 - 0.5777 - 0.6499 - 0.5922 - 0.5777 - 0.6499 - 0.5777 - 0.6499 - 0.5777 - 0.6499 - 0.5777 - 0.6499 - 0.5922 - 0.5777 - 0.6499 - 0.5777 - 0.5499 - 0.5777 - 0.5499 - 0.5777 - 0.5499 - 0.5777 - 0.5499 - 0.5777 - 0.5499 - 0.5777 - 0.5499 - 0.5777 - 0.5499 - 0.5777 - 0.5499 - 0.5777 - 0.5499 - 0.5777 - 0.5499 - 0.5777 - 0.5499 - 0.5777 - 0.5499 - 0.5777 - 0.5499 - 0.5777 - 0.5499 - 0.5777 - 0.5499 - 0.5772 - 0.5777 - 0.5492 - 0.5772 -$	0 mm v_r/v_m 0.097 0.240 0.175 0.133 0.084 0.035 0.023 0.023 0.014 0.029 0.074 0.115 0.121 0.113 0.134	<pre>r/R= vt/vm 0.141 0.0155 -0.066 -0.087 -0.036 -0.014 -0.018 -0.002 -0.0028 -0.0028 -0.028 -0.012 0.012 0.010 0.0036 -0.0036 -0.0036 -0.0036 -0.0036 -0.0036 -0.0036</pre>	0.816 v / v m 0.618 0.590 0.680 0.707 0.656 0.579 0.516 0.5741 0.536 0.5741 0.536 0.577 0.6088 0.577 0.6088 0.5859 0.8505	r= 8 v_x/vm 0.658 0.511 0.525 0.621 0.710 0.717 0.673 0.561 0.603 0.629 0.6308 0.63981 0.68391 0.6839	2.5 mm V _r /V _m -0.107 -0.233 -0.184 +0.117 -0.008 0.056 0.044 0.020 0.024 0.028 0.124 0.113 0.117 0.133	+ p/R= V _t /V _m -0.016 -0.053 -0.005 0.019 0.019 0.165 0.165 0.129 0.097 0.087 0.087 0.083 0.056 0.056 0.051	1.035 v_{o} / v_{m} 0.667 0.556 0.556 0.726 0.737 0.694 0.608 0.572 0.648 0.646 0.611 0.693 0.853	r= 10 v / v m 0.942 0.776 0.690 0.919 0.982 0.907 0.847 0.788 0.728 0.706 0.689 0.684 0.753 0.882	0.0 mm V _r /V _m 0.131 0.143 0.090 0.056 0.013 -0.013 -0.012 0.054 0.065 0.072 0.054 0.065 0.072 0.054	+ $r/R=$ v_t/v_m 0.144 0.167 0.2255 0.2235 0.2235 0.2235 0.2235 0.2235 0.2235 0.2235 0.2235 0.2235 0.2235 0.2235 0.2235 0.2235 0.2235 0.2255 0.1251 0.1322 0.1325 0.1355 0.1	1.255 Vo/Vm 0.962 0.807 0.724 0.795 0.950 1.011 0.937 0.877 0.877 0.749 0.723 0.705 0.712 0.765 0.898
φ 0 10 20 30 50 60 70 80 900 120 130 140 150 160 170 170	$r = 65.$ $V_{\rm X} / V_{\rm m}$ $0.594 - 0.6594 - 0.6699 - 0.6649 - 0.6383 - 0.6155 - 0.578 - 0.578 - 0.5741 - 0.5741 - 0.5730 - 0.5541 - 0.5530 - 0.5655 - 0.5927 - 0.6499 - 0.788 - 0.5779 - 0.6492 - 0.788 - 0.5257 - 0.6492 - 0.788 - 0.5257 - 0.6492 - 0.788 - 0.5257 - 0.6492 - 0.788 - 0.5257 - 0.6492 - 0.788 - 0.5257 - 0.6492 - 0.788 - 0.5257 - 0.6492 - 0.788 - 0.5257 - 0.6492 - 0.788 - 0.5257 - 0.6492 - 0.788 - 0.5257 - 0.649 - 0.5257 - 0.649 - 0.577 - 0.577 - 0.649 - 0.577 - 0.577 - 0.649 - 0.577 - 0.577 - 0.649 - 0.577 - 0.649 - 0.577 - 0.649 - 0.577 - 0.649 - 0.577 - 0.649 - 0.577 - 0.649 - 0.577 - 0.577 - 0.577 - 0.649 - 0.577$	0 mm Vr/Vm 0.097 0.240 0.175 0.133 0.084 0.035 0.023 0.014 0.001 0.029 0.074 0.115 0.121 0.115 0.121 0.115 0.125 0.125 0.125 0.125 0.125 0.125 0.125 0.125 0.125 0.125 0.125 0.027 0.029 0.025 0.0	+ r/R= vt/vm 0.141 0.015 -0.066 -0.087 -0.036 -0.002 -0.002 -0.002 -0.002 -0.028 -0.028 -0.028 -0.028 -0.036 -0.010 -0.0036 -0.010 -0.0036 -0.0036 -0.002 -0.0028	0.816 V / V m 0.618 0.590 0.6807 0.6599 0.6599 0.6579 0.55418 0.5546 0.5548 0.55889 0.5889 0.68895 0.68891 0.68891 0.68891 0.68895 0.6801 0.6414 0.5955 0.6801 0.66555 0.66555 0.66555 0.66555 0.655555 0.655555 0.65555 0.655555 0.655555 0.655555555 0.65555555 0.6555555555555555555555555555555555555	r = 8 V _x / m 0.658 0.525 0.525 0.525 0.525 0.521 0.717 0.525 0.521 0.717 0.563 0.629 0.6298 0.65981 0.68394 0.6554 0.6554 0.6555 0.68354 0.6555 0.6555 0.65555 0.65555 0.65555 0.65555 0.55555 0.55555 0.55555 0.55555 0.55555 0.55555 0.55555 0.55555 0.55555 0.55555 0.55555 0.55555 0.55555 0.55555 0.5555 0.55555 0.55555 0.55555 0.55555 0.55555 0.55555 0.5555 0.5555 0.55555555	2.5 mm V _r /V _m -0.107 -0.233 -0.184 -0.117 -0.008 0.056 0.044 0.024 0.024 0.024 0.024 0.024 0.024 0.024 0.117 0.098 0.124 0.117 0.133 0.107 0.047 0.047	+ p/R= V _t /V _m -0.016 -0.053 -0.005 0.019 0.019 0.165 0.167 0.129 0.097 0.087 0.087 0.083 0.056 0.081 0.113 0.148	1.035 v_{o} / v_{m} 0.667 0.564 0.556 0.547 0.625 0.726 0.737 0.694 0.608 0.572 0.611 0.693 0.853 0.853 0.853	r= 10 v / v m 0.942 0.776 0.690 0.919 0.982 0.907 0.847 0.788 0.788 0.788 0.788 0.706 0.6898 0.684 0.7532 0.684 0.7532 0.824 0.568	0.0 mm Vr/Vm 0.131 0.143 0.090 0.072 0.056 0.019 -0.013 -0.022 0.012 0.055 0.072 0.055 0.055 0.072 0.055 0.072 0.055 0.072 0.055 0.072 0.055 0.072 0.055 0.072 0.055 0.072 0.055 0.072 0.055 0.075 0.055 0.075 0.055	+ $r/R=$ v_t/v_m 0.144 0.167 0.199 0.225 0.235 0.235 0.228 0.235 0.228 0.235 0.228 0.228 0.235 0.228 0.235 0.228 0.228 0.228 0.228 0.228 0.228 0.225 0.228 0.2272 0.199 0.2275 0.228 0.228 0.218 0.199 0.2275 0.228 0.235 0.2188 0.199 0.199 0.228 0.235 0.228 0.172 0.199 0.129 0.1272 0.199 0.1272 0.1272 0.1272 0.1272 0.1272 0.1272 0.1577 0.175	1.255 v_{o} / v_{m} 0.962 0.807 0.724 0.795 0.950 1.011 0.937 0.877 0.814 0.723 0.705 0.7122 0.696 0.765 0.894 1 0.595
φ 0 10 20 30 40 50 60 70 80 900 1100 1300 1400 1500 1700 1900 1900	r = 65. $V_{\rm X}/V_{\rm m}$ 0.594 - 0.659 - 0.6699 - 0.6639 - 0.6155 - 0.515 - 0.5151 - 0.578 - 0.5141 - 0.5765 - 0.556 - 0.556 - 0.556 - 0.556	0 mm Vr/Vm 0.097 0.240 0.175 0.133 0.084 0.023 0.014 0.001 0.027 0.021 0.027 0.021 0.023 0.021 0.023 0.021 0.021 0.023 0.021 0.023 0.021 0.023 0.021 0.023 0.021 0.023 0.021 0.023 0.021 0.023 0.021 0.023 0.021 0.023 0.021 0.023 0.021 0.023 0.021 0.023 0.021 0.023 0.021 0.023 0.021 0.023 0.023 0.021 0.023 0.021 0.023 0.021 0.023 0.021 0.025 0.023 0.021 0.025 0.023 0.021 0.025 0.023 0.021 0.025 0.0	+ r/R= vt/vm 0.141 0.0155 -0.066 -0.036 -0.018 -0.002 -0.028 -0.028 -0.036 -0.037 -0.037 -0.037 -0.037 -0.028 -0.035 -0.055 -0.055 -0.055 -0.055 -0.055 -0.055 -0.055 -0.055 -0.055	0.816 V / V m 0.618 0.590 0.6807 0.6539 0.616 0.5707 0.5539 0.516 0.5541 0.55086 0.5541 0.55086 0.55774 0.55895 0.68051 0.568051 0.568051 0.568051 0.568051 0.5595 0.66805 0.5595 0.66805 0.5595 0.5555 0.5555 0.5555 0.5555 0.5555 0.5555 0.5555 0.5555 0.5555 0.555555 0.555555 0.555555 0.55555555 0.555555 0.5555555555	r = 8 V _x / m 0.511 0.5254 0.55254 0.55254 0.55254 0.7717 0.55613 0.56210 0.556338 0.566338 0.663381 0.663381 0.663381 0.663381 0.663384 0.8655290 0.8555290 0.8655290 0.8655290 0.8655290 0.85552900 0.85552900 0.8555290000000000000000000000000000000000	2.5 mm Vr/Vm -0.107 -0.233 -0.184 -0.117 -0.008 0.056 0.044 0.020 0.047 0.098 0.124 0.113 0.117 0.133 0.107 -0.088 -0.146 -0.146	+ p/R= V _t /V _m -0.016 -0.053 -0.005 0.019 0.071 0.139 0.165 0.167 0.129 0.087 0.087 0.087 0.087 0.085 0.056 0.056 0.056 0.056 0.056 0.056 0.056 0.056 0.056 0.056 0.056 0.056 0.056 0.056 0.056 0.056 0.057 0.029 0.057 0.029 0.027 0.027 0.027 0.027 0.027 0.027 0.027 0.027 0.057 0.129 0.056 0.056 0.029 0.057 0.027 0	1.035 V_{o}/V_{m} 0.667 0.5560 0.547 0.625 0.726 0.737 0.608 0.572 0.648 0.6411 0.693 0.8538 0.6441 0.693 0.8538 0.6411 0.8538 0.6411 0.8538 0.6411 0.8538 0.6411 0.8538 0.6411 0.8538 0.6411 0.8538 0.6411 0.8538 0.6411 0.8538 0.6411 0.8538 0.6411 0.8538 0.6411 0.8538 0.6411 0.8538 0.6411 0.8538 0.6411 0.8538 0.6411 0.8538 0.5515 0.5555	r= 10 v / v m 0.942 0.776 0.690 0.919 0.919 0.907 0.8828 0.7888 0.766 0.6984 0.7883 0.6984 0.7883 0.8853 0.8853 0.8853 0.53380 0.53380 0.4355 0.4355 0.53380 0.53580 0.53380 0.53580 0.53580 0.53580 0.53580 0.53580 0.53580 0.53580 0.53580 0.53580 0.53580 0.53580 0.53580 0.53580 0.53580 0.53580 0.53580 0.555800 0.555800 0.555800 0.555800 0.5558000 0.5558000000000000000000000000000000000	0.0 mm Vr/Vm 0.131 0.1430 0.072 0.056 0.019 -0.0122 0.054 0.0652 0.0655 0.0799 0.0615 0.06153 -0.1971	+ $r/R=$ v_t/v_m 0.144 0.167 0.225 0.233 0.2435 0.2435 0.2233 0.2435 0.2235 0.2233 0.2435 0.2235 0.1432 0.1357 0.145	1.255 v_{o} / v_{m} 0.962 0.807 0.724 0.950 1.011 0.9377 0.8774 0.725 0.705 0.705 0.705 0.765 0.765 0.898 0.841 0.391 0.391 0.492
φ 0 10 200 300 500 700 800 100 1200 1300 1500 1700 1900 2100 2100 2100 2100 200 200 20	$r = 65.$ V_X / V_m $0.594 - 0.6399 - 0.6639 - 0.6649 - 0.6338 - 0.66155 - 0.6349 - 0.6315 - 0.5741 - 0.5506 - 0.5741 - 0.5506 - 0.5749 - 0.5502 - 0.55749 - 0.5574$	0 mm Vr/Vm 0.097 0.240 0.175 0.084 0.035 0.023 0.023 0.029 0.009 0.0	+ r/R= vt/vm 0.141 0.0155 -0.066 -0.087 -0.036 -0.018 -0.002 -0.0028 -0.0028 -0.0036 -0.012 0.0103 0.0012 0.0012 0.0039 0.074 0.1415 -0.028 -0.036 -0.036 -0.036 -0.036 -0.012 0.0128 -0.036 -0.036 -0.012 0.0128 -0.028 -0.0128 -0.028 -0.014 -0.015 -0.014 -0.028 -0.014 -0.015 -0.014 -0.028 -0.014 -0.015 -0.014 -0.028 -0.014 -0.015 -0.014 -0.028 -0.014 -0.014 -0.015 -0.014 -0.028 -0.014 -0.015 -0.014 -0.028 -0.014 -0.015 -0.014 -0.015 -0.014 -0.015 -0.014 -0.012 0.014 -0.014 -0.015 -0.014 -0.014 -0.015 -0.014 -0.015 -0.014 -0.014 -0.015 -0.014 -0.014 -0.015 -0.014 -0.015 -0.014 -0.015 -0.014 -0.015 -0.014 -0.015 -0.014 -0.015 -0.014 -0.015 -0.014 -0.014 -0.015	$\begin{array}{c} 0.816 \\ v_{o} / v_{m} \\ 0.618 \\ 0.590 \\ 0.6807 \\ 0.6807 \\ 0.6807 \\ 0.6599 \\ 0.65791 \\ 0.5579 \\ 0.5577 \\ 0.5608 \\ 0.5577 \\ 0.5608 \\ 0.5608 \\ 0.8801 \\ 0.64619 \\ 0.55754 \\ 0.8704 \\ 0.7514 \\ 0.8704 $	r = 8 v x 0.658 0.552541 0.552541 0.552541 0.6710 0.6710 0.66209 0.66308 0.683381 0.663981 0.683384 0.683384 0.683384 0.683384 0.683384 0.683384 0.683384 0.683386 0.683586 0.6956866 0.695686 0.695686 0.695686 0.695686 0.695686 0.6	2.5 mm V _r /V _m -0.107 -0.233 -0.184 +0.117 -0.008 0.056 0.044 0.020 0.024 0.113 0.117 0.133 0.117 0.133 0.117 0.048 -0.146 -0.056 -0.046 -0.056 -0.046 -0.056 -0.056 -0.056 -0.056 -0.056 -0.056 -0.056 -0.056 -0.056 -0.056 -0.056 -0.056 -0.056 -0.107 -0.057	+ p/R= V _t /V _m -0.016 -0.053 -0.005 0.019 0.139 0.165 0.165 0.167 0.097 0.087 0.087 0.083 0.056 0.056 0.056 0.051 0.113 0.122 -0.056 0.056 0.051 0.123 0.056 0.056 0.057 0.057 0.057 0.129 0.057 0.057 0.129 0.057 0.057 0.129 0.057 0.057 0.129 0.057 0.057 0.129 0.057 0.057 0.057 0.129 0.057 0.057 0.057 0.129 0.056 0.056 0.057 0.129 0.056 0.056 0.057 0.057 0.129 0.056 0.056 0.057 0.057 0.129 0.056 0.056 0.056 0.057 0.057 0.057 0.129 0.056 0.056 0.056 0.057 0.057 0.057 0.129 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.057 0.056 0.057 0.056 0.057	1.035 v_{o} / v_{m} 0.667 0.5646 0.5547 0.625 0.726 0.7374 0.608 0.6486 0.64611 0.6933 0.85482 0.4615 0.8548 0.4515 0.8548 0.4515 0.8548 0.4515 0.8548 0.4515 0.8548 0.8848	r= 10 v / v m 0.942 0.776 0.699 0.982 0.9847 0.7882 0.7882 0.6994 0.7699 0.6848 0.7882 0.68984 0.78824 0.5824 0.5853 0.4352 0.4352 0.5853 0.4352 0.58555 0.58555 0.58555 0.585555 0.58555 0.58555 0.58555	0.0 mm Vr/Vm 0.131 0.1430 0.0922 0.0519 -0.0132 0.0559 -0.0132 0.0545 0.0726 0.0559 -0.0132 0.0559 0.0559 -0.0132 0.0559 0.0559 0.0559 0.0559 0.0559 -0.0559 0.0576 0.0579 0.0559 0.0579 0.0559 0.0579 0.0597 0.00193 0.05197 0.05197 0.05197 0.05197 0.05197 0.00193 0.0	+ $r/R=$ v_t/v_m 0.144 0.167 0.2253 0.2235 0.2235 0.2235 0.2255 0.2235 0.2255 0.21751 0.1457 0.1456 0.1557 0.1456 0.1566 0.	1.255 v_{o} / v_{m} 0.962 0.807 0.724 0.950 1.011 0.937 0.877 0.814 0.723 0.705 0.712 0.712 0.705 0.712 0.765 0.765 0.898 0.841 0.595 0.391 0.492 0.770 0.492
φ 0 10 20 30 50 60 70 80 100 120 130 140 150 120 120 220 220 220 220 220 22	$r = 65.$ V_X / V_m $0.594 - 0.6594 - 0.6699 - 0.6649 - 0.6308 - 0.6155 - 0.578 - 0.578 - 0.5741 - 0.5741 - 0.5745 - 0.5749 - 0.5749 - 0.5749 - 0.5749 - 0.792 - 0.788 - 0.5749 - 0.788 - 0.5741 - 0.865 - 0.7941 - 0.8665 - 0.7941 - 0.8665 - 0.7941 - 0.8665 - 0.7941 - 0.8665 - 0.7941 - 0.8665 - 0.7941 - 0.8665 - 0.7941 - 0.8665 - 0.7941 - 0.8665 - 0.9420 - 0.7941 - 0.8655 - 0.886 - 0.7941 - 0.8655 - 0.886 - 0.7941 - 0.8655 - 0.886 - 0.7941 - 0.8655 - 0.886 - 0.7941 - 0.8655 - 0.886 - 0.7941 - 0.8655 - 0.8865 - 0.7941 - 0.8655 - 0.7941 - 0.8655 - 0.8865 - 0.7941 - 0.8655 - 0.7941 - 0.8655 - 0.7941 - 0.8655 - 0.7941 - 0.8655 - 0.9420 - 0.7941 - 0.8655 - 0.9420 - 0.7941 - 0.8655 - 0.9420 - 0.7941 - 0.8655 - 0.9420 - 0.7941 - 0.8655 - 0.9420 - 0.7941 - 0.8655 - 0.9420 - 0.7941 - 0.8655 - 0.9420 - 0.7941 - 0.8655 - 0.9420 - 0.7941 - 0.8655 - 0.9420 - 0.7941 - 0.8655 - 0.9420 - 0.7941 - 0.8655 - 0.9420 - 0.7941 - 0.8655 - 0.8862 - 0.9420 - 0.7941 - 0.8655 - 0.8865 - 0.9420 - 0.7941 - 0.8655 - 0.8862 - 0.9420 - 0.7941 - 0.8655 - 0.9420 - 0.7941 - 0.8655 - 0.9420 - 0.7941 - 0.8655 - 0.9420 - 0.7941 - 0.8655 - 0.9420 - 0.7941 - 0.8655 - 0.9420 - 0.7941 - 0.8655 - 0.9420 - 0.9400 - 0.9400 - 0.9400 - 0.9400 - 0.9400 - 0.9400 - 0.9400 - $	0 mm Vr/Vm 0.097 0.240 0.175 0.133 0.035 0.023 0.0014 0.0029 0.0145 0.1153 0.1153 0.1153 0.1215 0.1124 0.0879 0.0235 0.0014 0.0294 0.0295 0.0014 0.0295 0.0014 0.0295 0.0014 0.0295 0.0014 0.0295 0.0014 0.0295 0.0014 0.0295 0.0014 0.0295 0.0295 0.0014 0.0295 0.0095 0.0095 0.0095 0.0095 0.0095 0.0095 0.0095 0.0095 0.0095 0.0095 0.0095 0.0095 0.0095 0.0095 0.0095 0.0095 0.0095 0.0095 0.0005	+ r/R= v t /vm 0.141 0.0155 -0.066 -0.036 -0.018 -0.002 -0.0028 -0.0028 -0.0028 -0.0028 -0.0028 -0.0036 -0.010 0.0036 -0.0035 -0.0036 -0.0036 -0.0035 -0.0035 -0.012 -0.012 -0.0035 -0.012 -0.0125 -0.0125 -0.0125 -0.0125 -0.0125 -0.0125 -0.0125 -0.0125 -0.0035 -0.005 -0.005 -0.005 -0.005 -0.005 -0.	0.816 v_{o}/v_{m} 0.618 0.590 0.6807 0.6807 0.6637 0.6579 0.55748 0.55774 0.55774 0.558595 0.6809 0.58595 0.6809 0.6809 0.58595 0.6809 0.58595 0.6809 0.588922 0.57748 0.57748 0.57748 0.57748 0.57748 0.57748 0.57748 0.57748 0.57748 0.57748 0.57748 0.57759	r = 8 V _x / m 0.55254 0.55254 0.55254 0.55254 0.56220 0.56220 0.56220 0.568334 0.5588334 0.5588334 0.5588334 0.5588334 0.5588334 0.5588304 0.588800 0.588800 0.588800 0.588800 0.588800 0.598100 0.59810 0.598100 0.598100 0.598100 0.598100 0.598100 0.5981000000000000000000000000000000000000	2.5 mm V _r /V _m -0.107 -0.233 -0.184 -0.117 -0.008 0.056 0.044 0.024 0.024 0.024 0.024 0.024 0.024 0.024 0.117 0.098 0.124 0.117 0.098 0.124 0.117 0.047 -0.088 0.117 0.047 -0.088 0.107 0.047 0.047 0.086 0.056 0.047 0.056 0.047 0.056 0.047 0.056 0.047 0.056 0.047 0.056 0.047 0.056 0.047 0.056 0.047 0.056 0.047 0.056 0.047 0.056 0.047 0.057 0.056 0.047 0.056 0.047 0.056 0.047 0.056 0.047 0.056 0.047 0.056 0.047 0.056 0.047 0.056 0.047 0.056 0.047 0.056 0.047 0.056 0.047 0.056 0.047 0.056 0.047 0.056 0.047 0.056 0.047 0.056 0.047 0.056 0.056 0.047 0.056 0.047 0.056 0.056 0.047 0.056 0.056 0.057 0.057 0.056 0.056 0.057 0.057 0.056 0.056 0.057 0.056 0.056 0.057 0.057 0.056 0.056 0.056 0.057 0.056 0.056 0.056 0.056 0.056 0.056 0.056 0.056 0.056 0.056 0.056 0.056 0.056 0.055 0.039 0.056 0.056 0.039 0.056 0.056 0.039 0.056 0.05	+ p/R= v _t /v _m -0.016 -0.053 -0.005 0.019 0.019 0.165 0.167 0.129 0.087 0.087 0.087 0.087 0.083 0.056 0.056 0.051 0.113 0.148 0.029 -0.122 -0.169 -0.125 -0.156 -0.	1.035 v_{o} / v_{m} 0.667 0.564 0.5567 0.62567 0.62567 0.6948 0.6072 0.6046 0.611 0.68538 0.64461 0.68538 0.64611 0.68538 0.64611 0.68548 0.64611 0.85584 0.64615 0.84615 0.8572 0.4615 0.8548 0.6721 0.8548 0.6721 0.8548 0.6721 0.8548 0.6721 0.8548 0.6721 0.8548 0.6721 0.8548 0.6722 0.4615 0.8840 0.9222	r = 10 v / v m 0.942 0.776 0.690 0.9847 0.9847 0.7888 0.7888 0.7888 0.7888 0.68984 0.68532 0.68532 0.68532 0.53382 0.53382 0.55538 0.788928 0.788828 0.788888 0.788888 0.788888 0.788888 0.788888 0.788888 0.788888 0.788888 0.788888 0.7888888 0.7888888 0.78888888 0.78888888 0.7888888 0.78888888 0.78888888 0.788888888888 0.7888888888888888888888888888888888888	0.0 mm V r / V m 0.131 0.1430 0.092 0.0132 0.0132 0.0122 0.0124 0.0055 0.0125 0.0125 0.005	+ $r/R=$ v_t/v_m 0.144 0.167 0.2253 0.2235 0.2142 0.1999 0.11575 0.2145 0.1144 0.1157 0.11575 0.1146 0.11575 0.1145 0.1145 0.11575 0.1145 0.1145 0.11575 0.1145 0.1145 0.11575 0.1145 0.1145 0.11575 0.1145 0.11575 0.1145 0.11575 0.1145 0.11575 0.1145 0.11577 0.11575 0.1145 0.11577 0.11577 0.11577 0.11577 0.11577 0.11577 0.11577 0.11577 0.115777 0.115777 0.115777 0.115777 0.1157777 0.1157777 0.11577777 0.11577777777777777777777777777777777777	1.255 v_{o} / v_{m} 0.962 0.807 0.724 0.950 1.011 0.937 0.877 0.814 0.725 0.705 0.705 0.705 0.705 0.705 0.705 0.705 0.894 1 0.595 0.391 0.492 0.720 0.939 0.725
φ 0 10 20 300 400 500 60 700 900 1120 1300 1230 1230 1230 1230 2230 2250 2550	r = 65. V_X / V_m 0.594 - 0.6594 - 0.6639 - 0.6438 - 0.6155 - 0.578 - 0.5741 0.576 - 0.5741 0.5645 0.5645 0.56492 0.788 - 0.6492 0.788 0.6257 0.6492 0.788 0.6257 - 0.56492 0.788 0.6257 - 0.56492 0.788 0.6257 - 0.56492 0.788 0.500 - 0.592 0.788 0.592 0.788 0.592 0.788 0.590 - 0.592	0 mm Vr/Vm 0.097 0.240 0.175 0.133 0.084 0.023 0.023 0.014 0.029 0.023 0.024 0.023 0.024 0.023 0.024 0.023 0.024 0.023 0.024 0.023 0.024 0.023 0.024 0.025 0.024 0.025 0.024 0.025 0.024 0.025 0.024 0.025 0.024 0.025 0.024 0.025 0.024 0.025 0.024 0.025 0.0	<pre>* r/R= Vt/Vm 0.141 0.0155 -0.066 -0.0366 -0.002 -0.0028 -0.0028 -0.0028 -0.0036 -0.010 -0.0036 -0.010 -0.0039 0.0111 0.0095 -0.1148 -0.0975 -0.0750</pre>	$\begin{array}{c} 0.816 \\ v_{o} / v_{m} \\ 0.618 \\ 0.590 \\ 0.6807 \\ 0.6590 \\ 0.6807 \\ 0.6599 \\ 0.6509 \\ 0.55774 \\ 0.55774 \\ 0.55774 \\ 0.55774 \\ 0.55774 \\ 0.6805 \\ 0.6905 \\ 0.690$	r= 8 v_x 0.552341 0.552341 0.552341 0.552341 0.552341 0.552341 0.552341 0.552341 0.552341 0.552341 0.552341 0.552341 0.556230 0.5662308 0.568335425 0.568335452926 0.568335452926 0.5683900235 0.5683945425 0.5683900235 0.5683945425 0.5683900235 0.568394525 0.568394525 0.568394525 0.568394525 0.568394525 0.568394525 0.568394525 0.568394525 0.568394525 0.56839525 0.56839525 0.56839525 0.56839525 0.56839525 0.56839525 0.56839525 0.56839525 0.56839525 0.56839525 0.56839525 0.56839525 0.56839525 0.56839525 0.56833552 0.56839525 0.5693950 0.59930 0.599300 0.599300 0.599300 0.599300 0.599300 0.599300 0.599300 0.599300 0.59930000000000000000000000000000000000	2.5 mm Vr/Vm -0.107 -0.233 -0.184 -0.117 -0.008 0.056 0.044 0.020 0.047 0.098 0.124 0.113 0.117 0.133 0.107 -0.088 -0.146 -0.056 -0.005 0.047 0.133 0.107 -0.088 -0.146 -0.056 0.047 -0.088 -0.146 -0.056 -0.005 0.056 -0.005 0.117 -0.008 -0.128 -0.056 -0.048 -0.128 -0.056 -0.056 -0.058 -0.056 -0.058 -0.128 -0.128 -0.128 -0.128 -0.128 -0.056 -0.056 -0.056 -0.058 -0.056 -0.088 -0.128 -0.088 -0.128 -0.088 -0.128 -0.088 -0.086 -0.088 -0.128 -0.088 -0.128 -0.088 -0.128 -0.088 -0.080 -0.088 -0.080 -0.080 -0.088 -0.128 -0.080	+ p/R= V _t /V _m -0.016 -0.053 -0.005 0.019 0.071 0.139 0.165 0.167 0.087 0.087 0.087 0.087 0.087 0.087 0.085 0.056 0.056 0.056 0.056 0.056 0.056 0.0113 0.129 0.056 0.056 0.056 0.056 0.056 0.056 0.056 0.056 0.055 0.019 0.167 0.167 0.167 0.167 0.167 0.167 0.087 0.087 0.056 0.055 0.055 0.0556 0.0559 0.05	1.035 V_{o}/V_{m} 0.667 0.5560 0.5547 0.625 0.725 0.726 0.737 0.608 0.5727 0.6480 0.6411 0.64538 0.6411 0.8538 0.6411 0.8538 0.4615 0.4515 0.7584 0.9202 0.9229 0.9249 0.9229 0.9249 0.9229 0.9249	r = 10 v_x / v_m $v_x / $	0.0 mm Vr/Vm 0.131 0.1430 0.0922 0.0132 0.00132 0.0056 0.00132 0.0056 0.00122 0.00414 0.00652 0.00191 0.00185 0.00000000000000000000000000000000000	+ $r/R=$ v_t/v_m 0.144 0.1679 0.2233 0.2233 0.2235 0.1146 0.1099 0.11575 0.1255 0.1145 0.11575 0.1155 0.1145 0.1155 0.1555 0.1555 0.1555 0.1555 0.1555 0.1555 0.1555 0.1555	1.255 v_0 / v_m 0.962 0.807 0.724 0.950 1.011 0.9377 0.8714 0.725 0.7052 0.7052 0.7052 0.7052 0.7655 0.7655 0.7655 0.7658 0.8841 0.7950 0.7655 0.7950 0.7950 0.7950 0.7655 0.7950 0.9951 0.9951 0.9951 0.9955 0.9955 0.9945 0.9945 0.9945 0.9945
Φ 0 10 20 30 50 50 70 800 100 120 120 120 120 120 120 220 2	r = 65. V_X / V_m 0.594 - 0.6599 - 0.6649 - 0.638 - 0.638 - 0.6315 - 0.5741 0.5741 0.5500 0.5652 0.5652 0.56749 0.5668 0.56749 0.5668 0.56749 0.5668 0.56749 0.5668 0.5649 0.5649 0.55927 0.5649 0.5659 0.5649 0.55927 0.5649 0.5659 0.5649 0.55927 0.5649 0.5649 0.55927 0.5649 0.5649 0.55927 0.5649 0.5649 0.55927 0.5649 0.5649 0.55927 0.5649 0.5649 0.55927 0.5649 0.5649 0.5649 0.55927 0.5649 0.5649 0.55927 0.5649 0.5649 0.55927 0.5649 0.5649 0.55927 0.5649 0.5649 0.5659 0.55927 0.5649 0.5659 0.5649 0.55927 0.5649 0.5659 0.5649 0.55927 0.5649 0.5659 0.5649 0.5659 0.5649 0.5659 0.5649 0.5659 0.5649 0.5659 0.5649 0.5659 0.5649 0.5659 0.5649 0.5659 0.5649 0.5659 0.5649 0.5659 0.5649 0.5659 0.5649 0.5659 0.5649 0.5659 0.5659 0.5920 0.5920 0.5920 0.5920 0.5920 0.5920 0.5920 0.5930 0.5930 0.5930 0.5930 0.5930 0.9300 0.9300 0.9300 0.9300 0.9355 0.9355 0.9356 0.9350 0.9356 0.9350 0	0 mm Vr/Vm 0.097 0.240 0.0240 0.0240 0.0240 0.023 0.0041 0.025 0.0041 0.025 0.0041 0.025 0.0041 0.025 0.0041 0.025 0.023 0.0041 0.025 0.023 0.003 0	<pre>r/R= vt/vm 0.141 0.0155 -0.066 -0.087 -0.036 -0.018 -0.002 -0.0028 -0.0028 -0.0028 -0.013 0.0128 -0.0036 -0.0128 -0.0036 -0.0128 -0.039 0.074 0.128 -0.128 -0.128 -0.128 -0.029 -0.128 -0.029 -0.128 -0.009 -0.017 -0.0591 -0.0079 -0.0017</pre>	$\begin{array}{c} 0.816 \\ \textbf{v}_{o} / \textbf{v}_{m} \\ 0.618 \\ 0.590 \\ 0.6807 \\ 0.6807 \\ 0.6807 \\ 0.6636 \\ 0.5579 \\ 0.5570 \\ 0.5577 \\ 0.5608 \\ 0.5577 \\ 0.5608 \\ 0.6801 \\ 0.5608 \\ 0.6461 \\ 0.5892 \\ 0.9920 \\ 0.9934 \\ 0.99$	r = 8 v m 0.552241 0.552341 0.552341 0.552341 0.56239 0.5623981 0.5683394 4736654 0.5683394 4736654 0.5683394 4736654 0.5683394 0.556329 0.6883354 0.5683394 0.556329 0.5683394 0.556329 0.5683394 0.556329 0.5683394 0.556329 0.5683394 0.556329 0.5683394 0.556329 0.5683394 0.5683394 0.5683394 0.5683394 0.5683394 0.5683394 0.5683394 0.5693384 0.593384 0.593484 0.59338	2.5 mm V _r /V _m -0.107 -0.233 -0.184 +0.117 -0.008 0.056 0.044 0.024 0.024 0.113 0.117 0.133 0.117 0.133 0.117 0.133 0.117 0.048 -0.146 -0.056 0.048 -0.146 -0.056 0.044 0.117 0.098 0.128 0.056 0.044 0.117 0.098 0.123 0.056 0.044 0.117 0.098 0.124 0.117 0.107 0.098 0.124 0.117 0.117 0.108 0.123 0.117 0.117 0.098 0.124 0.117 0.117 0.123 0.117 0.123 0.117 0.123 0.124 0.117 0.123 0.124 0.117 0.123 0.124 0.117 0.123 0.117 0.123 0.117 0.123 0.117 0.123 0.117 0.123 0.117 0.123 0.117 0.123 0.124 0.117 0.123 0.117 0.123 0.124 0.117 0.123 0.117 0.123 0.117 0.123 0.117 0.123 0.124 0.117 0.123 0.117 0.133 0.107 0.036 0.039 0.066 0.039 0.066 0.039 0.036 0.036 0.039 0.036 0.039 0.036 0.036 0.039 0.036 0.036 0.123 0.123 0.133 0.107 0.036 0.036 0.036 0.036 0.128 0.133 0.133 0.137 0.133 0.137 0.036 0.036 0.036 0.036 0.036 0.133 0.137 0.133 0.137 0.133 0.137 0.133 0.137 0.133 0.137 0.036 0.036 0.036 0.139 0.	+ p/R= v _t /v _m -0.016 -0.053 -0.005 0.019 0.071 0.139 0.165 0.167 0.029 0.087 0.087 0.087 0.087 0.087 0.087 0.087 0.056 0.056 0.051 0.113 0.122 -0.159 -0.159 -0.159 -0.129 -0.159 -0.129 -0.129 -0.159 -0.129 -0.129 -0.159 -0.129 -0.159 -0.129 -0.159 -0.051 -0.051 -0.051 -0.051 -0.051 -0.051 -0.051 -0.051 -0.051 -0.051 -0.051 -0.055 -0.05	1.035 v_{o} / v_{m} 0.667 0.5656 0.5547 0.625 0.725 0.726 0.648 0.640 0.69538 0.65754 0.6446 0.69538 0.45154 0.69538 0.45154 0.99229 0.934995 0.994955	r = 10 $v \times / m$ $v \times / m$ 0.942 0.776 0.6999 0.9847 0.78824 0.78824 0.78824 0.78824 0.78824 0.78824 0.534325 0.89932 0.99329 0.99253 0.992553 0.992553 0.992553 0.992553 0.992553 0.9925553 0.9925553 0.99255555555555555555555555555555555555	0.0 mm Vr/Vm 0.1313 0.09726 0.00132 0.00132 0.00132 0.00132 0.00132 0.00144 0.007898 0.001951 0.001951 0.001852	+ $r/R=$ v_t/v_m 0.14679 0.22358 0.1425 0.1447 0.1995 0.22358 0.21751 0.12564 0.115564 0.11558 0.11558 0.11558 0.11558 0.11558 0.11558 0.11558 0.11558 0.11558 0.11558 0.11558 0.11558 0.11558 0.11558 0.11751 0.11558 0.008	1.255 v_0 / v_m 0.962 0.807 0.724 0.7950 1.011 0.937 0.877 0.8749 0.723 0.705 0.712 0.705 0.712 0.705 0.7712 0.7665 0.8941 0.5991 0.965 0.9950 0.9950 0.9959 0.9959 0.9959 0.9959 0.9959 0.9959 0.9959 0.9959 0.9959
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Φ 0 10 20 300 500 60 700 900 1120 1300 1120 1120 1120 1120 1120 1120 1120 1120 1120 1120 1222 122	r = 65. $V_X V_m$ 0.594 - 0.6594 - 0.6639 - 0.6639 - 0.6155 - 0.5741 0.5741 0.5741 0.5741 0.5500 0.5649 0.5505 0.56492 0.56492 0.7885 - 0.56492 0.7885 - 0.56492 0.7825 - 0.5455 0.5845 0.5845 0.5845 0.9200 0.9200 0.92500 0.92500 0.92500 0.92500 0.92500 0.92500 0.92500 0.925	0 mm v_r / v_m 0.0970.240 0.240 0.0240 0.0240 0.00175 0.0035 0.0014 0.00294 0.0019 0.11215 0.01125 0.01125 0.01125 0.01125 0.01125 0.0019 0.0019 0.001125	<pre>* r/R= Vt/Vm 0.141 0.0155 -0.066 -0.0366 -0.0022 -0.028 -0.0028 -0.0028 -0.0028 -0.0028 -0.0036 -0.010 -0.0039 0.0110 0.00394 0.003934 0.009533 -0.1121 -0.00979 -0.0114 -0.0036 -0.0114 0.0052 -0.0114 0.00527</pre>	$\begin{array}{c} 0.816 \\ \textit{V}_{o} \\ 0.6590 \\ 0.6590 \\ 0.66369 \\ 0.66369 \\ 0.555708 \\ 0.555708 \\ 0.555708 \\ 0.555708 \\ 0.555708 \\ 0.668011 \\ 0.5558011 \\ 0.645154 \\ 0.655154 \\ 0$	$r = v_{m} = 8$ $v_{x} = 0.552311073413908194429265445294$ $v_{x} = 0.5562177341390819444736890923446294$	2.5 mm Vr/Vm -0.107 -0.233 -0.184 -0.117 -0.008 0.056 0.044 0.020 0.047 0.098 0.124 0.113 0.117 0.133 0.1047 -0.088 -0.1047 -0.088 -0.146 -0.056 0.147 0.113 0.117 0.133 0.1047 -0.088 -0.106 0.128	+ p/R= V _t /V _m -0.016 -0.053 -0.005 0.019 0.071 0.139 0.165 0.167 0.129 0.087 0.087 0.087 0.087 0.087 0.087 0.085 0.056 0.056 0.056 0.056 0.056 0.0122 -0.129 -0.129 -0.159 -0.051 -0.051 -0.051 -0.051 -0.051 -0.052 -0.055 -0.056 -0.056 -0.056 -0.159 -0.159 -0.159 -0.051 -0.051 -0.055 -0.055 -0.005 -0.05	$\begin{array}{c} 1.035 \\ \textbf{V}_{o} / \textbf{V}_{m} \\ 0.667 \\ 0.5546 \\ 0.55425 \\ 0.737 \\ 0.6674 \\ 0.55425 \\ 0.737 \\ 0.698 \\ 0.5517 \\ 0.6446 \\ 0.65717 \\ 0.6446 \\ 0.6653 \\ 0.6653 \\ 0.645154 \\ 0.5554 \\ 0.5554 \\ 0.64515 \\ 0.645154 \\ 0.5554 \\ 0.5554 \\ 0.5557 \\ 0.9922 \\ 0.9939 \\ 0.99239 \\ 0.99239 \\ 0.9939 \\ 0.9977 \\ 0.99738 \\ 0.9945 \\ 0.9977 \\ 0.997 \\ 0.9934 \\ 0.9945 \\ 0.9945 \\ 0.9977 \\ 0.9934 \\ 0.9945 \\ 0.994 \\ 0.9945 \\ 0.994 $	r = 10 $v_{x} 9426$ 0.79599 0.791927 0.675999 0.9948886 0.679192776898248 0.6788248998293 0.67882489933923393924122216 0.6899332932932932932932932932932932935555 0.6999556 0.699556 0.699556 0.6995556 0.6995556 0.699556 0.6995556 0.699556 0.699556 0.6995556 0.699556 0.699556 0.6995556 0.699556 0.699556 0.6995556 0.699556 0.699556 0.699556 0.699556 0.699556 0.6995556 0.6995556 0.6995556 0.6995556 0.69955556 0.69955555555555555555555555555555555555	0.0 mm Vr/Vm 0.131 0.1430 0.0076 0.00132 0.00519 -0.00132 0.00559 -0.00132 0.00566 0.00566	+ $r/R=$ v_t/v_m 0.144 0.16790 0.2233 0.22338 0.22338 0.22338 0.22338 0.22338 0.22338 0.22338 0.22338 0.22338 0.22338 0.22338 0.22338 0.22338 0.22338 0.22338 0.22338 0.22358 0.22358 0.22358 0.22358 0.22358 0.22358 0.22358 0.22358 0.22358 0.22358 0.22358 0.22358 0.22358 0.22358 0.22358 0.22358 0.22358 0.125751 0.12564 0.125593 0.114564 0.125593 0.114564 0.125593 0.1155751 0.125593 0.1155751 0.114564 0.112575 0.114564 0.115751 0.114564 0.115775 0.114564 0.115751 0.114564 0.115751 0.114564 0.115751 0.114564 0.115751 0.114564 0.115751 0.114564 0.115751 0.114564 0.115751 0.000 0.115751 0.0000 0.00000 0.00000000	1.255 v_0 / v_m 0.9607 0.72950 1.09377 0.807 0.7950 1.09377 0.8749 0.7252 0.76950 0.77052 0.76950 0.77052 0.76950 0.76950 0.76950 0.76950 0.76950 0.76950 0.76950 0.9950 0.7550 0.7550 0.7550 0.7550 0.7550 0.7550 0.7550 0.7550 0.7550 0.7550 0.7550 0.7550 0.7550 0.7550 0.7550 0.7550 0.7550 0.7550 0.55500 0.55500 0.55500 0.55500 0.55500 0.55500 0.55500 0.55500 0.55500 0.55500 0.55500 0.55500 0.55500 0.555000 0.555000 0.555000 0.555000 0.555000 0.55500000000
Φ 0 10 200 400 500 700 900 1120 1220 1220 1220 1220 1220 1230 1230 1230 1230 1230 1230 1230 1230 1230 1230 1230 1230 1230 1230 1230 1230 1230 1230 100 1230 100 1230 100 1230 100 1230 100 1230 100 100 100 100 100 100 100 1	r = 65. V_X / V_m 0.594 - 0.6599 - 0.6649 - 0.6649 - 0.6649 - 0.638 - 0.5741 0.5741 0.5506 0.55977 - 0.5652 0.5652 0.5652 0.5659 0.5645 0.5668 - 0.5668 - 0.5652 0.5652 0.5649 - 0.5652 0.5927 - 0.5658 - 0.5658 - 0.5659 - 0.5789 - 0.5659 - 0.5659 - 0.5789 - 0.5659 - 0.5920 - 0.5920 - 0.5930 - 0.9300 - 0.9300 - 0.9300 - 0.9300 - 0.9300 - 0.9300 - 0.9307 - 0.9930 - 0.9971 - 0.99	0 mm V_r V_m 0.097 0.240 0.1753 0.0240 0.0234 0.0234 0.00234 0.00234 0.0029 0.0115 0.1121 0.1125 0.1121 0.1126 0.009 0.0014 0.009 0.0094 0.0094 0.0095 0.0004 0.0095 0.0004 0.0095 0.0004 0.0095 0.0004 0.0095 0.0004 0.009 0.0095 0.0004 0.009 0	<pre>r/R= vt/vm 0.141 0.0155 -0.066 -0.087 -0.036 -0.018 -0.0022 -0.0028 -0.0028 -0.0028 -0.0028 -0.0028 -0.0028 -0.0012 0.0103 0.0714 0.0255 -0.1148 -0.0079 0.0714 0.02551 -0.00799 -0.017 0.0114 0.0527 -0.017 0.0114 0.0527 -0.017 0.0114 0.0527 -0.0111 0.0527 -0.0111 0.0527 -0.0111 0.0527 -0.0111 0.0527 -0.0111 0.0527 -0.0111 0.0527 -0.0111 0.0527 -0.0111 0.0527 -0.0111 0.0527 -0.0111 0.0527 -0.0111 0.0527 -0.0111 0.0527 -0.0111 0.0527 -0.0111 0.0527 -0.0111 0.0527 -0.0111 0.0557 -0.0111 0.0557 -0.0111 0.0557 -0.0111 0.0557 -0.0111 0.0557 -0.0111 0.0557 -0.0111 0.0025 -0.0111 0.0025 -0.0111 0.0025 -0.0111 0.0025 -0.0111 0.0025 -0.0111 0.0025 -0.0111 0.0025 -0.0111 0.0025 -0.0111 0.0025 -0.0111 0.0025 -0.0111 0.0025 -0.0111 0.0025 -0.0111 0.0025 -0.0111 0.0025 -0.0111 0.0025 -0.0111 0.0025 -0.0111 0.0025 -0.0111 0.0025 -0.0111 0.0057 -0.0025 -0.0111 0.0057 -0.0059 -0</pre>	$\begin{array}{c} 0.816 \\ \textit{V}_{o} \\ (590) \\ 0.6807 \\ 0.6807 \\ 0.6807 \\ 0.6807 \\ 0.66316 \\ 0.5508 \\ 0.55708 \\ 0.55708 \\ 0.55708 \\ 0.55708 \\ 0.55708 \\ 0.568011 \\ 0.557508 \\ 0.56801 \\ 0.55758 \\ 0.56801 \\ 0.55758 \\ 0.56801 \\ 0.55758 \\ 0.56801 \\ 0.55758 \\ 0.56801 \\ 0.55758 \\ 0.5988 \\ 0.598$	r = 8 v m 881 v 0.55234107341390081944292654664529447368890923344529265233346529447368899999999999999999999999999999999999	2.5 mm V _r /V _m -0.107 -0.233 -0.184 +0.117 -0.008 0.056 0.044 0.024 0.024 0.024 0.024 0.024 0.113 0.117 0.133 0.117 0.133 0.117 0.133 0.117 0.048 -0.128 0.128 0.056 0.044 0.116 0.117 0.098 0.124 0.117 0.108 0.124 0.117 0.123 0.124 0.125 0.056 0.044 0.117 0.098 0.124 0.117 0.123 0.124 0.117 0.123 0.124 0.117 0.123 0.124 0.117 0.123 0.124 0.117 0.123 0.124 0.125 0.056 0.044 0.117 0.123 0.124 0.117 0.123 0.124 0.117 0.125 0.056 0.128 0.128 0.128 0.124 0.056 0.048 0.128 0.129 0.124 0.056 0.039 0.124 0.056 0.039 0.124 0.056 0.039 0.124 0.056 0.039 0.128 0.128 0.129 0.129 0.124 0.056 0.039 0.128 0.129 0.129 0.124 0.039 0.124 0.039 0.128 0.129 0.129 0.129 0.039 0.124 0.039 0.128 0.129 0.039 0.128 0.129 0.129 0.039 0.128 0.129 0.039 0.128 0.129 0.129 0.129 0.129 0.129 0.129 0.129 0.129 0.129 0.129 0.129 0.129 0.128 0.128 0.129 0.128 0.128 0.128 0.128 0.128 0.128 0.128 0.1289 0.128 0.1289 0.1289 0.1284 0.1289 0.12	+ p/R= v _t /v _m -0.016 -0.053 -0.005 0.019 0.165 0.167 0.129 0.087 0.089 0.087 0.089 0.087 0.089 0.056 0.056 0.056 0.056 0.056 0.056 0.056 0.056 0.055 0.113 0.148 0.029 -0.129 -0.159 -0.051 -0.051 -0.051 -0.055 -0.159 -0.159 -0.159 -0.051 -0.051 -0.051 -0.055 -0.159 -0.159 -0.051 -0.051 -0.055 -0.159 -0.055 -0.159 -0.055 -0.159 -0.055 -0.159 -0.055 -0.159 -0.055 -0.159 -0.055 -0.159 -0.055 -0.159 -0.055 -0.159 -0.055 -0.055 -0.159 -0.055 -0.159 -0.055 -0.159 -0.055 -0.055 -0.159 -0.055 -0.055 -0.159 -0.055 -0.159 -0.055 -0.055 -0.055 -0.159 -0.055 -0.055 -0.055 -0.159 -0.055 -	1.035 v_{o} / v_{m} 0.667 0.5566 0.5547 0.6674 0.5525 0.7256 0.7394 0.6648 0.5717 0.6648 0.6648 0.66538 0.66538 0.665584 0.55554 0.55554 0.5517 0.6648 0.66451 0.884721 0.57584 0.992299 0.9934995 0.9934995 0.99738 0.99495 0.99738	r = 10 $v_x 9426$ 0.769999927 0.69999920 0.984782669843226 0.7788248998253389393932553889293929556422 0.9995554200000000000000000000000000000000	0.0 mm Vr 131 0.1992 0.00132 0.00519 0.005000 0.005000 0.005000 0.005000 0.005000 0.005000 0.005000 0.005000 0.005000 0.0050000 0.0050000 0.0050000000000	+ $r/R=$ v_t/v_m 0.146790.1995 0.2235830200.22358 0.2235800.22750 0.2235800.22750 0.2235800 0.113211 0.099227511256 0.112564 -0.112564 -0.112564 -0.112564 -0.1125693386 0.0042293 0.004229 0.0040 0.004229 0.0040 0.004229 0.0040 0.004229 0.0040 0.004229 0.0040 0.0040 0.0040 0.0040 0.0040 0.0040 0.0040 0.0040 0.0040 0.0040 0.0040 0.0040 0.0040 0.0040 0.0040 0.00000 0.0000 0.0000 0.0000 0.0000 0.00000 0.0000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.000000 0.000000 0.0000000 0.0000000 0.00000000	$\begin{array}{c} 1.255 \\ \nu_{0} / \nu_{m} \\ 0.9607 \\ 0.7950 \\ 0.7950 \\ 1.0917 \\ 0.8742 \\ 0.77950 \\ 1.0917 \\ 0.8742 \\ 0.7705 \\ 0.7712 \\ 0.66658 \\ 0.78941 \\ 0.77950 \\ 0.76665 \\ 0.884951 \\ 0.7905 \\ 0.99592 \\ 0.9959 \\$

ļ	n= 30	0 mm	+ n/R = (1 376	n= 4	7 5 mm	$\rightarrow n/R$ -	0 506				
φ	$v_{\rm x}/v_{\rm m}$	v_r/v_m	v_t/v_m	<i>v_o/v</i> _m	$v_{\rm x}/v_{\rm m}$	$V_{\rm r}/V_{\rm m}$	v_t/v_m	$v_{\rm o}/v_{\rm m}$				
0 10 20 30 40	0.580 0.694 0.835 0.903 0.895	0.015 0.062 0.107 0.132 0.135	-0.110 -0.183 -0.159 -0.135 -0.096	0.590 0.721 0.856 0.922 0.910	0.651 0.805 0.939 0.976 0.920	-0.080 0.027 0.073 0.095 0.094	-0.142 -0.180 -0.116 -0.079 -0.062	0.671 0.825 0.949 0.984 0.927	Nach (3-d	strc	mmessu nsional	ng L)
50 60 70 80 90	0.909 0.922 0.926 0.918 0.911	0.142 0.144 0.142 0.134 0.130	-0.070 -0.049 -0.018 0.013 0.036	0.923 0.935 0.937 0.927 0.921	0.910 0.934 0.941 0.924 0.908	0.109 0.126 0.135 0.130 0.130	-0.052 -0.035 -0.007 0.029 0.055	0.918 0.943 0.950 0.934 0.919	HSVA-M	odel	l Nr.	1512
100 110 120 130	0.912 0.914 0.895 0.864	0.120 0.106 0.089 0.077	0.058 0.092 0.118 0.134	0.921 0.925 0.907 0.878	0.905 0.908 0.910 0.908	0.116 0.094 0.068 0.053	0.073 0.097 0.115 0.128	0.916 0.917 0.919 0.918	Versu	ch N	r. N66	/74
140 150 160 170 180	0.818 0.784 0.697 0.536 0.474	0.057 0.026 0.018 0.021 0.117	0.138 0.155 0.153 0.140	0.831 0.799 0.714 0.554 0.492	0.877 0.851 0.744 0.551 0.513	0.028 -0.010 -0.028 -0.044	0.142 0.171 0.161 0.124 0.010	0.889 0.868 0.762 0.566 0.516	Drift	wink	el β=	-8 ⁰
190 200 210 220	0.502 0.647 0.729 0.741	0.213 0.212 0.208 0.166	-0.021 0.008 0.048 0.118	0.545 0.681 0.759 0.768	0.590 0.744 0.798 0.736	0.158 0.174 0.175 0.149	-0.062 -0.015 0.030 0.085	0.614 0.764 0.818 0.756				
230 240 250 260 270	0.757 0.753 0.743 0.721 0.702	0.137 0.107 0.073 0.039 0.012	0.169 0.193 0.225 0.236 0.241	0.787 0.784 0.780 0.759 0.742	0.695 0.679 0.660 0.649	0.138 0.126 0.098 0.043	0.121 0.135 0.171 0.192 0.192	0.719 0.704 0.689 0.678	-			
280 290 300 310	0.697 - 0.702 - 0.692 - 0.669 -	-0.017 -0.059 -0.071 -0.067	0.230 0.221 0.217 0.217	0.734 0.738 0.728 0.707	0.649 0.652 0.665 0.681	-0.048 -0.087 -0.105 -0.122	0.169 0.161 0.146 0.113	0.672 0.677 0.689 0.701	T	abe]	lle B9	
320 330 340 350	0.643 0.638 0.618 0.544	-0.032 -0.003 -0.004 -0.020	0.203 0.186 0.116 0.013	0.675 0.665 0.629 0.545	0.690 0.704 0.670 0.586	-0.150 -0.186 -0.204 -0.211	0.103 0.125 0.089 -0.005	0.714 0.739 0.706 0.623				
	r= 65.	.0 mm ·	$\rightarrow r/R=0$	0.816	<i>r</i> = 8	2.5 mm	$\rightarrow r/R=$	1.035	r = 100.0	mm	+ $r/R=1$.255
Φ.	x m	v_r / v_m	v_t / v_m	V / V m	$v_{\rm x}/v_{\rm m}$	v_r / v_m	v_t / v_m	v_{o}/v_{m}	$v_{\rm x}/v_{\rm m} = v_{\rm c}$	r''m	v_t/v_m	v_0/v_m
$\begin{array}{c} 0\\ 10\\ 20\\ 340\\ 560\\ 7890\\ 1112340\\ 112340\\ 112340\\ 11232222222222222222333333340\\ 1123400\\ 1123400\\ 1123400\\ 112340\\ 1$	46 788776 0.999999999999999999999999999999999999	$\begin{array}{c} 0.062\\ 0.0426\\ 0.102\\ 1.131\\ 0.1131\\ 0.1131\\ 0.125\\ 0.1131\\ 0.125\\ 0.1131\\ 0.125\\ 0.1131\\ 0.125\\ 0.0039\\ 0.00133\\ 0.1155\\ 0.1155\\ 0.1155\\ 0.11732\\ 0.0061\\ 0.0000\\ 0.0061\\ 0.0000\\ 0.0061\\ 0.0000\\ 0.000\\ 0.0000\\ 0.000\\ 0.000\\ 0.0000\\ 0.0000\\ 0.000\\ 0.0000\\ $	$\begin{array}{c} -0.053\\ -0.119\\ -0.113\\ -0.097\\ -0.067\\ -0.054\\ -0.037\\ -0.006\\ 0.077\\ 0.105\\ 0.122\\ 0.127\\ 0.135\\ 0.165\\ 0.156\\ -0.025\\ -0.099\\ -0.048\\ -0.021\\ 0.011\\ 0.059\\ 0.0211\\ 0.034\\ 0.059\\ 0.130\\ 0.059\\ 0.072\\ 0.059\\ 0.072\\ 0.0596\\ 0.074\\ 0.0556\\ 0.075\\ 0.0556\\ 0.075\\ 0.0556\\ 0.075\\ 0.0556\\$	$\begin{array}{c} .751\\ ..968\\ ..9958\\ ..995529\\ ..99544\\ ..995529\\ ..99544\\ ..995529\\ ..99544\\ ..9959244\\ ..99924122\\ ..99924\\ ..999244\\ ..99924122\\ ..9992444\\ ..9992444\\ ..9992444\\ ..9992444\\ ..9992444\\ ..9992444\\ ..99944444\\ ..99944444\\ ..99944444\\ ..99944444\\ ..99944444\\ ..99944444\\ ..99944444\\ ..99944444\\ ..99944444\\ ..99944444\\ ..99944444\\ ..99944444\\ ..99944444\\ ..99944444\\ ..99944444\\ ..99944444\\ ..99944444\\ ..99944444\\ ..99944444\\ ..999444444\\ ..999444444\\ ..999444444\\ ..999444444\\ ..9994444444\\ ..999444444\\ ..99944444444\\ ..9994444444\\ ..99944444444\\ ..99944444444444\\ ..999444444444444444444444444444444444$	0.6434 0.99718 0.99718 0.99912988 0.999143211976024960 0.99944321197602496076208892999999999999999999999999999999999	$\begin{array}{c} -0.118\\ 0.002\\ 0.073\\ 0.108\\ 0.119\\ 0.144\\ 0.160\\ 0.170\\ 0.162\\ 0.159\\ 0.140\\ 0.162\\ 0.162\\ 0.140\\ 0.054\\ -0.055\\ -0.166\\ -0.175\\ -0.165\\ -0.175\\ -0.165\\ -0.175\\ -0.055\\ -0.165\\ -0.175\\ -0.05$	$\begin{array}{c} -0.016\\ -0.103\\ -0.173\\ -0.173\\ -0.171\\ -0.079\\ -0.063\\ -0.002\\ 0.028\\ 0.002\\ 0.028\\ 0.002\\ 0.028\\ 0.002\\ 0.002\\ 0.0037\\ -0.057\\ -0.147\\ -0.057\\ -0.057\\ -0.048\\ -0.042\\ -0.015\\ -0.026\\ -0.026\\ -0.026\\ -0.026\\ -0.026\\ -0.026\\ -0.05\\ -0.026\\ -0.005\\ \end{array}$	0.000000000000000000000000000000000000	$\begin{array}{c} 0.829\\ 0.964\\ 0.9729\\ 0.9969\\ 0.9969\\ 0.9951\\ 0.9951\\ 0.9951\\ 0.9941\\ 0.999328\\ 0.999328\\ 0.999328\\ 0.999328\\ 0.999328\\ 0.99935\\ 0.99935\\ 0.99951\\ 0.99951\\ 0.99951\\ 0.98951\\ 0.98951\\ 0.58374\\ 2.0\\ 0.58374\\ 2.58374\\ 2.58374\\ 2.58374\\ 2.58374\\ 2.58374\\ 2.58374\\ 2.58375\\ 0.56689\\ 0.668899\\ 0.5521\\$.00126113345253799998886644292818071441204466	$\begin{array}{c} -0.262\\ -0.208\\ -0.137\\ -0.110\\ -0.000\\ -0.0030\\ -0.0030\\ -0.0030\\ -0.005\\ 0.0025\\ 0.005\\ 0.103\\ 0.122\\ 0.1255\\ -0.121\\ -0.135\\ -0.113\\ -0.113\\ -0.113\\ -0.113\\ -0.113\\ -0.113\\ -0.113\\ -0.2261\\ -0.2276\\ -0.2275\\ -0.228\\ -0.223\\ -0.223\\ -0.223\\ -0.23\\ -0.223\\ -0.$	$\begin{array}{c} \textbf{0.997} \\ \textbf{0.997} \\ \textbf{0.997} \\ \textbf{0.997} \\ \textbf{0.997} \\ \textbf{0.997} \\ \textbf{0.999} \\ \textbf{999} \\ $
	• •	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\begin{array}{c c c c c c c c c c c c c c c c c c c $	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$

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	r= 30.0 mm + r/	/R= 0.376	r= 47.5 mm	+ r/R= 0.596	
φ	$v_{\rm x}/v_{\rm m} v_{\rm r}/v_{\rm m} v_{\rm t}$	$v_{\rm m} v_{\rm o} v_{\rm m}$	v _x /v _m v _r /v _m	$v_t / v_m = v_o / v_s$	
0 10 20 30 40	0.546 0.022 0.0 0.498 -0.007 -0.0 0.596 -0.003 -0.1 0.633 -0.022 -0.2 0.650 -0.054 -0.2	074 0.552 072 0.503 151 0.615 204 0.666 218 0.688	0.629 -0.063 0.544 -0.208 0.647 -0.205 0.709 -0.192 0.710 -0.162	0.161 0.65 0.019 0.58 -0.081 0.68 -0.101 0.74 -0.085 0.73	Nachstrommessung (3-dimensional)
50 60 70 80 90	0.688 -0.078 -0.2 0.718 -0.063 -0.2 0.734 -0.040 -0.2 0.733 -0.010 -0.2 0.741 0.006 -0.2	234 0.731 244 0.761 251 0.777 255 0.776 263 0.786	0.692 -0.145 0.665 -0.127 0.659 -0.105 0.675 -0.052 0.687 0.002	-0.129 0.71 -0.192 0.70 -0.205 0.69 -0.186 0.70 -0.194 0.71	HSVA-Modell Nr. 1512
100 110	0.754 0.032 -0.2 0.770 0.077 -0.2	254 0.796 235 0.809	0.697 0.054 0.708 0.108	-0.201 0.72 -0.178 0.73	Versuch Nr. N58/74
120 130 140 150 160 170 180 190 200	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	Driftwinkel β= +8 ⁰
220 230 240 250 260 270 280 290 300 310 320	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	0.880 0.012 0.892 0.043 0.903 0.067 0.909 0.093 0.912 0.112 0.914 0.129 0.925 0.135 0.938 0.143 0.932 0.134 0.907 0.116 0.917 0.099	$\begin{array}{c} -0.140 & 0.03 \\ -0.132 & 0.89 \\ -0.124 & 0.90 \\ -0.111 & 0.91 \\ -0.094 & 0.91 \\ -0.066 & 0.92 \\ -0.041 & 0.92 \\ -0.012 & 0.93 \\ 0.020 & 0.94 \\ 0.045 & 0.94 \\ 0.064 & 0.91 \\ 0.080 & 0.92 \end{array}$	Tabelle B10
330 340 350	0.917 0.132 0.1 0.835 0.112 0.1 0.675 0.070 0.1	123 0.935 149 0.856 168 0.700	0.974 0.096 0.934 0.074 0.793 0.037	0.097 0.98 0.129 0.94 0.196 0.81	
	$r=65.0 \text{ mm} \rightarrow r/$	/R= 0.816	r= 82.5 mm	→ r/R= 1.035	$r = 100.0 \text{ mm} \rightarrow r/R = 1.255$
¢	$v_{\rm x}/v_{\rm m}$ $v_{\rm r}/v_{\rm m}$ $v_{\rm t}/$	$v_{\rm m} v_{\rm o} v_{\rm m}$	$v_x / v_m = v_r / v_m$	v_t/v_m v_o/v_m	$v_{\mathbf{x}}/v_{\mathbf{m}} = v_{\mathbf{r}}/v_{\mathbf{m}} = v_{\mathbf{t}}/v_{\mathbf{m}} = v_{\mathbf{o}}/v_{\mathbf{m}}$
$\begin{array}{c} 0\\ 10\\ 20\\ 30\\ 40\\ 50\\ 90\\ 100\\ 120\\ 130\\ 140\\ 150\\ 170\\ 220\\ 230\\ 250\\ 220\\ 250\\ 220\\ 300\\ 320\\ 330\\ 340\\ 330\\ 33$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{c} -0.013 \\ -0.057 \\ 0.057 \\ 0.023 \\ 0.022 \\ 0.722 \\ -0.029 \\ 0.732 \\ -0.025 \\ 0.732 \\ 0.004 \\ 0.025 \\ 0.702 \\ 0.004 \\ 0.027 \\ 0.027 \\ 0.027 \\ 0.027 \\ 0.027 \\ 0.027 \\ 0.027 \\ 0.059 \\ 0.027 \\ 0.059 \\ 0.027 \\ 0.059 \\ 0.037 \\ 0.741 \\ 0.037 \\ 0.741 \\ 0.037 \\ 0.741 \\ 0.037 \\ 0.775 \\ 0.037 \\ 0.775 \\ 0.013 \\ 0.741 \\ 0.037 \\ 0.775 \\ 0.013 \\ 0.741 \\ 0.037 \\ 0.775 \\ 0.013 \\ 0.741 \\ 0.051 \\ 0.741 \\ 0.051 \\ 0.477 \\ -0.112 \\ 0.577 \\ -0.165 \\ 0.849 \\ 0.165 \\ 0.046 \\ 0.941 \\ -0.058 \\ 0.944 \\ -0.058 \\ 0.944 \\ -0.058 \\ 0.944 \\ -0.058 \\ 0.944 \\ -0.058 \\ 0.944 \\ -0.058 \\ 0.944 \\ -0.058 \\ 0.944 \\ -0.058 \\ 0.944 \\ -0.058 \\ 0.944 \\ -0.058 \\ 0.944 \\ -0.058 \\ 0.944 \\ -0.058 \\ 0.944 \\ -0.035 \\ 0.046 \\ 0.944 \\ -0.035 \\ 0.046 \\ 0.944 \\ -0.035 \\ 0.046 \\ 0.944 \\ -0.035 \\ 0.046 \\ 0.035 \\ -0.046 \\ 0.035 \\ 0.046 \\ 0.035 \\ 0.046 \\ 0.035 \\ 0.046 \\ 0.035 \\ 0.046 \\ 0.035 \\ 0.046 \\ 0.035 \\ 0.046 \\ 0.035 \\ 0.046 \\ 0.035 \\ 0.046 \\ 0.035 \\ 0.046 \\ 0.035 \\ 0.046 \\ 0.035 \\ 0.046 \\ 0.035 \\ 0.046 \\ 0.045 \\ 0.046 \\ 0.045 \\ 0.046 \\ 0.045 \\ 0.045 \\ 0.04$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$

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	r = 30.0 mm	+ r/R= 0.376	r= 47.5 mm	→ r/R=	0.596	
¢	$v_{\rm x}/v_{\rm m} = v_{\rm r}/v_{\rm m}$	$v_t / v_m = v_o / v_m$	v_{x}/v_{m} v_{r}/v	v_t / v_m	v_{o}/v_{m}	
0 10 20 30	0.624 0.023 0.760 0.067 0.875 0.103 0.926 0.119	-0.148 0.642 -0.204 0.789 -0.166 0.896 -0.137 0.944	0.675 -0.06 0.827 0.02 0.939 0.06 0.963 0.08	$\begin{array}{rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr$	0.700 0.849 0.949 0.971	Nachstrommessung (3-dimensional)
50 60 70 80	0.894 0.122 0.902 0.134 0.904 0.142 0.901 0.135	-0.082 0.912 -0.082 0.906 -0.061 0.914 -0.034 0.916 0.001 0.911	0.907 0.11 0.932 0.13 0.929 0.15 0.911 0.15	$\begin{array}{c} -0.009 \\ -0.074 \\ 9 \\ -0.046 \\ 7 \\ -0.021 \\ 4 \\ 0.010 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 $	0.918 0.943 0.943 0.924	HSVA-Modell Nr. 1512
100 110 120 130	0.899 0.114 0.895 0.099 0.884 0.082 0.868 0.066	0.059 0.908 0.089 0.905 0.112 0.895 0.131 0.881	0.907 0.13 0.907 0.13 0.895 0.11 0.878 0.08 0.865 0.06	2 0.073 3 0.103 8 0.117 5 0.128	0.920 0.919 0.907 0.890 0.877	Versuch Nr. N67/74
140 150 160 170	0.859 0.045 0.867 0.019 0.789 0.013 0.631 0.012 0.503 0.086	0.144 0.872 0.162 0.883 0.164 0.806 0.168 0.653	0.864 0.02 0.876 -0.01 0.796 -0.03 0.630 -0.04	7 0.140 8 0.163 6 0.163 9 0.156	0.876 0.891 0.813 0.651	Driftwinkel β= -10 ⁰
190 200 210 220	0.452 0.226 0.591 0.242 0.686 0.238 0.741 0.193	0.012 0.505 0.016 0.639 0.047 0.728 0.123 0.776	0.565 0.15 0.725 0.19 0.812 0.21 0.806 0.19	0.000 8 -0.039 3 -0.018 1 0.020 1 0.089	0.555	
250 240 250 260 270	0.781 0.172 0.786 0.145 0.792 0.110 0.774 0.066 0.750 0.029	0.175 0.819 0.201 0.824 0.233 0.833 0.249 0.816 0.259 0.794	0.794 0.17 0.768 0.14 0.749 0.11 0.747 0.05 0.750 -0.00	6 0.135 8 0.163 3 0.210 4 0.234 3 0.240	0.824 0.799 0.786 0.785 0.788	
280 290 300 310 320	$\begin{array}{rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr$	0.255 0.775 0.250 0.775 0.240 0.756 0.228 0.717 0.213 0.661	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	4 0.220 2 0.212 3 0.187 3 0.142 2 0 126	0.786 0.780 0.777 0.788	Tabelle B11
330 340 350	0.588 -0.008 0.573 -0.006 0.545 -0.013	0.209 0.624 0.128 0.587 -0.016 0.546	0.720 -0.18 0.658 -0.20 0.579 -0.19	9 0.151 3 0.104 9 -0.025	0.760 0.696 0.613	
ф	r = 65.0 mm $V_{\rm X}/V_{\rm m} = V_{\rm r}/V_{\rm m}$	$\Rightarrow r/R = 0.816$ $V_t/V_m V_0/V_m$	$r = 82.5 \text{ mm}$ $V_{x}/V_{m} V_{r}/V$	$\rightarrow r/R=$ m V_t/V_m	1.035 <i>V_O/V_m</i>	$r = 100.0 \text{ mm} \rightarrow r/R = 1.255$ $V_{\rm X}/V_{\rm m} = V_{\rm p}/V_{\rm m} = V_{\rm L}/V_{\rm m} = V_{\rm O}/V_{\rm m}$
$\begin{array}{c} 0\\ 10\\ 23\\ 40\\ 56\\ 78\\ 90\\ 112\\ 12\\ 34\\ 0\\ 0\\ 112\\ 12\\ 22\\ 22\\ 22\\ 22\\ 22\\ 22\\ 22\\ 2$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$ \begin{array}{c} \begin{array}{c} & & & \\ & & & & \\ & & & \\ & & & \\ & & & \\ & &$	$\begin{array}{c} 0.657\\ 0.8593\\ 0.99414\\ 0.99411\\ 0.99414\\ 0.994414\\ 0.99588\\ 0.9953\\ 0.9953\\ 0.995422\\ 0.995422\\ 0.99199428\\ 0.9919942\\ 0.99588162\\ 0.88162\\$	x m r m c m c m 0.769 0.056 -0.282 0.821 0.930 0.026 -0.248 0.963 0.973 0.006 -0.177 0.989 0.983 0.042 -0.149 0.995 0.940 0.114 -0.152 0.959 0.929 0.145 -0.135 0.967 0.961 0.154 -0.057 0.975 0.993 0.137 -0.095 0.975 0.949 0.169 -0.020 0.964 0.937 0.166 0.016 0.952 0.939 0.135 0.046 0.949 0.935 0.091 0.093 0.944 0.892 0.072 0.105 0.901 0.872 0.024 0.148 0.925 0.813 -0.071 0.143 0.828 0.555 -0.174 0.112 0.546 0.345 -0.154 -0.064 0.383 0.554 0.012 -0.200 0.589 0.748 0.216 -0.072 0.805 0.748 0.216 -0.072 0.805 0.748 0.216 -0.065 0.626 0.621 -0.095 -0.166 0.779 0.764 0.242 -0.148 0.739 0.764 -0.044 -0.148 0.739 0.764 -0.054 -0.169 0.771 0.764 -0.068 -0.192 0.790

	r= 3	0.0 mm	→ r/R=	0.376	r= 4	7.5 mm	→ r/R=	0.596				
¢	v _x /v _m	v _r /v _m	v_t / v_m	v _o /v _m	$v_{\rm x}/v_{\rm m}$	v _r /v _m	v_t/v_m	v _o /v _m				
0 10 20 30	0.546 0.457 0.526 0.551	0.025 0.012 0.005 -0.023	0.123 -0.017 -0.144 -0.225	0.560 0.457 0.546 0.596	0.617 0.546 0.666 0.733	-0.112 -0.226 -0.198 -0.185	0.121 -0.005 -0.095 -0.132	0.639 0.591 0.701 0.768	Na (3	.chstro 3-dimen	mmessu nsiona	ing 1)
40 50 60 70 80	0.594 0.659 0.711 0.740 0.744	-0.058 -0.079 -0.061 -0.042 -0.003	-0.243 -0.257 -0.264 -0.280 -0.290	0.644 0.711 0.761 0.792 0.799	0.757 0.784 0.786 0.784 0.784	-0.170 -0.156 -0.134 -0.115 -0.066	-0.127 -0.151 -0.195 -0.226 -0.245	0.786 0.813 0.821 0.824 0.823	HSVA	-Model	l Nr.	1512
90 100 110 120	0.763 0.779 0.790 0.774	0.033 0.073 0.119 0.157	-0.296 -0.279 -0.263 -0.230	0.819 0.831 0.841 0.822	0.792 0.807 0.812 0.818	-0.011 0.053 0.119 0.159	-0.265 -0.256 -0.232 -0.184	0.835 0.848 0.853 0.853	Ver	such N	Ir. N59	9/74
130 140 150 160 170 180	0.759 0.716 0.664 0.572 0.427 0.493	0.190 0.216 0.262 0.251 0.212 0.074	-0.193 -0.138 -0.060 -0.043 -0.072 -0.168	0.806 0.760 0.717 0.626 0.482 0.526	0.839 0.825 0.783 0.668 0.494 0.537	0.191 0.206 0.234 0.217 0.175 0.026	-0.146 -0.089 -0.007 0.026 0.023 -0.102	0.873 0.855 0.818 0.703 0.524 0.547	Dri	ftwink	el β=	+10 ⁰
190 200 210 220 230	0.647 0.806 0.871 0.845 0.856	0.019 0.029 0.035 0.055 0.076	-0.192 -0.170 -0.162 -0.150 -0.137	0.675 0.824 0.886 0.860 0.871	0.663 0.822 0.889 0.864 0.868	-0.056 -0.037 -0.013 0.031 0.062	-0.158 -0.144 -0.139 -0.128 -0.124	0.684 0.835 0.900 0.874 0.879				
240 250 260 270 280	0.885 0.901 0.895 0.890 0.895	0.095 0.113 0.126 0.139 0.143	-0.116 -0.094 -0.066 -0.041 -0.010	0.898 0.912 0.907 0.901 0.906	0.894 0.911 0.911 0.905 0.911	0.082 0.113 0.136 0.150 0.147	-0.107 -0.083 -0.046 -0.015 0.017	0.904 0.922 0.922 0.917 0.923				
300 310 320 330 340	0.910 0.902 0.902 0.933 0.867	0.136 0.126 0.114 0.108 0.090	0.050 0.064 0.089 0.131 0.161	0.921 0.913 0.914 0.948 0.886	0.926 0.897 0.903 0.964 0.929	0.138 0.118 0.097 0.092 0.061	0.075 0.092 0.107 0.126 0.146	0.939 0.909 0.915 0.977 0.942		Tabel:	le B12	
350	0.717	0.056	0.189	0.744	0.784	0.004	0.185	0.806		0.0		
¢	$V_{\rm x}/V_{\rm m}$	V_r/V_m	$= \frac{V_{t}/V_{m}}{V_{t}/V_{m}}$	$v_{\rm o}/v_{\rm m}$	r = c v_x/v_m	V_r/V_m	$\neq r/R = V_t/V_m$	v _o /v _m	r = 10 $V_{\rm x}/V_{\rm m}$	v_r / v_m	$\neq v_t/R = V_t/V_m$	v _o /v _m
$\begin{array}{c} 0 \\ 10 \\ 23 \\ 45 \\ 0 \\ 0 \\ 11 \\ 23 \\ 45 \\ 0 \\ 0 \\ 11 \\ 23 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ $	118 10. 138 10. 138 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10. 1	$\begin{array}{c} -0.113\\ -0.204\\ -0.170\\ -0.152\\ -0.141\\ -0.152\\ -0.1128\\ -0.1128\\ -0.1128\\ -0.060\\ 0.2245\\ 0.225\\ 0.2226\\ 0.2251\\ 0.2251\\ 0.2251\\ 0.2251\\ 0.2251\\ 0.2251\\ 0.2251\\ 0.2251\\ 0.10394\\ -0.0394\\ -0.0394\\ -0.0394\\ 0.164\\ 0.1529\\ 0.1464\\ 0.1660\\ 0.1529\\ 0.1052\\ 0.0554\\ 0.1052\\ 0.0554\\ 0.0554\\ 0.1052\\ 0.0554\\ 0.1052\\ 0.0554\\ 0.1052\\ 0.0554\\ 0.1052\\ 0.0554\\ 0.1052\\ 0.0554\\ 0.1052\\ 0.0554\\ 0.1052\\ 0.0554\\ 0.1052\\ 0.0554\\ 0.1052\\ 0.0554\\ 0.1052\\ 0.0554\\ 0.$	$ \begin{array}{c} m \\ 0.0659\\ -0.0297\\ -0.072\\ -0.072\\ -0.072\\ -0.13529\\ -0.11529\\ -0.1202\\ -0.11529\\ -0.2212\\ -0.1129\\ -0.2212\\ -0.1129\\ -0.0054\\ -0.0074\\ -0.0074\\ -0.0074\\ -0.0074\\ -0.0074\\ -0.0074\\ -0.0024\\ -0.0056\\ -0.0074\\ -0.0024\\ -0.0056\\ -0.005\\ $	$ \begin{array}{c} m \\ 9 \\ 226 \\ 9 \\ 6 \\ 7 \\ 8 \\ 7 \\ 8 \\ 8 \\ 7 \\ 8 \\ 8 \\ 8 \\ 8$	$ \begin{array}{c} \mathbf{x} \\ 0.729\\ 0.55973\\ 0.55973\\ 0.55973\\ 0.77545\\ 0.7755$	$\begin{array}{c} & -0.123 \\ -0.123 \\ -0.175 \\ -0.177 \\ -0.182 \\ -0.175 \\ -0.157 \\ -0.157 \\ -0.157 \\ -0.120 \\ -0.103 \\ -0.074 \\ 0.050 \\ 0.183 \\ 0.242 \\ 0.072 \\ 0.2242 \\ 0.224 \\ 0.169 \\ -0.086 \\ 0.726 \\ -0.149 \\ -0.067 \\ -0.086 \\ 0.166 \\ 0.168 \\ 0.183 \\ 0.180 \\ 0.188 \\ 0.156 \\ 0.126 \\ 0.125 \\ 0.052 \end{array}$	$\begin{array}{c} & & m \\ & & 0.053 \\ - & 0.029 \\ - & 0.043 \\ - & 0.043 \\ - & 0.062 \\ - & 0.076 \\ - & 0.065 \\ - & 0.099 \\ - & 0.173 \\ - & 0.076 \\ - & 0.0099 \\ - & 0.173 \\ - & 0.076 \\ - & 0.0099 \\ - & 0.133 \\ - & 0.076 \\ - & 0.0099 \\ - & 0.133 \\ - & 0.076 \\ - & 0.0099 \\ - & 0.031 \\ - & 0.042 \\ - & 0.031 \\ - & 0.042 \\ - & 0.031 \\ - & 0.042 \\ - & 0.031 \\ - & 0.042 \\ - & 0.031 \\ - & 0.042 \\ - & 0.031 \\ - & 0.052 \\ - & 0.031 \\ - & 0.052 \\ - & 0.031 \\ - & 0.052 \\ - & 0.031 \\ - & 0.052 \\ - & 0.031 \\ - & 0.052 \\ - & 0.031 \\ - & 0.052 \\ - & 0.031 \\ - & 0.052 \\ - & 0.031 \\ - & 0.052 \\ - & 0.031 \\ - & 0.052 \\$	m 164489511752113279268663915113449203066000000000000000000000000000000000	$ \begin{array}{c} \textbf{m} \\ \textbf{558} \\ \textbf{0.53328} \\ \textbf{0.677200} \\ \textbf{0.77401} \\ \textbf{0.677240} \\ \textbf{0.677461} \\ \textbf{0.67793200} \\ \textbf{0.67793200} \\ \textbf{0.6633200} \\ \textbf{0.67793200} \\ \textbf{0.6633200} \\ \textbf{0.67793200} \\ \textbf{0.6633200} \\ \textbf{0.667793200} \\ \textbf{0.667200} \\ \textbf{0.6672000} \\ \textbf{0.6672000} \\ \textbf{0.6672000} \\ \textbf{0.6672000} \\ \textbf{0.66720000} \\ \textbf{0.66720000} \\ \textbf{0.66720000} \\ \textbf{0.667200000} \\ 0.66720000000000000000000000000000000000$	r m 0.097 0.124 -0.082 -0.218 -0.218 -0.172 -0.104 -0.100 0.031 0.181 0.237 0.266 0.216 0.110 0.181 0.237 0.266 0.216 0.1102 -0.108 0.1102 -0.108 0.1102 -0.1102 0.1112 0.1124 0.1244 0.12	m 52914 0572914 000000000000000000000000000000000000	6630330035036740401361248890355503550355035574 0.00000000000000000000000000000000000

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ייניטיו קראו קרע ער ער ער אין		ייוועועועוענערענערענערענערערערערערערערערער	
0 10 20 30 40 50 60 780 90 00 120 30 40 50 780 90 00 120 30 40 50 780 90 00 120 30 40 50 60 780 90 00 120 30 40 50 60 780 90 00 120 30 40 50 60 780 90 00 120 30 40 50 60 780 90 00 120 30 120 30 120 30 120 30 120 30 120 30 120 120 120 120 120 120 120 12	φ	0 10 10 10 10 10 10 10 10 10 1	φ
$ \begin{array}{c} x & 0.8\\ 0.700 \\ 0.8673520 \\ 0.99320 \\ 0.99320 \\ 0.99534711 \\ 0.9992320 \\ 0.991200 \\ 0.9912000 \\ 0.9912000 \\ 0.9912000 \\ 0.9912000 \\ 0.9912000 \\ 0.9912000 \\ 0.9912000 \\ 0.9912000 \\ 0.9912000 \\ 0.99120000 \\ 0.9912000 \\ 0.9912000 \\ 0.9912000 \\ 0.9912000 \\ 0.9912000 \\ 0$	r = 6 $V_{\rm x}/V_{\rm m}$	$\begin{array}{c} 0.678480 \\ 649916440 \\ 8925464 \\ 6789258914 \\ 629999999964 \\ 189909999999632 \\ 629999999999999999999999999999999999$	r = 3 $V_{\rm X}/V_{\rm m}$
$\begin{array}{c} r & m \\ -0.084 \\ 0.003 \\ 0.056 \\ 0.056 \\ 0.092 \\ 0.109 \\ 0.140 \\ 0.161 \\ 0.174 \\ 0.168 \\ 0.170 \\ 0.154 \\ 0.129 \\ 0.095 \\ 0.005 $	5.0 mm <i>v_r/v_m</i>	0.032 0.054 0.105 0.119 0.134 0.147 0.143 0.143 0.120 0.090 0.059 0.028 0.028 0.028 0.028 0.0255 0.2550 0.2250 0.2550 0.2250 0.2250 0.2250 0.191 0.1202 0.0045 0.0045 -0.0455 -0.0548 -0.0548 -0.0268 -0.0268 -0.0268 -0.0255 -0.028 -0.	50.0 mm V _r /V _m
$\begin{array}{c} -0.1869\\ -0.2040\\ -0.120\\ -0.1227\\ -0.1127\\ -0.0054\\ 0.0254\\ 0.0254\\ 0.0254\\ 0.09124\\ 0.1254\\ 0.11554\\ 0.11554\\ 0.11554\\ 0.1154\\ 0.1253$	$\Rightarrow r/R=$ V_t/V_m	$\begin{array}{c} -0.184\\ -0.278\\ -0.178\\ -0.178\\ -0.153\\ -0.153\\ -0.153\\ -0.1579\\ -0.0519\\ -0.005\\ -0.005\\ -$	+ $r/R=$ V_t/V_m
$\begin{array}{c} 0.730\\ 0.730\\ 0.8935\\ 1.985\\ 0.947\\ 0.9954\\ 0.9954\\ 0.9935\\ 0.8853\\ 0.8833\\ 0.8813\\ 0.8835\\ 0.8833\\ 0.8813\\ 0.8835\\ 0.8855\\ 0.88533\\ 0.8813\\ 0.8855\\ 0.8855\\ 0.88533\\ 0.8813\\ 0.8855\\ 0.8855\\ 0.8855\\ 0.8633\\ 0$	0.816 <i>V</i> 0/ <i>V</i> m	0.667 0.828 0.914 0.9319 0.9309 0.9214 0.9309 0.9214 0.9309 0.9910 0.99150 0.99150 0.98849 0.5070 0.5070 0.50753 0.77591 0.622577 0.602577	0.376 <i>v_o/v_m</i>
x m 0.670 0.867 0.954 0.922 0.936 0.926 0.926 0.927 0.928 0.927 0.928 0.888 10.5565 0.888 10.5772 0.6742 0.7792 0.7772 0.6772 0.7792 0.7792 0.7792 0.7772 0.5527 0.5555 0.5555 0.5555 0.5555 0.5555 0.5555 0.5555	r = 8 $V_{\rm x}/V_{\rm m}$	0.707 0.8450 0.99218 0.99218 0.99371 0.99371 0.99371 0.99028 0.88529 0.88221225 0.88029 0.8802 0.88221225 0.88004 0.88004 0.88004 0.76483 0.599028 0.599028 0.9028 0.89028 0.88029 0.88004 0.8502 0.85020 0.85020 0.85020 0.85020 0.88004 0.85020 0.85020 0.85020 0.85020 0.85020 0.85020 0.85020 0.88020 0.88020 0.88020 0.88020 0.88020 0.88020 0.88000 0.88020 0.88000 0.80000 0.80000 0.80000 0.800000 0.8000000 0.800000000000000000000000000000000000	$r = 4$ $V_{\rm x} / V_{\rm m}$
r m -0.151 -0.043 0.094 0.118 0.152 0.175 0.193 0.189 0.167 0.143 0.193 0.167 0.143 0.103 0.167 0.143 0.007 -0.042 -0.166 0.065 0.164 0.227 0.266 0.185 0.266 0.185 0.081 0.085 0.00	82.5 mm <i>V_r/V_m</i>	$\begin{array}{c} -0.094 \\ -0.0054 \\ -0.0054 \\ 0.077 \\ 0.090 \\ 0.116 \\ 0.139 \\ 0.157 \\ 0.157 \\ 0.158 \\ 0.143 \\ 0.127 \\ 0.0157 \\ 0.0157 \\ 0.0019 \\ -0.0364 \\ 0.0191 \\ 0.2242 \\ 0.051 \\ 0.215 \\ -0.070 \\ -0.127 \\ -0.164 \\ -0.173 \\ -0.215 \\ -0.217 \\ -0.217 \\ 0.21$	7.5 mm V _r /V _m
$\begin{array}{c} \mathbf{t} \\ -0.052 \\ -0.151 \\ -0.230 \\ -0.247 \\ -0.176 \\ -0.114 \\ -0.112 \\ -0.076 \\ -0.012 \\ 0.041 \\ 0.078 \\ 0.101 \\ 0.125 \\ 0.142 \\ 0.138 \\ -0.004 \\ -0.178 \\ -0.129 \\ -0.104 \\ -0.178 \\ -0.129 \\ -0.104 \\ -0.031 \\ 0.012 \\ 0.078 \\ 0.146 \\ 0.162 \\ 0.076 \\ 0.056 \\ 0.054 \\ 0.010 \\ 0.010 \\ 0.010 \\ 0.010 \\ 0.010 \\ 0.010 \\ 0.010 \\ 0.016 \\ 0.023 \\ \end{array}$	$ \begin{array}{c} \rightarrow r/R = \\ V_{t}/V_{m} \end{array} $	$\begin{array}{c} -0.167 \\ -0.267 \\ -0.206 \\ -0.206 \\ -0.206 \\ -0.206 \\ -0.206 \\ -0.206 \\ -0.096 \\ -0.096 \\ -0.096 \\ -0.096 \\ -0.096 \\ -0.003 \\ 0.037 \\ 0.084 \\ 0.005 \\ 0.125 \\ 0.159 \\ 0.165 \\ 0.159 \\ 0.093 \\ -0.019 \\ -0.005 \\ 0.165 \\ 0.159 \\ 0.220 \\ 0.2218 \\ 0.268 \\ 0.252 \\ 0.218 \\ 0.166 \\ 0.144 \\ 0.109 \\ -0.020 \\ \end{array}$	+ $r/R=$ V_t/V_m
0 689 0.688 979 0.9945 9777 0.9945 9797 0.9945 9945 0.9945 <td>1.035 <i>v_o/v_m</i></td> <td>0.789733001440502574701642779003757272312 0.00000000000000000000000000000000000</td> <td>0.596 <i>v_o/v_m</i></td>	1.035 <i>v_o/v_m</i>	0.789733001440502574701642779003757272312 0.00000000000000000000000000000000000	0.596 <i>v_o/v_m</i>
$ \begin{array}{c} \textbf{x} \\ \textbf{0} \\ \textbf$	r = 10 $V_{\rm y}/V_{\rm m}$	Na (3 HSVA Ver Drif	
$ \begin{array}{c} \mathbf{F} & \mathbf{m} \\ 0.036 \\ \mathbf{-0.0011} \\ 0.017 \\ 0.120 \\ 0.1151 \\ 0.1151 \\ 0.1151 \\ 0.1151 \\ 0.1151 \\ 0.1120 \\ 0.1151 \\ 0.1120 \\ 0.0371 \\ 0.0208 \\ \mathbf{-0.0171} \\ 0.0171 \\ 0.0171 \\ 0.0119 \\ 0.0218 \\ 0.01191 \\ 0.11517 \\ 0.11867 \\ 0.22544 \\ 0.01014111 \\ \mathbf{-0.1151862} \\ 0.01014111 \\ \mathbf{-0.11912} \\ 0.01191 \\ 0.01$	0.0 mm v_{p}/v_{m}	chstrc -dimen -Model such N Etwinko Tabel	
-0.160 -0.211 -0.2212 -0.167 -0.1137 -0.1137 -0.028 -0.00137 -0.0013 -0.0045 -0.0013 -0.0015 -0.0012 -0.1155 -0.0012 -0.1159 -0.0012 -0.0012 -0.0012 -0.0012 -0.0012 -0.0012 -0.0012 -0.0012 -0.0014 -0.0012 -	$ \rightarrow r/R = 1 \\ V_t/V_m $	mmessu nsiona l Nr. r. N68 el β=	
m 565637009837600360830451251756468962 7098876775949999885389887666777887599 0.0000000000000000000000000000000000	1.255 v_/v_	1512 1512 774	

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$ \begin{array}{c} * & v_{x}'v_{m} & v_{y}'v_{m} \\ \hline v_{x}'v_{m} & v_{x}'v_{m} & v_{x}'v_{m} & v_{x}'v_{m} & v_{x}'v_{m} \\ \hline v_{x}'v_{m} & v_{x}'v_{m} & v_{x}'v_{m} & v_{x}'v_{m} & v_{x}'v_{m} \\ \hline v_{x}'v_{m} & v_{x}'v_{m} & v_{x}'v_{m} & v_{x}'v_{m} & v_{x}'v_{m} \\ \hline v_{x}'v_{m} & v_{x}'v_{m} & v_{x}'v_{m} & v_{x}'v_{m} \\ \hline v_{x}'v_{m} & v_{x}'v_{m} & v_{x}'v_{m} & v_{x}'v_{m} & v_{x}'v_{m} \\ \hline v_{x}'v_{m} & v_{x}'v_{m} & v_{x}'v_{m} & v_{x}'v_{m} & v_{x}'v_{m} \\ \hline v_{x}'v_{m} & v_{x}'v_{m} & v_{x}'v_{m} & v_{x}'v_{m} & v_{x}'v_{m} & v_{x}'v_{m} \\ \hline v_{x}'v_{m} & v_{x}'v_{m} & v_{x}'v_{m} & v_{x}'v_{m} & v_{x}'v_{m} \\ \hline v_{x}'v_{m} & v_{x}'v_{m} & v_{x}'v_{m} & v_{x}'v_{m} & v_{x}'v_{m} \\ \hline v_{x}'v_{m} & v_{x}'v_{m} & v_{x}'v_{m} & v_{x}'v_{m} & v_{x}'v_{m} \\ \hline v_{x}'v_{m} & v_{x}'v_{m} & v_{x}'v_{m} & v_{x}'v_{m} & v_{x}'v_{m} \\ \hline v_{x}'v_{m} & v_{x}'v_{m} & v_{x}'v_{m} & v_{x}'v_{m} \\ \hline v_{x}'v_{m} & v_{x}'v_{m} & v_{x}'v_{m} & v_{x}'v_{m} \\ \hline v_{x}'v_{m} & v_{x}'v_{m} & v_{x}'v_{m} & v_{x}'v_{m} \\ \hline v_{x}'v_{m} & v_{x}'v_{m} & v_{x}'v_{m} & v_{x}'v_{m} \\ \hline v_{x}'v_{m} & v_{x}'v_{m} & v_{x}'v_{m} & v_{x}'v_{m} \\ \hline v_{x}'v_{m} & v_{x}'v_{m} & v_{x}'v_{m} & v_{x}'v_{m} \\ \hline v_{x}'v_{m} & v_{x}'v_{m} & v_{x}'v_{m} & v_{x}'v_{m} & v_{x}'v_{m} \\ \hline v_{x}'v_{m} & v_{x}'v_{m} & v_{x}'v_{m} & v_{x}'v_{m} & v_{x}'v_{m} \\ \hline v_{x}'v_{m} & v_{x}'v_{m} & v_{x}'v_{m} & v_{x}'v_{m} & v_{x}'v_{m} & v_{x}'v_{m} \\ \hline v_{x}'v_{m} & v_{x}'v_{m} & v_{x}'v_{m} & v_{x}'v_{m} & v_{x}'v_{m} & v_{x}'v_{m} \\ \hline v_{x}'v_{m} & v_{x}'v_{m} & v_{x}'v_{m} & v_{x}'v_{m} & v_{x}'v_{m} & v_{x}'v_{m} & v_{x}'v_{m} \\ \hline v_{x}'v_{m} & v_{x$	1	r= 3	0.0 mm	$\rightarrow r/R=$	0.376	r= 4	7.5 mm	→ r/R=	0.596				
$ \begin{array}{c} 0 & 0.558 & 0.628 & 0.147 & 0.770 & 0.637 & -0.133 & 0.148 & 0.664 \\ 0 & 0.486 & 0.020 & 0.025 & 0.528 & 0.528 & 0.036 & 0.594 \\ 0 & 0.548 & 0.023 & 0.025 & 0.631 & 0.528 & -0.228 & 0.016 & 0.594 \\ 0 & 0.548 & -0.033 & -0.288 & 0.126 & 0.126 & 0.126 & 0.126 \\ 0 & 0.548 & -0.033 & -0.289 & 0.739 & -0.127 & -0.148 & 0.855 \\ 0 & 0.777 & -0.065 & -0.289 & 0.739 & -0.127 & -0.148 & 0.855 \\ 0 & 0.777 & -0.065 & -0.289 & 0.739 & -0.127 & -0.148 & 0.855 \\ 0 & 0.777 & -0.065 & -0.289 & 0.739 & 0.641 & -0.227 & -0.148 & 0.855 \\ 0 & 0.777 & -0.065 & -0.289 & 0.739 & 0.047 & -0.290 & 0.891 \\ 100 & 0.760 & 0.797 & -0.288 & 0.840 & 0.841 & 0.647 & -0.290 & 0.891 \\ 100 & 0.760 & 0.797 & -0.288 & 0.840 & 0.845 & 0.147 & 0.048 & 0.897 \\ 100 & 0.760 & 0.797 & -0.218 & 0.840 & 0.845 & 0.148 & -0.668 & 0.897 \\ 1100 & 0.760 & 0.797 & -0.218 & 0.340 & 0.853 & 0.225 & -0.094 & 0.897 \\ 1100 & 0.760 & 0.797 & -0.218 & 0.397 & 0.261 & -0.056 & 0.229 \\ 0 & 0.777 & 0.197 & -0.218 & 0.397 & 0.261 & -0.056 & 0.229 \\ 0 & 0.777 & 0.197 & -0.218 & 0.397 & 0.261 & -0.066 & 0.2891 \\ 100 & 0.521 & 0.067 & 0.120 & 0.650 & 0.550 & 0.054 & -0.116 & 0.572 \\ 0 & 0.678 & 0.066 & -0.190 & 0.550 & 0.599 & 0.052 & -0.091 & 0.865 \\ 100 & 0.521 & 0.067 & -0.126 & 0.687 & 0.067 & 0.281 \\ 100 & 0.521 & 0.067 & 0.126 & 0.687 & 0.047 & -0.126 & 0.897 \\ 100 & 0.873 & 0.067 & -0.126 & 0.687 & 0.047 & -0.126 & 0.893 \\ 210 & 0.853 & 0.966 & -0.126 & 0.686 & 0.147 & 0.056 & 0.993 \\ 220 & 0.853 & 0.966 & -0.126 & 0.686 & 0.147 & 0.056 & 0.993 \\ 250 & 0.853 & 0.966 & -0.126 & 0.687 & 0.047 & -0.126 & 0.893 \\ 210 & 0.853 & 0.966 & -0.126 & 0.687 & 0.047 & -0.126 & 0.893 \\ 210 & 0.853 & 0.196 & -0.126 & 0.687 & 0.047 & -0.126 & 0.893 \\ 210 & 0.853 & 0.196 & -0.126 & 0.687 & 0.047 & -0.176 & 0.895 \\ 210 & 0.854 & 0.147 & 0.067 & 0.746 & 0.555 & 0.046 & 0.147 & 0.595 \\ 210 & 0.854 & 0.147 & 0.067 & 0.746 & 0.555 & 0.046 & 0.147 & 0.595 \\ 210 & 0.854 & 0.147 & 0.067 & 0.746 & 0.555 & 0.046 & 0.147 & 0.595 \\ 210 & 0.854 & 0.147 & 0.067 & 0.746 & 0.555 & 0.046 & 0.77$	φ	$v_{\rm x}/v_{\rm m}$	v_r / v_m	v_t / v_m	v _o /v _m	$v_{\rm x}/v_{\rm m}$	v_r / v_m	v_t / v_m	v_{o}/v_{m}				
$ \begin{array}{l} 33 & 0.494 & -6.028 & -6.246 & 0.255 & 0.757 & -0.256 & -0.112 & 0.776 \\ 0.616 & -0.085 & -0.279 & 0.681 & 0.789 & -0.116 & -0.132 & 0.876 \\ 0.616 & -0.086 & -0.279 & 0.681 & 0.800 & -0.165 & -0.164 & 0.833 \\ 0.616 & -0.086 & -0.279 & 0.681 & 0.800 & -0.165 & -0.164 & 0.833 \\ 0.616 & -0.086 & -0.279 & 0.681 & 0.800 & -0.067 & -0.260 & 0.893 \\ 0.0712 & -0.012 & -0.316 & 0.837 & 0.842 & -0.067 & -0.260 & 0.894 \\ 0.0712 & -0.012 & -0.316 & 0.837 & 0.842 & -0.067 & -0.260 & 0.894 \\ 0.0772 & -0.012 & -0.316 & 0.837 & 0.842 & -0.067 & -0.260 & 0.894 \\ 100 & 0.760 & 0.078 & -0.300 & 0.840 & 0.847 & 0.047 & -0.220 & 0.897 \\ 100 & 0.760 & 0.078 & -0.300 & 0.840 & 0.847 & 0.047 & -0.220 & 0.897 \\ 100 & 0.675 & 0.277 & -0.155 & 0.758 & 0.837 & 0.285 & -0.094 & 0.848 \\ 100 & 0.675 & 0.277 & -0.155 & 0.758 & 0.837 & 0.285 & -0.094 & 0.848 \\ 100 & 0.675 & 0.277 & -0.159 & 0.758 & 0.837 & 0.285 & -0.094 & 0.848 \\ 100 & 0.675 & 0.277 & -0.168 & 0.777 & 0.128 & 0.897 \\ 100 & 0.675 & 0.287 & -0.094 & 0.753 & 0.758 & 0.837 \\ 100 & 0.675 & 0.047 & -0.128 & 0.847 & -0.112 & 0.849 \\ 100 & 0.675 & 0.047 & -0.126 & 0.787 & 0.028 & -0.091 & 0.551 \\ 100 & 0.576 & 0.047 & -0.126 & 0.848 & -0.017 & -0.132 & 0.894 \\ 100 & 0.675 & 0.147 & 0.017 & 0.906 & 0.757 & -0.066 & 0.915 \\ 100 & 0.576 & 0.140 & -0.146 & 0.848 & 0.477 & -0.132 & 0.894 \\ 200 & 0.833 & 0.066 & -0.126 & 0.897 & 0.797 & -0.031 & 0.991 \\ 200 & 0.850 & 0.149 & -0.017 & 0.960 & 0.157 & -0.006 & 0.915 \\ 200 & 0.595 & 0.149 & 0.917 & 0.939 & 0.157 & -0.006 & 0.915 \\ 200 & 0.595 & 0.149 & 0.917 & 0.899 & 0.117 & 0.107 & 0.903 \\ 200 & 0.590 & 0.128 & 0.107 & 0.917 & 0.899 & 0.117 & 0.107 & 0.903 \\ 200 & 0.590 & 0.169 & 0.167 & 0.921 & 0.139 & 0.921 \\ 200 & 0.590 & 0.167 & 0.917 & 0.899 & 0.117 & 0.107 & 0.905 \\ 200 & 0.590 & 0.167 & 0.917 & 0.899 & 0.117 & 0.107 & 0.905 \\ 200 & 0.590 & 0.167 & 0.917 & 0.899 & 0.117 & 0.107 & 0.905 \\ 200 & 0.590 & 0.167 & 0.017 & 0.748 & 0.185 & 0.227 & 0.118 & 0.185 & 0.925 \\ 200 & 0.590 & 0.167 & 0.017 & 0.748 & 0.185 & 0.197 & 0.595 & 0$	0	0.550	0.028	0.147 0.015	0.570	0.637	-0.113	0.148	0.664	Na	chstro	mmess	ung
$ \frac{1}{10} 0.739 - 2.538 - 2.539 - 0.728 - 0.825 - 0.123 - 0.124 - 0.424 - 0.431 - 0.124 - 0.431 - 0.124 - 0.431 - 0.124 - 0.431 - 0.124 - 0.431 - 0.124 - 0.431 - 0.124 - 0.431 - 0.124 - 0.431 - 0.124 - 0.431 - 0.124 - 0.431 - 0.124 - 0.431 - 0.124 - 0.431 - 0.124 - 0.431 - 0.124 - 0.431 - 0.124 - 0.431 - 0.124 - 0.$	30	0.494	-0.028	-0.248	0.553	0.707	-0.200	-0.132	0.746		3-dime	nsiona	1)
$ \begin{array}{c} \hline \begin{tabular}{lllllllllllllllllllllllllllllllllll$	50	0.540	-0.086	-0.279	0.681	0.800	-0.176	-0.152	0.833				
$ \begin{array}{c} 10 \\ 10 \\ 10 \\ 10 \\ 10 \\ 10 \\ 10 \\ 10 $	70 80	0.677	-0.042	-0.289	0.739 0.786 0.807	0.812	-0.147 -0.123 -0.067	-0.212 -0.240 -0.260	0.852 0.868 0.874	HSVA	-Model	ll Nr.	1512
$ \begin{array}{c} 120 \\ 120 \\ 120 \\ 130 \\ 130 \\ 130 \\ 130 \\ 140 \\ 150 \\ 140 \\ 150 $	90 100 110	0.780	0.039 0.078 0.121	-0.316 -0.300 -0.288	0.833 0.840 0.845	0.842 0.847 0.849	-0.016 0.047 0.118	-0.289 -0.290 -0.269	0.891 0.897 0.899	Ver	such N	Vr. N60)/7 4
	120 130	0.775	0.159 0.197	-0.258 -0.218	0.832 0.830	0.848 0.858	0.170 0.209	-0.208	0.889 0.897				
$ \begin{array}{c} 160 \\ 0.558 \\ 0.263 \\ 0.263 \\ 0.263 \\ 0.263 \\ 0.080 \\ 0.264 \\ 0.263 \\ 0.266 \\ 0.272 \\ 0.285 \\ 0.082 \\ 0.081 \\ 0.285 \\ 0.082 \\ 0.081 \\ 0.285 \\ 0.081 \\ 0.285 \\ 0.081 \\ 0.285 \\ 0.081 \\ 0.285 \\ 0.081 \\ 0.285 \\ 0.081 \\ 0.285 \\ 0.081 \\ 0.285 \\ 0.081 \\ 0.285 \\ 0.080 \\ 0.285 \\ 0.080 \\ 0.285 \\ 0.080 \\ 0.285 \\ 0.080 \\ 0.285 \\ 0.080 \\ 0.285 \\ 0.080 \\ 0.285 \\ 0.080 \\ 0.285 \\ 0.080 \\ 0.285 \\ 0.080 \\ 0.285 \\ 0.080 \\ 0.285 \\ 0.080 \\ 0.285 \\ 0.080 \\ 0.285 \\ 0.080 \\ 0.285 \\ 0.080 \\ 0.285 \\ 0.080 \\ 0.285 \\ 0.080 \\ 0.285 \\ 0.080 \\ 0.182 \\ 0.085 \\ 0.080 \\ 0.182 \\ 0.085 \\ 0.080 \\ 0.182 \\ 0.095 \\ 0.086 \\ 0.182 \\ 0.095 \\ 0.086 \\ 0.182 \\ 0.095 \\ 0.014 \\ 0.081 \\ 0.095 \\ 0.182 \\ 0.095 \\ 0.182 \\ 0.095 \\ 0.014 \\ 0.095 \\ 0.182 \\ 0.095 \\ 0.182 \\ 0.095 \\ 0.182 \\ 0.095 \\ 0.182 \\ 0.095 \\ 0.182 \\ 0.095 \\ 0.182 \\ 0.095 \\ 0.182 \\ 0.095 \\ 0.182 \\ 0.095 \\ 0.182 \\ 0.095 \\ 0.180 \\ 0.095 \\ 0.180 \\ 0.095 \\ 0.180 \\ 0.095 \\ 0.180 \\ 0.095 \\ 0.180 \\ 0.095 \\ 0.180 \\ 0.095 \\ 0.095 \\ 0.180 \\ 0.095 \\ $	140 150	0.733	0.227 0.275	-0.153 -0.069	0.783 0.720	0.833 0.780	0.225 0.261	-0.094 -0.006	0.868 0.823				0
$ \begin{array}{c} 180 & 0.52^{2} & 0.086^{5} & -0.160 & 0.555 & 0.559 & 0.052 & -0.116 & 0.572 \\ 200 & 0.809 & 0.027 & -0.175 & 0.828 \\ 210 & 0.853 & 0.073 & -0.142 & 0.886 & 0.647 & -0.122 & 0.883 \\ 220 & 0.833 & 0.073 & -0.142 & 0.886 & 0.647 & -0.122 & 0.883 \\ 210 & 0.853 & 0.073 & -0.142 & 0.886 & 0.677 & 0.027 & -0.394 \\ 250 & 0.909 & 0.128 & -0.076 & 0.921 & 0.995 & 0.056 & -0.094 & 0.904 \\ 250 & 0.909 & 0.128 & -0.076 & 0.921 & 0.995 & 0.056 & -0.094 & 0.904 \\ 250 & 0.894 & 0.147 & -0.042 & 0.910 & 0.116 & -0.065 & 0.919 \\ 270 & 0.894 & 0.147 & -0.042 & 0.910 & 0.150 & 0.021 & 0.911 \\ 280 & 0.909 & 0.114 & 0.094 & 0.924 & 0.158 & 0.056 & 0.931 \\ 280 & 0.909 & 0.149 & 0.014 & 0.914 & 0.914 & 0.158 & 0.056 & 0.931 \\ 310 & 0.821 & 0.132 & 0.045 & 0.934 & 0.156 & 0.021 & 0.917 \\ 330 & 0.891 & 0.109 & 0.149 & 0.948 & 0.155 & 0.081 & 0.143 & 0.946 \\ 350 & 0.774 & 0.082 & 0.172 & 0.895 & 0.081 & -0.048 & 0.165 & 0.940 \\ 350 & 0.737 & 0.057 & 0.190 & 0.126 & -0.048 & 0.125 & 0.948 \\ 350 & 0.737 & 0.057 & 0.190 & 0.126 & 0.921 & 0.948 & 0.125 & 0.081 & 0.143 \\ 350 & 0.774 & 0.082 & 0.172 & 0.895 & 0.081 & -0.048 & 0.126 & 0.949 \\ 350 & 0.737 & 0.057 & 0.190 & 0.765 & 0.801 & -0.048 & 0.126 & 0.949 \\ 350 & 0.737 & 0.057 & 0.190 & 0.746 & 0.127 & -0.028 & 0.756 & 0.549 & 0.117 & 0.000 & 0.558 \\ 0.774 & -0.209 & -0.031 & 0.877 & 0.746 & 0.127 & -0.028 & 0.756 & 0.545 & 0.117 & 0.000 & 0.558 \\ 0.774 & -0.209 & -0.091 & 0.647 & -0.128 & -0.059 & 0.756 & 0.545 & 0.127 & 0.029 & 0.6677 \\ 30 & 0.766 & -0.204 & -0.091 & 0.647 & 0.746 & -0.128 & -0.059 & 0.666 & 0.059 & -0.630 & 0.059 & 0.667 \\ 0.890 & -0.134 & -0.091 & 0.647 & 0.746 & -0.128 & -0.050 & 0.666 & 0.059 & -0.230 & 0.012 & 0.755 \\ 0 & 0.846 & -0.153 & -0.154 & 0.887 & 0.787 & -0.128 & -0.061 & 0.680 & -0.143 & -0.330 & 0.12 & 0.755 \\ 0 & 0.846 & -0.133 & 0.877 & 0.887 & 0.192 & -0.081 & 0.680 & 0.686 & 0.039 & 0.031 & 0.779 & 0.580 & 0.310 & 0.756 & 0.237 & 0.031 & 0.779 & 0.837 & 0.786 & 0.237 & 0.031 & 0.775 & 0.133 & 0.687 & 0.774 & 0.128 & -0.085 & 0.686 & 0.037 & 0$	160 170	0.558	0.263 0.183	-0.047 -0.098	0.618	0.672	0.242 0.182	0.023	0.715	Dri	ftwink	el β=	+120
$ \begin{array}{c} 200 \\ 0.809 \\ 0.009 \\ 0.009 \\ 0.000 \\ $	180	0.524	0.086	-0.160	0.555	0.559	0.032	-0.116	0.572				
$ \begin{array}{c} \frac{1220}{230} & 0.853 & 0.073 & -0.142 & 0.848 & 0.873 & 0.047 & -0.122 & 0.863 \\ \frac{240}{240} & 0.853 & 0.096 & -0.126 & 0.868 & 0.089 & -0.094 & 0.904 \\ \frac{240}{250} & 0.590 & 0.128 & -0.076 & 0.921 & 0.909 & 0.116 & -0.065 & 0.913 \\ \frac{260}{260} & 0.909 & 0.124 & 0.921 & 0.990 & 0.1157 & -0.031 & 0.921 \\ \frac{260}{280} & 0.909 & 0.124 & 0.044 & 0.934 & 0.917 & 0.156 & 0.021 & 0.915 \\ \frac{280}{280} & 0.930 & 0.139 & -0.034 & 0.934 & 0.916 & 0.158 & 0.021 & 0.913 \\ \frac{390}{280} & 0.593 & 0.109 & 0.121 & 0.944 & 0.156 & 0.021 & 0.913 \\ \frac{390}{280} & 0.593 & 0.109 & 0.121 & 0.934 & 0.947 & 0.1687 & 0.933 \\ \frac{390}{280} & 0.593 & 0.109 & 0.124 & 0.934 & 0.947 & 0.1687 & 0.935 \\ \frac{390}{280} & 0.593 & 0.109 & 0.124 & 0.934 & 0.955 & 0.081 & 0.143 & 0.967 \\ \frac{390}{350} & 0.736 & 0.152 & 0.085 & 0.394 & 0.925 & 0.048 & 0.165 & 0.940 \\ \frac{390}{350} & 0.736 & 0.159 & 0.746 & 0.718 & -0.163 & 0.123 & 0.936 \\ \frac{7}{30} & 0.726 & -0.53 & 0.199 & 0.765 & 0.801 & -0.004 & 0.208 & 0.828 \\ \end{array} $	200	0.809	0.027	-0.175	0.828	0.810	-0.016	-0.141	0.822				
$ \begin{array}{c} \frac{1}{210} & 0.863 \\ \frac{2}{50} & 0.903 \\ \frac{2}{50} & 0.903 \\ \frac{2}{50} & 0.903 \\ \frac{2}{50} & 0.903 \\ 0.160 \\ \frac{2}{50} & 0.903 \\ 0.905 \\ 0.143 \\ \frac{2}{50} & 0.905 \\ 0.905 \\ 0.143 \\ \frac{2}{50} & 0.904 \\ 0.905 \\ 0.905 \\ 0.905 \\ 0.143 \\ 0.905 \\ 0.922 \\ 0.143 \\ 0.085 \\ 0.922 \\ 0.143 \\ 0.085 \\ 0.922 \\ 0.143 \\ 0.085 \\ 0.931 \\ 0.085 \\ 0.932 \\ 0.922 \\ 0.143 \\ 0.085 \\ 0.931 \\ 0.085 \\ 0.931 \\ 0.085 \\ 0.932 \\ 0.133 \\ 0.085 \\ 0.931 \\ 0.085 \\ 0.935 \\ 0.123 \\ 0.993 \\ 0.120 \\ 0.121 \\ 0.931 \\ 0.085 \\ 0.935 \\ 0.123 \\ 0.993 \\ 0.120 \\ 0.121 \\ 0.917 \\ 0.114 \\ 0.085 \\ 0.925 \\ 0.085 \\ 0.925 \\ 0.085 \\ 0.925 \\ 0.085 \\ 0.925 \\ 0.085 \\ 0.925 \\ 0.085 \\ 0.085 \\ 0.925 \\ 0.085 \\ 0.085 \\ 0.925 \\ 0.085 \\ 0.085 \\ 0.925 \\ 0.085 \\ 0.085 \\ 0.925 \\ 0.085 \\ 0.925 \\ 0.085 \\ 0.085 \\ 0.123 \\ 0.995 \\ 0.085 \\ 0.123 \\ 0.995 \\ 0.085 \\ 0.123 \\ 0.995 \\ 0.085 \\ 0.123 \\ 0.995 \\ 0.085 \\ 0.117 \\ 0.000 \\ 0.125 \\ 0.059 \\ 0.059 \\ 0.059 \\ 0.059 \\ 0.059 \\ 0.059 \\ 0.059 \\ 0.059 \\ 0.059 \\ 0.059 \\ 0.059 \\ 0.066 \\ 0.019 \\ 0.059 \\ 0.066 \\ 0.019 \\ 0.010 \\ 0.000 \\ 0.010 \\ 0.010 \\ 0.010 \\ 0.010 \\ 0.000 \\ 0.010$	220	0.833	0.073	-0.142	0.848	0.873	0.047	-0.122	0.883				
$ \begin{array}{c} 220 \\ 720 $	240	0.893	0.109	-0.104	0.905	0.895	0.089	-0.094	0.904				
$ \begin{array}{c} 2/10 \\ 0.59^{-1} \\ 0.5$	260	0.898	0.120	-0.042	0.921	0.909	0.116	-0.031	0.919		-		
$ \begin{array}{c} 290 \\ 0.922 \\ 0.141 \\ 0.053 \\ 0.022 \\ 0.133 \\ 0.083 \\ 0.022 \\ 0.132 \\ 0.105 \\ 0.122 \\ 0.105 \\ 0.917 \\ 0.111 \\ 0.089 \\ 0.091 \\ 0.117 \\ 0.107 \\ 0.090 \\ 0.199 \\ 0.109 \\ 0.122 \\ 0.105 \\ 0.917 \\ 0.111 \\ 0.089 \\ 0.091 \\ 0.123 \\ 0.917 \\ 0.111 \\ 0.089 \\ 0.091 \\ 0.123 \\ 0.910 \\ 0.917 \\ 0.091 \\ 0.123 \\ 0.910 \\ 0.911 \\ 0.091 \\ 0.123 \\ 0.911 \\ 0.091 \\ 0.123 \\ 0.911 \\ 0.091 \\ 0.123 \\ 0.911 \\ 0.091 \\ 0.123 \\ 0.911 \\ 0.091 \\ 0.123 \\ 0.911 \\ 0.091 \\ 0.123 \\ 0.911 \\ 0.091 \\ 0.123 \\ 0.911 \\ 0.091 \\ 0.123 \\ 0.911 \\ 0.091 \\ 0.128 \\ 0.091 \\ 0.119 \\ 0.010 \\ 0.019 \\ 0.010 \\ $	270	0.894	0.147 0.143	-0.017	0.906 0.917	0.902	0.157	-0.006	0.915				
$ \begin{array}{c} 110 & 0.903 & 0.122 & 0.105 & 0.917 \\ 320 & 0.639 & 0.109 & 0.121 & 0.948 \\ 350 & 0.639 & 0.109 & 0.124 & 0.948 \\ 0.955 & 0.081 & 0.113 & 0.969 \\ 350 & 0.736 & 0.053 & 0.199 & 0.765 \\ 0.925 & 0.048 & 0.165 & 0.949 \\ 350 & 0.736 & 0.053 & 0.199 & 0.765 \\ 0.801 & -0.004 & 0.208 & 0.828 \\ \hline r^{=} & 65.0 \ mm + r/R = 0.816 \\ r^{=} & 65.0 \ mm + r/R = 0.816 \\ r^{-} & r/r_{\rm W} \ r/r_{$	290 300	0.922	0.141 0.133	0.054 0.085	0.934 0.934	0.918 0.917	0.158 0.141	0.056 0.085	0.933 0.932		Tabel	le B14	•
$ \begin{array}{c} 330 \\ 340 \\ 350 \\ 0.736 \\ 0.738 \\ 0.737 \\ 0.736 \\ 0.73$	310 320	0.903	0.122 0.109	0.105 0.121	0.917 0.914	0.889 0.897	0.117 0.091	0.107 0.123	0.903 0.910				
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	330 340	0.931 0.874	0.100 0.082	0.149 0.172	0.948 0.895	0.955 0.925	0.081 0.048	0.143 0.165	0.969 0.940				
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	350	0.736	0.053	0.199	0.765	0.801	-0.004	0,208	0.828				
v 'x''m 'x''m <th'm< th=""> <th'm< th=""> <th'm< th=""></th'm<></th'm<></th'm<>													
$ \begin{array}{c} 0 & 0.123 & -0.134 & -0.09 & 0.635 & 0.535 & -0.221 & -0.028 & 0.579 & 0.136 & -0.017 & 0.017 & 0.424 \\ 20 & 0.636 & -0.204 & -0.067 & 0.671 & 0.576 & -0.182 & -0.050 & 0.606 & 0.595 & -0.066 & 0.099 & 0.607 \\ 30 & 0.716 & -0.179 & -0.091 & 0.743 & 0.674 & -0.179 & -0.050 & 0.609 & 0.670 & -0.012 & 0.755 \\ 50 & 0.846 & -0.153 & -0.115 & 0.868 & 0.818 & -0.129 & -0.081 & 0.863 & 0.800 & 0.719 & -0.320 & 0.012 & 0.755 \\ 50 & 0.846 & -0.153 & -0.154 & 0.847 & 0.808 & -0.122 & -0.081 & 0.865 & 0.826 & -0.125 & -0.042 & 0.825 \\ 60 & 0.890 & -0.145 & -0.154 & 0.847 & 0.801 & -0.169 & -0.113 & 0.827 & 0.818 & -0.143 & -0.038 & 0.831 \\ 70 & 0.809 & -0.134 & -0.203 & 0.827 & 0.747 & -0.110 & -0.120 & 0.764 & 0.756 & -0.125 & -0.007 & 0.835 \\ 80 & 0.797 & -0.084 & -0.203 & 0.827 & 0.747 & -0.110 & -0.120 & 0.764 & 0.756 & -0.133 & 0.012 & 0.768 \\ 90 & 0.781 & -0.033 & -0.242 & 0.819 & 0.686 & -0.071 & -0.153 & 0.706 & 0.673 & -0.131 & -0.006 & 0.686 \\ 90 & 0.781 & -0.054 & -0.228 & 0.833 & 0.715 & 0.155 & -0.206 & 0.762 & 0.659 & 0.168 & -0.079 & 0.685 \\ 100 & 0.785 & 0.158 & -0.228 & 0.833 & 0.715 & 0.155 & -0.206 & 0.762 & 0.659 & 0.168 & -0.079 & 0.685 \\ 110 & 0.785 & 0.158 & -0.228 & 0.837 & 0.787 & 0.259 & -0.127 & 0.838 & 0.732 & 0.264 & -0.031 & 0.779 \\ 150 & 0.841 & 0.265 & -0.128 & 0.890 & 0.822 & -0.014 & 0.885 & 0.786 & 0.310 & 0.000 & 0.845 \\ 150 & 0.671 & 0.254 & -0.061 & 0.891 & 0.842 & 0.282 & -0.014 & 0.886 & 0.4249 & 0.064 & 0.880 \\ 150 & 0.671 & 0.254 & -0.051 & 0.691 & 0.842 & 0.282 & -0.014 & 0.886 & 0.736 & 0.310 & 0.000 & 0.845 \\ 160 & 0.776 & 0.214 & 0.079 & 0.899 & 0.822 & -0.030 & 0.530 & 0.438 & -0.157 & -0.51 & 0.468 \\ 150 & 0.670 & -0.076 & -0.144 & 0.690 & 0.845 & -0.030 & 0.530 & 0.438 & -0.157 & -0.51 & 0.468 \\ 0.050 & -0.025 & -0.128 & 0.891 & 0.845 & 0.100 & -0.142 & 0.886 & 0.039 & -0.142 & 0.893 \\ 0.909 & 0.112 & -0.016 & 0.816 & -0.056 & -0.160 & 0.834 & 0.836 & -0.037 & -0.164 & 0.855 \\ 180 & 0.550 & -0.025 & -0.128 & 0.891 & 0.126 & -0.135 & 0.912 & 0.997 & 0.0170 & -0.137 & $		r= 6	5.0 mm	$\rightarrow r/R=$	0.816	r = 8	2.5 mm	$\rightarrow r/R=$	1.035	r = 10	0.0 mm	$\rightarrow r/R=$	1.255
$ \begin{array}{c} 20 & 0356 & -0.204 & -0.067 & 0.071 & 0.576 & -0.162 & -0.050 & 0.606 & 0.295 & -0.066 & 0.099 & 0.607 \\ 30 & 0.716 & -0.179 & -0.091 & 0.825 & 0.786 & -0.189 & -0.052 & 0.810 & 0.719 & -0.230 & 0.012 & 0.755 \\ 50 & 0.846 & -0.153 & -0.154 & 0.868 & 0.838 & -0.192 & -0.081 & 0.863 & 0.808 & -0.199 & -0.042 & 0.885 \\ 60 & 0.820 & -0.145 & -0.154 & 0.847 & 0.801 & -0.169 & -0.113 & 0.827 & 0.818 & -0.143 & -0.038 & 0.831 \\ 70 & 0.809 & -0.134 & -0.179 & 0.839 & 0.782 & -0.148 & -0.120 & 0.805 & 0.826 & -0.125 & -0.007 & 0.835 \\ 80 & 0.797 & -0.084 & -0.203 & 0.827 & 0.747 & -0.110 & -0.120 & 0.764 & 0.756 & -0.131 & -0.006 & 0.686 \\ 90 & 0.781 & -0.033 & -0.242 & 0.819 & 0.686 & -0.071 & -0.153 & 0.706 & 0.673 & -0.131 & -0.006 & 0.668 \\ 90 & 0.785 & 0.054 & -0.228 & 0.833 & 0.715 & 0.165 & -0.206 & 0.762 & 0.659 & 0.168 & -0.079 & 0.685 \\ 120 & 0.810 & 0.228 & -0.166 & 0.857 & 0.787 & 0.259 & -0.127 & 0.838 & 0.732 & 0.264 & -0.031 & 0.779 \\ 130 & 0.841 & 0.265 & -0.128 & 0.890 & 0.823 & 0.315 & -0.085 & 0.885 & 0.736 & 0.310 & 0.000 & 0.845 \\ 140 & 0.527 & 0.254 & -0.061 & 0.891 & 0.842 & 0.282 & -0.014 & 0.888 & 0.842 & 0.249 & 0.064 & 0.861 \\ 150 & 0.776 & 0.214 & 0.079 & 0.809 & 0.832 & 0.188 & 0.122 & 0.859 & 0.438 & -0.157 & -0.051 & 0.468 \\ 190 & 0.670 & -0.075 & 0.555 & 0.526 & -0.059 & -0.030 & 0.530 & 0.438 & -0.157 & -0.051 & 0.466 \\ 190 & 0.670 & -0.076 & 0.214 & 0.689 & 0.842 & 0.249 & 0.064 & 0.869 \\ 160 & 0.776 & 0.214 & 0.079 & 0.809 & 0.832 & 0.188 & 0.122 & 0.884 & 0.128 & 0.165 & 0.869 \\ 170 & 0.585 & 0.128 & 0.078 & 0.604 & 0.630 & 0.087 & 0.126 & 0.648 & 0.586 & 0.011 & 0.153 & 0.665 \\ 190 & 0.670 & -0.076 & -0.144 & 0.689 & 0.612 & -0.150 & -0.144 & 0.642 & 0.626 & -0.155 & -0.168 & 0.666 \\ 190 & 0.670 & -0.076 & 0.914 & 0.689 & 0.612 & -0.166 & 0.877 & 0.886 & 0.039 & -0.146 & 0.897 \\ 220 & 0.868 & 0.055 & -0.128 & 0.918 & 0.895 & -0.020 & -0.164 & 0.877 & 0.886 & 0.039 & -0.146 & 0.899 \\ 230 & 0.976 & 0.091 & -0.128 & 0.918 & 0.895 & -0.020 & -0.164 & 0.877 & 0.886 & 0.039 & -0.$	\$	$r = 6$ $V_{\rm x}/V_{\rm m}$	5.0 mm $V_{\rm r}/V_{\rm m}$	$ + r/R = V_t/V_m $	v_{o}/v_{m}	$r = 8$ $\frac{V_{\rm x}}{V_{\rm m}}$	2.5 mm v_r/v_m	$ \rightarrow r/R = V_t/V_m $	$1.035 v_{o}/v_{m}$	$r = 10$ $V_{\rm x}/V_{\rm m}$	V_{r}/V_{m}	$ r/R = V_t/V_m $	1.255 v_{o}/v_{m}
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	φ 0 10	v = 6 $v_{\rm x} / v_{\rm m}$ 0.729 0.590 0.590	5.0 mm v_{r}/v_{m} -0.134 -0.234	+ $r/R=$ V_t/V_m 0.087 -0.009	0.816 v_{o}/v_{m} 0.746 0.635	r = 8 $v_{\rm x}/v_{\rm m}$ 0.718 0.535	2.5 mm $v_{\rm r}/v_{\rm m}$ -0.153 -0.221	$+ r/R=$ $\frac{V_t}{V_m}$ 0.059 -0.028	1.035 v _o /v _m 0.736 0.579	r = 10 $\frac{V_{x}}{V_{m}}$ 0.545 0.389	0.0 mm V _r /V _m 0.117 0.167	+ $r/R=$ V_t/V_m 0.000 -0.017	1.255 Vo/Vm 0.558 0.424
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	φ 0 10 20 30	r = 6 v_x / v_m 0.729 0.590 0.636 0.716	5.0 mm v_r/v_m -0.134 -0.234 -0.204 -0.179	+ r/R= V _t /V _m 0.087 -0.009 -0.067 -0.091	0.816 V ₀ /V _m 0.746 0.635 0.671 0.743	r = 8 V_x/V_m 0.718 0.535 0.576 0.674	2.5 mm V _r /V _m -0.153 -0.221 -0.182 -0.179	+ r/R= Vt/Vm 0.059 -0.028 -0.050 -0.050	1.035 V ₀ /V _m 0.736 0.579 0.606 0.699	r = 10 v_x / v_m 0.545 0.389 0.595 0.668	0.0 mm V _r /V _m 0.117 0.167 -0.066 -0.203	+ r/R= Vt/Vm 0.000 -0.017 0.099 0.089	1.255 Vo/Vm 0.558 0.424 0.607 0.703
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	ф 10 20 30 40 50	r= 6 v/v 0.729 0.590 0.636 0.716 0.804 0.846	5.0 mm v_{r}/v_{m} -0.134 -0.234 -0.204 -0.179 -0.160 -0.153	+ r/R= V _t /V _m 0.087 -0.009 -0.067 -0.091 -0.091 -0.115	0.816 V / V m 0.746 0.635 0.671 0.743 0.825 0.868	r = 8 $V_{\rm x}/V_{\rm m}$ 0.718 0.535 0.576 0.576 0.674 0.786 0.838	2.5 mm V _r /V _m -0.153 -0.221 -0.182 -0.179 -0.189 -0.192	+ r/R= V _t /V _m 0.059 -0.028 -0.050 -0.050 -0.052 -0.081	1.035 V ₀ /V _m 0.736 0.579 0.606 0.699 0.810 0.863	$r = 10$ V_{x} / V_{m} 0.545 0.389 0.595 0.668 0.719 0.800	0.0 mm V _r /V _m 0.117 0.167 -0.066 -0.203 -0.230 -0.199	<pre></pre>	1.255 vo/vm 0.558 0.424 0.607 0.703 0.755 0.825
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	φ 10 20 30 40 50 60 70	<pre>P= 6 V / V 0.729 0.590 0.636 0.716 0.804 0.846 0.820 0.809</pre>	5.0 mm V _r /V _m -0.134 -0.234 -0.204 -0.179 -0.160 -0.153 -0.145 -0.134	+ r/R= V _t /V _m 0.087 -0.009 -0.0091 -0.091 -0.151 -0.154 -0.179	0.816 vo/vm 0.746 0.635 0.671 0.743 0.825 0.868 0.847 0.839	r= 8 v_x/v_m 0.718 0.575 0.576 0.674 0.786 0.801 0.782	2.5 mm V _r /V _m -0.153 -0.221 -0.182 -0.182 -0.199 -0.192 -0.169 -0.169	<pre></pre>	1.035 V ₀ /V _m 0.736 0.579 0.606 0.699 0.810 0.863 0.827 0.805	r= 10 V _x /V _m 0.545 0.389 0.595 0.668 0.719 0.800 0.818 0.826	0.0 mm V _r /V _m 0.117 0.167 -0.066 -0.203 -0.230 -0.199 -0.143 -0.125	+ r/R= v _t /v _m 0.000 -0.017 0.099 0.089 0.012 -0.042 -0.038 -0.007	1.255 V / V m 0.558 0.424 0.607 0.703 0.755 0.825 0.831 0.835
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	φ 10 20 30 40 50 60 70 80 90	r= 6 v / v 0.729 0.636 0.716 0.804 0.846 0.820 0.809 0.797 0.781	5.0 mm V _r /V _m -0.134 -0.234 -0.204 -0.204 -0.179 -0.160 -0.153 -0.145 -0.134 -0.084 -0.033	+ r/R= V _t /V _m 0.087 -0.009 -0.067 -0.091 -0.091 -0.115 -0.154 -0.179 -0.203 -0.242	0.816 v / v m 0.746 0.635 0.671 0.743 0.825 0.868 0.847 0.839 0.827 0.819	r= 8 V _x /V _m 0.718 0.535 0.576 0.674 0.786 0.838 0.801 0.782 0.747 0.686	2.5 mm V _r /V _m -0.153 -0.221 -0.182 -0.179 -0.189 -0.192 -0.169 -0.148 -0.110 -0.071	<pre></pre>	1.035 V_{o}/V_{m} 0.736 0.579 0.606 0.699 0.810 0.863 0.827 0.805 0.764	r= 10 V _x /V _m 0.545 0.389 0.595 0.668 0.719 0.800 0.818 0.826 0.756 0.673	0.0 mm V _r /V _m 0.117 0.167 -0.066 -0.203 -0.230 -0.199 -0.143 -0.125 -0.131	+ r/R= v _t /v _m 0.000 -0.017 0.099 0.012 -0.042 -0.038 -0.007 0.012 -0.006	1.255 Vo/Vm 0.558 0.424 0.607 0.703 0.755 0.825 0.831 0.835 0.768 0.686
	φ 10 20 30 40 50 60 70 80 90 110	<pre>p= 6 v / v n 0.729 0.590 0.636 0.716 0.804 0.846 0.820 0.809 0.797 0.781 0.780 0.785</pre>	5.0 mm V _r /V _m -0.134 -0.234 -0.204 -0.179 -0.160 -0.153 -0.145 -0.134 -0.084 -0.033 0.054 0.158	+ r/R= V _t /V _m 0.087 -0.009 -0.0091 -0.091 -0.154 -0.179 -0.203 -0.242 -0.249 -0.228	0.816 Vo/Vm 0.746 0.635 0.671 0.743 0.825 0.8647 0.839 0.827 0.819 0.821 0.833	r= 8 v / v m 0.718 0.575 0.576 0.674 0.786 0.838 0.782 0.782 0.747 0.686 0.670	2.5 mm V _r /V _m -0.153 -0.221 -0.182 -0.182 -0.192 -0.169 -0.169 -0.169 -0.169 -0.169 -0.169 -0.169 -0.169 -0.169 -0.153 -0.215 -0.192 -0.192 -0.169 -	<pre></pre>	1.035 v_{o}/v_{m} 0.736 0.579 0.606 0.699 0.810 0.863 0.827 0.805 0.764 0.706 0.705	r= 10 V /Vm 0.545 0.389 0.595 0.668 0.719 0.800 0.818 0.826 0.756 0.673 0.668 0.673 0.668	0.0 mm V _r /V _m 0.117 0.167 -0.066 -0.203 -0.230 -0.199 -0.143 -0.143 -0.133 -0.131 -0.003	+ r/R= v _t /v _m 0.000 -0.017 0.099 0.089 0.012 -0.042 -0.038 -0.007 0.012 -0.006 -0.059 -0.059	1.255 V /Vm 0.558 0.424 0.607 0.703 0.755 0.825 0.831 0.835 0.768 0.686 0.686 0.685
	φ 10 20 30 40 50 60 70 80 90 100 110 120	<pre>p= 6 V x / V 0.729 0.590 0.636 0.716 0.804 0.846 0.820 0.809 0.797 0.781 0.780 0.785 0.810</pre>	5.0 mm V _r /V _m -0.134 -0.234 -0.204 -0.179 -0.160 -0.153 -0.145 -0.134 -0.084 -0.033 0.054 0.158 0.226	+ r/R= V _t /V _m 0.087 -0.009 -0.091 -0.115 -0.154 -0.179 -0.242 -0.242 -0.248 -0.228 -0.168	0.816 Vo/Vm 0.746 0.635 0.671 0.743 0.825 0.847 0.839 0.821 0.821 0.821 0.821 0.825 0.857	r= 8 r_x/r_m 0.718 0.535 0.576 0.674 0.786 0.838 0.801 0.782 0.747 0.6670 0.670 0.715 0.787	2.5 mm V _r /V _m -0.153 -0.221 -0.182 -0.179 -0.189 -0.192 -0.169 -0.148 -0.110 -0.071 0.038 0.165 0.259	<pre></pre>	1.035 v_{o}/v_{m} 0.736 0.579 0.606 0.699 0.810 0.863 0.827 0.805 0.764 0.705 0.765 0.762 0.838	r= 10 v /vm 0.545 0.389 0.595 0.668 0.719 0.800 0.818 0.826 0.756 0.673 0.668 0.659 0.732	0.0 mm V _r /V _m 0.117 0.167 -0.066 -0.203 -0.230 -0.199 -0.143 -0.125 -0.131 -0.003 0.168 0.264	+ r/R= v _t /v _m 0.000 -0.017 0.099 0.089 0.012 -0.042 -0.038 -0.007 0.012 -0.006 -0.059 -0.059 -0.079 -0.031	1.255 v /vm 0.558 0.424 0.607 0.703 0.755 0.825 0.831 0.835 0.768 0.686 0.671 0.685 0.779
$ \begin{bmatrix} 170 \\ 0.585 \\ 0.128 \\ 0.073 \\ 0.073 \\ 0.073 \\ 0.073 \\ 0.078 \\ 0.073 \\ 0.073 \\ 0.073 \\ 0.073 \\ 0.073 \\ 0.073 \\ 0.079 \\ 0.019 \\ 0.001 \\ 0.0$	φ 10 20 30 40 50 60 70 80 90 100 110 120 140 140	<pre>p= 6 v / v m 0.729 0.590 0.636 0.716 0.804 0.820 0.809 0.797 0.781 0.785 0.810 0.841 0.852</pre>	5.0 mm v_r/v_m -0.134 -0.234 -0.204 -0.179 -0.160 -0.153 -0.145 -0.134 -0.084 -0.033 0.054 0.228 0.265 0.254	+ r/R= Vt/Vm 0.087 -0.009 -0.0091 -0.091 -0.154 -0.179 -0.242 -0.	0.816 vo/vm 0.746 0.635 0.671 0.743 0.825 0.8647 0.839 0.827 0.819 0.821 0.833 0.825 0.833 0.857 0.839 0.833 0.857 0.833 0.835 0.833 0.835 0.835 0.833 0.835 0.855 0	r= 8 v / v m 0.718 0.575 0.576 0.674 0.786 0.8301 0.782 0.787 0.680 0.715 0.787 0.823 0.842	2.5 mm V _r /V _m -0.153 -0.221 -0.182 -0.189 -0.192 -0.169 -0.169 -0.148 -0.110 -0.071 0.038 0.165 0.259 0.315 0.282	<pre> r/R= v_t/v_m 0.059 -0.028 -0.050 -0.052 -0.081 -0.113 -0.120 -0.123 -0.204 -0.204 -0.205 -0.127 -0.085 -0.014 </pre>	1.035 v_{o} / v_{m} 0.736 0.579 0.606 0.699 0.810 0.863 0.827 0.805 0.764 0.706 0.762 0.762 0.838 0.885 0.888	r= 10 V /Vm 0.545 0.389 0.595 0.668 0.719 0.800 0.818 0.826 0.673 0.6659 0.659 0.732 0.786 0.786 0.842	0.0 mm V _r /V _m 0.117 0.167 -0.066 -0.203 -0.230 -0.199 -0.143 -0.125 -0.133 -0.131 -0.003 0.168 0.264 0.310 0.249	+ r/R= v _t /v _m 0.000 -0.017 0.099 0.089 0.012 -0.042 -0.038 -0.007 0.012 -0.006 -0.059 -0.079 -0.031 0.000 0.064	1.255 V /Vm 0.558 0.424 0.607 0.703 0.755 0.825 0.831 0.835 0.768 0.685 0.768 0.685 0.671 0.685 0.779 0.845 0.880
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	φ 10 20 30 40 50 60 70 80 90 100 120 130 140 150 160	<pre>p= 6 V / V x / V 0.729 0.590 0.636 0.716 0.804 0.820 0.820 0.820 0.797 0.781 0.785 0.810 0.841 0.841 0.785 0.810 0.841 0.797 0.785 0.810 0.821 0.871 0.871 0.871 </pre>	5.0 mm v_r/v_m -0.134 -0.204 -0.204 -0.179 -0.160 -0.153 -0.145 -0.134 -0.084 -0.033 0.054 0.158 0.228 0.265 0.254 0.257 0.214	+ r/R= V _t /V _m 0.087 -0.009 -0.067 -0.091 -0.115 -0.154 -0.179 -0.203 -0.242 -0.228 -0.228 -0.166 -0.128 -0.166 -0.128 -0.038 0.079	0.816 Vo/Vm 0.746 0.635 0.671 0.743 0.825 0.8268 0.847 0.8399 0.821 0.821 0.823 0.821 0.833 0.857 0.890 0.809	<pre>r= 8 V / V m 0.718 0.575 0.576 0.674 0.782 0.747 0.680 0.747 0.680 0.747 0.680 0.747 0.680 0.715 0.787 0.823 0.842 0.8901 0.832 </pre>	2.5 mm V _r /V _m -0.153 -0.221 -0.182 -0.189 -0.192 -0.169 -0.148 -0.110 -0.071 0.038 0.165 0.259 0.315 0.282 0.255 0.188	<pre> r/R= V_t/V_m 0.059 -0.050 -0.050 -0.052 -0.081 -0.113 -0.120 -0.120 -0.153 -0.214 -0.206 -0.127 -0.085 -0.014 0.072 0.014 </pre>	1.035 V ₀ /V _m 0.736 0.579 0.606 0.699 0.810 0.863 0.827 0.805 0.764 0.705 0.764 0.705 0.762 0.838 0.885 0.888 0.885 0.835 0.855 0.855 0.855 0.855 0.855 0.764 0.855 0.855 0.855 0.855 0.855 0.855 0.855 0.855 0.855 0.855 0.765 0.855	r= 10 v /vm 0.545 0.389 0.595 0.668 0.719 0.800 0.818 0.826 0.673 0.668 0.659 0.756 0.659 0.756 0.668 0.659 0.732 0.7842 0.9322 0.9344	0.0 mm V _r /V _m 0.117 0.167 -0.066 -0.203 -0.230 -0.199 -0.143 -0.125 -0.133 -0.131 -0.003 0.168 0.264 0.310 0.249 0.201 0.128	+ r/R= v _t /v _m 0.000 -0.017 0.099 0.089 0.012 -0.042 -0.038 -0.007 0.012 -0.0059 -0.054 -0.059 -0.054 -0.146 -0.146 -0.155 -0.055 -0.054 -0.054 -0.054 -0.146 -0.155 -0.054 -0.054 -0.146 -0.054 -0.054 -0.146 -0.054 -0.155 -0.054 -0.054 -0.146 -0.155 -0.054 -0.054 -0.155 -0.054 -0.054 -0.155 -0.054	1.255 V /Vm 0.558 0.424 0.607 0.703 0.755 0.825 0.831 0.835 0.768 0.686 0.671 0.685 0.779 0.845 0.880 0.964 0.869
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	φ 10 20 30 40 50 70 80 90 100 120 130 140 150 160 170 180	<pre>P= 6 V /Vm 0.729 0.590 0.636 0.716 0.804 0.820 0.820 0.797 0.781 0.785 0.810 0.841 0.852 0.871 0.7785 0.810 0.841 0.852 0.871 0.7585 0.550</pre>	5.0 mm V _r /V _m -0.134 -0.234 -0.204 -0.179 -0.160 -0.153 -0.134 -0.084 -0.033 0.054 0.228 0.265 0.254 0.225 0.254 0.257 0.214 -0.204 -0.134 -0.033 -0.158 -0.228 -0.228 -0.158 -0.228 -0.158 -0.228 -0.158 -0.228 -0.158 -0.158 -0.228 -0.158 -0.228 -0.158 -0.158 -0.205 -0.158 -0.228 -0.158 -0.158 -0.228 -0.158 -0.158 -0.228 -0.158 -0.228 -0.158 -0.158 -0.228 -0.228 -0.158 -0.158 -0.228 -0.228 -0.158 -0.158 -0.228 -0.228 -0.158 -0.158 -0.228 -0.228 -0.158 -0.228 -0.228 -0.158 -0.228 -0.158 -0.228 -0.158 -0.228 -0.228 -0.158 -0.228 -0.228 -0.228 -0.158 -0.228 -0.228 -0.228 -0.228 -0.228 -0.228 -0.228 -0.228 -0.228 -0.228 -0.228 -0.254 -0.228 -0.288 -0.288 -0.288 -0.288 -0.288 -0.288 -0.288 -0.288 -0.288 -0.288 -0.	+ r/R= Vt/Vm 0.087 -0.009 -0.0091 -0.091 -0.1154 -0.154 -0.179 -0.223 -0.242 -0.249 -0.228 -0.128 -0.128 -0.128 -0.061 0.038 0.078 -0.075	0.816 vo/vm 0.746 0.635 0.671 0.743 0.825 0.8847 0.839 0.827 0.819 0.821 0.833 0.827 0.839 0.821 0.8391 0.809 0.604 0.555	r= 8 v / v m 0.718 0.576 0.576 0.674 0.786 0.786 0.786 0.788 0.787 0.68301 0.787 0.6820 0.787 0.8242 0.9320 0.8301 0.8300 0.575 0.5767 0.675 0.5767 0.675 0.5757 0.675 0.6747 0.675 0.675 0.5757 0.6726 0.5726 0.5766 0.5726 0.5726 0.5726 0.5726 0.5726 0.5726 0.5726 0.5726	2.5 mm V _r /V _m -0.153 -0.221 -0.182 -0.192 -0.169 -0.169 -0.169 -0.169 -0.169 -0.165 0.259 0.315 0.255 0.282 0.255 0.315 0.282 0.255 0.315 0.282 0.255 0.307 -0.087 -0.059	<pre> r/R= V_t/V_m 0.059 -0.028 -0.050 -0.052 -0.081 -0.113 -0.120 -0.120 -0.127 -0.206 -0.127 -0.085 -0.014 0.072 0.126 -0.030 </pre>	$\begin{array}{c} 1.035 \\ v_{o} / v_{m} \\ 0.736 \\ 0.579 \\ 0.606 \\ 0.699 \\ 0.810 \\ 0.863 \\ 0.827 \\ 0.805 \\ 0.764 \\ 0.706 \\ 0.765 \\ 0.762 \\ 0.838 \\ 0.838 \\ 0.888 \\ 0.838 \\ 0.839 \\ 0.859 \\ 0.859 \\ 0.530 \end{array}$	r= 10 V /Vm 0.545 0.595 0.668 0.719 0.800 0.818 0.826 0.673 0.6659 0.756 0.6732 0.6659 0.736 0.659 0.736 0.842 0.9322 0.844 0.5856 0.595 0.6659 0.736 0.659 0.736 0.659 0.736 0.659 0.6659 0.736 0.6659 0.736 0.6659 0.736 0.6659 0.738 0.6659 0.738 0.6659 0.738 0.6659 0.7386 0.6595 0.6659 0.6659 0.756 0.6659 0.786 0.6595 0.6659 0.786 0.6595 0.6659 0.786 0.6595 0.786 0.6595 0.786 0.6595 0.786 0.6595 0.786 0.6595 0.786 0.6595 0.786 0.786 0.8842 0.786 0.8842 0.786 0.8842 0.786 0.8842 0.8842 0.8842 0.8842 0.786 0.8842 0.6732 0.6732 0.6842 0.8845 0.8842 0.8845 0.8845 0.8845 0.8845 0.8845 0.8845 0.8856 0.8845 0.8845 0.8856 0.8845 0.88566 0.8856 0.88566 0.88566 0.88566 0.88566 0.885	0.0 mm V _r /V _m 0.117 0.167 -0.066 -0.203 -0.230 -0.143 -0.143 -0.143 -0.143 -0.131 -0.003 0.168 0.264 0.310 0.249 0.201 0.128 0.201 0.125	+ r/R= v _t /v _m 0.000 -0.017 0.099 0.089 0.012 -0.042 -0.038 -0.007 0.012 -0.006 -0.059 -0.079 -0.031 0.000 0.064 0.165 0.153 -0.051	1.255 V /Vm 0.558 0.424 0.607 0.703 0.755 0.825 0.831 0.835 0.768 0.685 0.768 0.686 0.671 0.685 0.779 0.845 0.880 0.964 0.869 0.665 0.468
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	φ 0 10 20 30 40 50 60 70 80 900 110 120 130 140 150 160 170 180 200	<pre>p= 6 v / v m 0.729 0.590 0.636 0.716 0.804 0.820 0.809 0.797 0.780 0.785 0.841 0.8571 0.785 0.8571 0.776 0.5550 0.6550 0.6850</pre>	5.0 mm V _r /V _m -0.134 -0.204 -0.204 -0.153 -0.145 -0.155 -0.145 -0.134 -0.084 -0.033 0.054 0.228 0.265 0.2257 0.257 0.214 0.128 -0.013 -0.076 -0.025	+ r/R= V _t /V _m 0.087 -0.009 -0.091 -0.115 -0.154 -0.179 -0.223 -0.249 -0.228 -0.249 -0.228 -0.166 -0.128 -0.061 0.038 0.079 0.075 -0.075 -0.129	0.816 Vo/Vm 0.746 0.635 0.671 0.743 0.825 0.8268 0.8327 0.8327 0.8327 0.8327 0.8327 0.8391 0.8391 0.8991 0.809 0.8009 0.80000 0.80000 0.80000 0.80000 0.80000000000	r= 8 r/m 0.718 0.576 0.674 0.782 0.7838 0.801 0.782 0.747 0.680 0.715 0.787 0.842 0.9832 0.9832 0.9832 0.9832 0.9832 0.8421 0.8421 0.822 0.9832 0.6526 0.816	2.5 mm V _r /V _m -0.153 -0.221 -0.182 -0.182 -0.192 -0.169 -0.148 -0.110 -0.071 0.038 0.165 0.259 0.315 0.2825 0.285 0.285 0.285 0.285 0.259 0.315 0.359 0	<pre> r/R= V_t/V_m 0.059 -0.050 -0.050 -0.052 -0.081 -0.113 -0.120 -0.123 -0.123 -0.214 -0.206 -0.127 -0.085 -0.014 0.072 0.126 -0.126 -0.126 -0.144 -0.160 </pre>	1.035 Vo/Vm 0.736 0.579 0.609 0.810 0.827 0.805 0.764 0.705 0.762 0.838 0.885 0.8888 0.9359 0.648 0.530 0.642 0.6424	r= 10 v /vm 0.545 0.595 0.668 0.719 0.808 0.826 0.6659 0.7842 0.7842 0.7842 0.7842 0.5848 0.6594 0.5848 0.6592 0.7842 0.5842 0.5934 0.5334 0.5334 0.5334 0.5334 0.5334 0.5334 0.5334 0.5334 0.5334 0.5334 0.5334 0.5334 0.5334 0.5336 0.5335 0.5336 0.5356 0.5556 0.5556 0.5556 0.5556 0.5556 0.5556 0.5556 0.5556 0.5556 0.5556 0.5556 0.5556 0.5556	0.0 mm V _r /V _m 0.117 0.167 -0.066 -0.203 -0.230 -0.199 -0.143 -0.125 -0.133 -0.131 -0.003 0.168 0.264 0.310 0.249 0.201 0.2201 0.128 0.011 -0.157 -0.157 -0.070	+ r/R= v _t /v _m 0.000 -0.017 0.099 0.089 0.012 -0.042 -0.038 -0.007 0.012 -0.0064 0.064 0.165 0.153 -0.051 -0.164 -0.164	1.255 V /Vm 0.558 0.424 0.607 0.703 0.755 0.825 0.831 0.835 0.768 0.685 0.685 0.779 0.845 0.869 0.605 0.468 0.665 0.468 0.665 0.468 0.665 0.468 0.665 0.468 0.665 0.468 0.665 0.468 0.665 0.468 0.665 0.468 0.665 0.468 0.665 0.468 0.665 0.665 0.468 0.665 0.655 0.
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	φ 0 10 20 30 40 500 70 80 90 100 120 130 140 150 160 170 180 190 200 220 220	P= 6 V / V 0.729 0.536 0.716 0.804 0.804 0.840 0.8209 0.797 0.7850 0.811 0.7850 0.8141 0.8550 0.6550 0.5550 0.6550 0.8509 0.9668	5.0 mm V _r /V _m -0.134 -0.234 -0.204 -0.179 -0.160 -0.155 -0.134 -0.084 -0.033 0.054 0.228 0.265 0.254 0.225 0.254 0.128 -0.013 -0.013 -0.013 -0.025 0.055	+ r/R= Vt/Vm 0.087 -0.009 -0.0091 -0.091 -0.1154 -0.179 -0.2242 -0	0.816 v / v m 0.746 0.635 0.671 0.743 0.825 0.8847 0.8827 0.8827 0.8827 0.8827 0.8821 0.8821 0.88357 0.8890 0.8890 0.8890 0.5555 0.6655 0.6555 0.6655 0.6555 0.6655 0.65555 0.6555 0.6555 0.6555 0.6555 0.6555 0	r= 8 v / v m 0.718 0.5774 0.5774 0.6778 0.6788 0.78301 0.7847 0.66705 0.7823 0.68401 0.88401 0.88401 0.6526 0.6526 0.6516 0.88950 0.689500 0.689500 0.689500 0.689500 0.689500 0.689500 0.689500 0.689500 0.689500 0.689500 0.689500 0.689500 0.689500 0.689500 0.689500 0.689500 0.689500 0.6895000 0.689500 0.689500 0.689500 0.689500 0.689500 0.6895000 0.6895000 0.6855000 0.6855000 0.68550000000000000000000000000000000000	2.5 mm V _r /V _m -0.153 -0.221 -0.182 -0.192 -0.169 -0.259 0.315 0.282 0.259 0.315 0.282 0.259 -0.130 -0.069 -0.180 -0.180 -0.169 -0.169 -0.200 -0.180 -0.200 -0.169 -0.200 -0.200 -0.200 -0.180 -0.200 -0.200 -0.200 -0.100 -0.0000 -0.00000 -0.0000 -0.0000 -0.00000 -0.00000 -0.00000 -0.00000 -0.00000 -0.00000 -0.00000 -0.000000 -0.00000 -0.00000 -0.0000000000	<pre> r/R= V_t/V_m 0.059 -0.028 -0.050 -0.050 -0.052 -0.081 -0.113 -0.120 -0.127 -0.127 -0.085 -0.014 0.072 0.126 -0.030 -0.144 -0.160 -0.164 -0.1</pre>	$\begin{array}{c} 1.035 \\ v_{o} / v_{m} \\ 0.736 \\ 0.736 \\ 0.579 \\ 0.606 \\ 0.810 \\ 0.8637 \\ 0.827 \\ 0.825 \\ 0.764 \\ 0.705 \\ 0.765 \\ 0.762 \\ 0.8888 \\ 0.939 \\ 0.6435 \\ 0.8859 \\ 0.8859 \\ 0.8538 \\ 0.835 \\ 0$	r= 10 V /Vm 0.545 0.389 0.595 0.668 0.719 0.800 0.818 0.826 0.673 0.668 0.673 0.668 0.673 0.668 0.6592 0.786 0.842 0.842 0.842 0.842 0.848 0.595 0.668 0.6592 0.786 0.6592 0.842 0.842 0.842 0.845 0.845 0.845 0.668 0.6592 0.668 0.6592 0.668 0.6595 0.668 0.6595 0.668 0.6595 0.668 0.6592 0.668 0.6592 0.668 0.6592 0.668 0.6592 0.668 0.6592 0.668 0.6592 0.845 0.6592 0.845 0.668 0.6592 0.845 0.6592 0.845 0.855 0.668 0.6592 0.845 0.845 0.6592 0.845 0.845 0.855 0.668 0.6592 0.845 0.845 0.855 0.668 0.6592 0.845 0.855 0.6592 0.842 0.855 0.858 0.852 0.855 0	0.0 mm V _r /V _m 0.117 0.167 -0.066 -0.203 -0.230 -0.143 -0.143 -0.143 -0.143 -0.131 -0.003 0.168 0.264 0.310 0.249 0.201 0.125 -0.157 -0.155 -0.070 -0.157 -0.052	+ r/R= Vt/Vm 0.000 -0.017 0.099 0.012 -0.042 -0.038 -0.007 -0.006 -0.059 -0.079 -0.006 -0.059 -0.079 -0.031 0.000 0.064 0.165 0.165 0.151 -0.168 -0.164 -0.155 -0.154 -0.154 -0.154 -0.154 -0.154 -0.155 -0.154	1.255 V /Vm 0.558 0.424 0.607 0.703 0.755 0.825 0.831 0.835 0.7686 0.671 0.6855 0.779 0.8450 0.665 0.779 0.8450 0.6659 0.4666 0.8555 0.4666 0.8555 0.9420
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	φ 0 10 20 30 40 50 60 70 80 900 110 120 130 140 160 170 180 1900 210 230 230	<pre>p= 6 v / v m 0.729 0.636 0.716 0.804 0.820 0.797 0.780 0.781 0.788 0.7810 0.788 0.8251 0.776 0.8841 0.8550 0.6550 0.6550 0.6550 0.8550 0.8550 0.885 0.885</pre>	5.0 mm v_r/v_m -0.134 -0.234 -0.204 -0.179 -0.160 -0.155 -0.145 -0.134 -0.084 -0.033 0.228 0.265 0.2257 0.214 0.2257 0.257 0.214 0.128 -0.013 -0.075 0.010 0.055 0.010 0.055 0.010 0.055 0.010 0.055 0.010 0.055 0.010 0.055 0.010 0.055 0.015 0.005 0.0	+ r/R= V _t /V _m 0.087 -0.009 -0.0091 -0.091 -0.115 -0.154 -0.179 -0.223 -0.249 -0.228 -0.249 -0.228 -0.166 -0.128 -0.075 -0.128 -0.128 -0.124 -0.128 -0.121 -0.124 -0.124 -0.075 -0.124 -0.075 -0.124 -0.075 -0.124 -0.075 -0.124 -0.125 -0.124 -0.126 -0.024 -0.126 -0.024 -0.128 -0.128 -0.124 -0.124 -0.124 -0.126 -0.124 -0.126 -0.126 -0.127 -0.127 -0.127 -0.127 -0.127 -0.127 -0.127 -0.127 -0.127 -0.127 -0.127 -0.127 -0.128 -0.128 -0.124 -0.124 -0.127 -0.124 -0.126 -0.127 -0.126 -0.127 -0.127 -0.127 -0.127 -0.128 -0.128 -0.127 -0.128 -0.126 -0.128 -0.127 -0.128 -0.127 -0.128 -0.127 -0.128 -0.127 -0.128 -0.127 -0.127 -0.127 -0.128 -0.127 -0.127 -0.128 -0.127 -0.127 -0.128 -0.127 -0.128 -0.128 -0.128 -0.128 -0.128 -0.128 -0.128 -0.128 -0.128 -0.128 -0.128 -0.128 -0.128 -0.128 -0.128 -0.128 -0.128 -0.128 -0.129 -0.128 -0.129 -0.128 -0.129 -0.129 -0.128 -0.129 -0.	0.816 Vo/Vm 0.746 0.635 0.671 0.743 0.825 0.827 0.827 0.8827 0.8827 0.8827 0.8827 0.8821 0.8857 0.8891 0.8891 0.8891 0.8891 0.8891 0.8891 0.8891 0.8891 0.8891 0.8891 0.8891 0.8891 0.8868 0.8891 0.8868 0.8891 0.8868 0.8868 0.8868 0.8868 0.8868 0.8868 0.8868 0.8868 0.887 0.8868 0.8891 0.8888 0.8868 0.8868 0.8878 0.8868 0.8891 0.8868 0.8868 0.8891 0.8868 0.8859 0.8868 0.8878 0.8859 0.8859 0.8868 0.8859 0.8868 0.8891 0.8891 0.8859 0.8859 0.8859 0.8868 0.8891 0.8891 0.8891 0.8859 0.8859 0.8891 0.8891 0.8891 0.8891 0.8891 0.8891 0.8859 0.8891 0.8892 0.8891 0.8891 0.8892 0.8992 0.8892 0.89	<pre>% / % / % % % % % % % % % % % % % % % %</pre>	2.5 mm V _r /V _m -0.153 -0.221 -0.182 -0.182 -0.192 -0.169 -0.148 -0.110 -0.071 0.038 0.165 0.259 0.315 0.282 0.2559 0.315 0.288 0.087 -0.059 -0.130 0.066 -0.020 0.046 0.102	<pre> r/R= V_t /V_m 0.059 -0.050 -0.050 -0.052 -0.081 -0.113 -0.120 -0.123 -0.123 -0.214 -0.206 -0.127 -0.085 -0.014 0.072 0.126 -0.126 -0.126 -0.124 -0.164 -</pre>	1.035 v_{o} / v_{m} 0.736 0.579 0.609 0.810 0.827 0.805 0.764 0.705 0.765 0.765 0.765 0.765 0.8888 0.8888 0.8888 0.8888 0.8888 0.8888 0.8889 0.642 0.8399 0.6424 0.8530 0.8647 0.8677 0.8777	r= 10 v / v m 0.545 0.5985 0.668 0.719 0.808 0.8266 0.6659 0.7842 0.9326 0.6659 0.7842 0.5936 0.6659 0.7842 0.5936 0.6659 0.6659 0.5936 0.6659 0.5936 0.6659 0.5936 0.6659 0.5936 0.6659 0.5936 0.6659 0.6659 0.6659 0.6659 0.5936 0.6659 0.6659 0.6659 0.6659 0.6659 0.6659 0.6592 0.6659 0.6592 0.6592 0.6592 0.6592 0.6592 0.6592 0.6592 0.6592 0.6592 0.6592 0.6592 0.6592 0.6592 0.6592 0.8365 0.6592 0.6592 0.8365 0.6592 0.8365 0.6592 0.85528 0.6592 0.85528 0.6592 0.85528 0.6592 0.85528 0.6592 0.85588 0.6592 0.85288 0.65928 0.85288 0.65928 0.85288 0.65928 0.85288 0.65928 0.65928 0.65828 0.65828 0.65828 0.65828 0.65828 0.65828 0.65828 0.65828 0.65828 0.65828 0.65828 0.65828 0.65828 0.65828 0.65828 0.65828 0.68858 0.688588 0.688588 0.688588 0.688588 0.688588 0.688588 0.688588 0.688588 0.688588 0.688588 0.688588 0.6885888 0.688588 0.688588 0.688588 0.6885888 0.688588 0.6885888588 0.688588 0.6885888588 0.6885888588 0.6885885	0.0 mm V _r /V _m 0.117 0.167 -0.066 -0.203 -0.230 -0.199 -0.143 -0.125 -0.133 -0.131 -0.003 0.168 0.264 0.310 0.2249 0.201 0.2249 0.2249 0.2241 0.128 0.011 -0.157 -0.157 -0.070 -0.070 -0.039 0.080	+ r/R= v _t /v _m 0.000 -0.017 0.099 0.089 0.012 -0.042 -0.038 -0.007 0.012 -0.0064 0.165 0.165 0.1651 -0.168 -0.159 -0.146 -0.142	1.255 V /Vm 0.558 0.424 0.607 0.703 0.755 0.831 0.835 0.768 0.685 0.685 0.685 0.8864 0.6685 0.8649 0.6685 0.8649 0.6685 0.8649 0.6655 0.8922 0.8999 0.8985 0.8895 0.8985 0.8985 0.8985 0.8985 0.8985 0.8985 0.8985 0.8985 0.8985 0.8985 0.8985 0.8855 0.8555 0.8555 0.8555 0.8555 0.8555 0.8555 0.8555 0.8555 0.8555 0.8555 0.8555 0.8555 0.8555 0.8555 0.8555 0.8555 0.8555 0.8555 0.85555 0.8555 0.8555 0.8555 0.8555 0.85555 0.85555
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	φ 0 20 30 40 500 70 80 900 100 120 140 150 160 170 190 200 240 240 250	r = 6 v_x / v_m 0.729 0.590 0.636 0.716 0.804 0.820 0.797 0.781 0.785 0.781 0.785 0.841 0.8550 0.8716 0.5550 0.6550 0.6550 0.6550 0.8559 0.6550 0.8509 0.8909 0.8909 0.8909 0.8909 0.9909 0.8509 0.9909 0.8509 0.9909 0.8509 0.9909 0.8509 0.9909 0.8509 0.9909 0.8509 0.9909 0.8509 0.9909 0.8509 0.9909 0.8509 0.9909 0.8509 0.9909 0.8509 0.9909 0.8509 0.9900 0.9900 0.9900 0.9900 0.9900 0.9900 0.9900 0.9900 0.9900 0.9900 0.9900 0.9900 0.9900 0.9900 0.9900 0.9900 0.9900 0.9900 0.9900 0.99000 0.99000 0.99000 0.99000 0.99000 0.990000 0.99000 0.99000 00	5.0 mm v_r/v_m -0.134 -0.234 -0.204 -0.153 -0.145 -0.145 -0.134 -0.084 -0.033 0.054 0.228 0.265 0.254 0.2254 0.2254 0.225 0.255 0.013 -0.013 -0.013 -0.013 -0.025 0.013 -0.025 0.0055 0.091 0.128 -0.091 0.128 -0.013 -0.128 -0.013 -0.128 -0.013 -0.128 -0.134 -0.204 -0.155 -0.134 -0.155 -0.134 -0.055 -0.155 -0.134 -0.055 -0.155 -0.155 -0.155 -0.155 -0.155 -0.154 -0.228 -0.155 -0.155 -0.155 -0.155 -0.155 -0.155 -0.155 -0.155 -0.155 -0.155 -0.155 -0.255 -0.254 -0.255 -0.128 -0.025 -0.128 -0.025 -0.128 -0.025 -0.134 -0.025 -0.128 -0.025 -0.132 -0.128 -0.128 -0.137 -0.128 -0.025 -0.137 -0.128 -0.025 -0.137 -0.128 -0.025 -0.137 -0.128 -0.025 -0.137 -0.137 -0.128 -0.025 -0.137 -0.128 -0.025 -0.137 -0.025 -0.137 -0.025 -0.02	+ r/R= Vt/Vm 0.087 -0.009 -0.0091 -0.091 -0.154 -0.179 -0.223 -0.2242 -0.2275 -0.1144 -0.0966 -0.075 -0.1144 -0.0966 -0.075 -0.1144 -0.0966 -0.075 -0.2452 -0.275 -0.1144 -0.0966 -0.075 -	0.816 Vo/Vm 0.635 0.671 0.746 0.635 0.825 0.8827 0.8827 0.8827 0.8827 0.8829 0.8829 0.88397 0.88391 0.88991 0.88991 0.88991 0.88991 0.5559 0.66868 0.8819 0.8825 0.8891 0.8891 0.8855 0.8804 0.8891 0.8891 0.8855 0.8855 0.8891 0.8855 0.8855 0.8891 0.8855 0.8855 0.8891 0.8855 0.8855 0.8891 0.8855 0.8855 0.8891 0.8855 0.8855 0.8855 0.8891 0.8855 0.8855 0.8857 0.97577 0.97577 0.97577 0.97577 0.97577 0.97577 0.975777 0.9757777 0.97577777777777777777777777777777777777	r= 8 vx /vm 0.718 0.5576 0.55774 0.7838 0.7838 0.7848 0.7486 0.67157 0.788401 0.65212 0.65212 0.65165 0.88945 0.8812 0.88945 0.8812	2.5 mm V _r /V _m -0.153 -0.221 -0.182 -0.182 -0.189 -0.169 -0.169 -0.169 -0.169 -0.165 0.259 0.315 0.282 0.255 0.315 0.282 0.255 0.315 0.282 0.255 0.315 0.282 0.255 0.315 0.282 0.255 0.315 0.282 0.255 0.315 0.282 0.255 0.315 0.282 0.255 0.315 0.282 0.255 0.315 0.282 0.255 0.315 0.282 0.255 0.315 0.285 0.315 0.285 0.315 0.285 0.315 0.265 0.265 0.255 0.265 0.265 0.255 0.255 0.265 0.255 0	<pre> r/R= v_t/v_m 0.059 -0.028 -0.050 -0.050 -0.052 -0.081 -0.113 -0.120 -0.123 -0.123 -0.127 -0.085 -0.014 0.072 0.126 -0.030 -0.144 -0.164 -0.1</pre>	$\begin{array}{c} 1.035 \\ v_{o} / v_{m} \\ 0.736 \\ 0.736 \\ 0.606 \\ 0.8609 \\ 0.810 \\ 0.8637 \\ 0.8627 \\ 0.805 \\ 0.764 \\ 0.705 \\ 0.765 \\ 0.764 \\ 0.705 \\ 0.765 \\ 0.8888 \\ 0$	r= 10 V /Vm 0.545 0.595 0.668 0.719 0.808 0.818 0.818 0.818 0.673 0.668 0.673 0.6659 0.786 0.6592 0.786 0.8426 0.8486 0.4326 0.8368 0.4326 0.8368 0.8368 0.8368 0.8368 0.8368 0.8368 0.8368 0.8368 0.8368 0.8368 0.8368 0.929 0.807 0.807 0.808 0.929 0.807 0.808 0.929 0.808 0.9919 0.919 0.807 0.919 0.807 0.808 0.808 0.8368 0.9919 0.807 0.919 0.807 0.808 0.808 0.8368 0.9919 0.807 0.919 0.808 0.808 0.8368 0.9919 0.991	0.0 mm V _r /V _m 0.117 0.167 -0.066 -0.203 -0.230 -0.143 -0.125 -0.133 -0.131 -0.003 0.264 0.310 0.229 0.201 0.2201 0.2249 0.201 0.125 -0.155 -0.070 -0.155 -0.070 -0.157 -0.059 0.080 0.097 0.120	+ r/R= Vt/Vm 0.000 -0.017 0.099 0.012 -0.042 -0.038 -0.007 -0.006 -0.059 -0.079 -0.006 -0.059 -0.079 -0.031 0.000 0.064 0.165 0.165 0.1551 -0.168 -0.142 -0.107 -0.142 -0.107	$\begin{array}{c} 1.255 \\ \nu_{o} / \nu_{m} \\ 0.558 \\ 0.424 \\ 0.607 \\ 0.703 \\ 0.755 \\ 0.835 \\ 0.768 \\ 0.6835 \\ 0.768 \\ 0.671 \\ 0.6855 \\ 0.779 \\ 0.8480 \\ 0.665 \\ 0.964 \\ 0.8669 \\ 0.6658 \\ 0.964 \\ 0.8655 \\ 0.942 \\ 0.8998 \\ 0.921 \\ 0.933 \\ 0.933 \\ \end{array}$
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	 φ 0 10 20 30 40 50 60 70 80 900 100 130 140 150 170 180 1900 220 230 2400 250 270 	r = 6 r / r_m 0.729 0.590 0.636 0.716 0.804 0.8209 0.797 0.780 0.825 0.7780 0.7810 0.7810 0.7850 0.6550 0.6550 0.6550 0.6550 0.6550 0.6550 0.804 0.8251 0.5550 0.6550 0.804 0.909 0.904 0.909 0.909 0.909	5.0 mm v_r/v_m -0.134 -0.234 -0.204 -0.155 -0.145 -0.155 -0.145 -0.158 0.228 0.265 0.228 0.265 0.257 0.214 0.158 0.225 0.257 0.214 0.128 -0.076 -0.025 0.010 0.055 0.091 0.158 0.158 0.170	+ r/R= V _t /V _m 0.087 -0.009 -0.0091 -0.091 -0.154 -0.179 -0.223 -0.242 -0.242 -0.242 -0.242 -0.242 -0.166 -0.128 -0.075 -0.128 -0.128 -0.121 -0.124 -0.075 -0.124 -0.075 -0.075 -0.125 -0.0075 -	0.816 v_{o}/v_{m} 0.746 0.6351 0.7435 0.825 0.8250 0.8847 0.8827 0.8827 0.8827 0.8827 0.8827 0.8827 0.8891 0.88921 0.8881 0.9913 0.915	r= 8 vx /vm 0.718 0.576 0.576 0.6788 0.7828 0.7887 0.6801 0.7823 0.782421 0.6326 0.65262 0.8895 0.65262 0.8895 0.88932 0.9113 0.9112 0.912	2.5 mm V _r /V _m -0.153 -0.221 -0.182 -0.182 -0.189 -0.192 -0.169 -0.148 -0.110 -0.071 0.038 0.165 0.259 0.315 0.2825 0.315 0.288 0.087 -0.059 -0.130 -0.066 -0.020 0.046 0.100 0.1255 0.1255 0.1255 0.1255 0.1257 0.130 -0.130 -0.148 -0.153 -0.169 -0.148 -0.110 -0.153 -0.169 -0.165 0.259 0.3155 0.259 -0.1308 -0.1308 -0.130 -0.066 -0.059 -0.166 -0.148 -0.153 -0.159 -0.148 -0.159 -0.148 -0.159 -0.169 -0.148 -0.159 -0.148 -0.159 -0.148 -0.159 -0.159 -0.159 -0.159 -0.148 -0.159 -0.159 -0.159 -0.148 -0.159 -0.148 -0.159 -0.148 -0.159 -0.148 -0.159 -0.148 -0.159 -0.148 -0.159 -0.148 -0.059 -0.066 -0.021 -0.046 -0.1255 -0.1255 -0.189	<pre> r/R= V_t/V_m 0.059 -0.050 -0.050 -0.052 -0.052 -0.052 -0.113 -0.120 -0.123 -0.123 -0.214 -0.206 -0.127 -0.085 -0.014 0.072 0.126 -0.126 -0.126 -0.164 -0.164 -0.164 -0.164 -0.164 -0.102 -0.063 -0.034 </pre>	$\begin{array}{c} 1.035 \\ v_{o} / v_{m} \\ 0.736 \\ 0.579 \\ 0.609 \\ 0.810 \\ 0.827 \\ 0.805 \\ 0.805 \\ 0.705 \\ 0.705 \\ 0.705 \\ 0.762 \\ 0.838 \\ 0.8888 \\ 0.9359 \\ 0.643 \\ 0.8888 \\ 0.9359 \\ 0.642 \\ 0.8310 \\ 0.8647 \\ 0.931 \\ 0.931 \\ 0.932 \end{array}$	r= 10 v / v m 0.545 0.595 0.668 0.719 0.808 0.826 0.6659 0.7545 0.6659 0.77842 0.9324 0.5936 0.7842 0.9344 0.5838 0.6592 0.7842 0.8386 0.6592 0.7842 0.8386 0.6592 0.8386 0.6592 0.8386 0.6592 0.8386 0.8388 0.6592 0.8386 0.8386 0.9386 0.9916 0.908	0.0 mm Vr/Vm 0.117 0.167 -0.066 -0.203 -0.230 -0.199 -0.143 -0.125 -0.133 -0.131 -0.003 0.168 0.264 0.310 0.264 0.310 0.264 0.310 0.157 -0.1557 -0.070 -0.012 0.039 0.080 0.097 0.120 0.152 0.191	+ r/R= v _t /v _m 0.000 -0.017 0.099 0.089 0.012 -0.042 -0.038 -0.007 0.012 -0.006 -0.059 -0.051 -0.165 -0.165 -0.164 -0.159 -0.126 -0.129 -0.164 -0.159 -0.126 -0.164 -0.159 -0.126 -0.164 -0.165 -0.127 -0.067 -0.164 -0.165 -0.164 -0.167 -0.067 -0.059 -0.050 -0.059 -0.050 -0.057	1.255 V /Vm 0.558 0.424 0.607 0.703 0.755 0.831 0.835 0.768 0.685 0.685 0.685 0.779 0.845 0.685 0.779 0.845 0.685 0.9649 0.605 0.468 0.665 0.9649 0.605 0.8998 0.928 0.9331 0.928
320 0.935 0.096 0.144 0.951 0.942 0.118 0.140 0.960 0.935 0.122 0.132 0.952 330 0.976 0.079 0.174 0.995 0.097 0.183 1.016 1.017 0.019 0.204 1.038	φ 0 20 30 40 500 70 80 900 100 120 140 150 140 150 140 120 200 2100 230 240 250 260 270 280	<pre>>>= 6 V / Vm 0.729 0.590 0.636 0.716 0.8046 0.8209 0.7850 0.7850 0.7850 0.7850 0.84521 0.7850 0.5550 0.6550 0.6360 0.84521 0.5550 0.6550 0.6809 0.909 0.909 0.909 0.9917 0.9938</pre>	5.0 mm v_r/v_m -0.134 -0.234 -0.204 -0.145 -0.145 -0.145 -0.134 -0.084 -0.033 0.054 0.228 0.2254 0.2257 0.2254 0.2257 0.2254 0.2257 0.2254 0.2257 0.2254 0.2257 0.2128 -0.013 -0.013 -0.128 -0.013 -0.128 -0.013 -0.128 -0.013 -0.128 -0.168 -0.172	+ r/R= Vt/Vm 0.087 -0.009 -0.0091 -0.091 -0.1154 -0.179 -0.2242 -0.2245 -0.075 -0.114 -0.129 -0.205 -0.128 -0.128 -0.1214 -0.129 -0.2128 -0.128 -0.128 -0.1214 -0.025 -0.0114 -0.0076 -0.015 -0.015 -0.018 -0.015 -0.018 -0.052	0.816 v_{o}/v_{m} 0.746 0.6351 0.7435 0.825 0.8279 0.8279 0.8279 0.8279 0.8279 0.8279 0.8279 0.8299 0.8279 0.8299 0.8279 0.8299 0.8279 0.8299 0.8279 0.8299 0.8279 0.8299 0.8279 0.8299 0.8279 0.8299 0.8279 0.8299 0.8279 0.8299 0.8279 0.8279 0.8259 0.8299 0.8299 0.8299 0.8299 0.8299 0.8299 0.8299 0.8299 0.8299 0.8299 0.8299 0.8299 0.8299 0.8299 0.8299 0.8299 0.8299 0.8299 0.9899 0.9899 0.9919 0.9915 0.9915 0.9955 0.95555 0.95555 0.95555 0.955555 0.9555555 0.9555555555555555555555555555555555555	<pre>% / % / % % % % % % % % % % % % % % % %</pre>	2.5 mm V _r /V _m -0.153 -0.221 -0.182 -0.189 -0.192 -0.169 -0.148 -0.110 -0.071 0.038 0.165 0.259 0.315 0.255 0.282 0.255 0.188 0.087 -0.059 -0.130 -0.066 -0.020 0.100 0.125 0.125 0.125 0.125 0.125 0.125 0.130 -0.130 -0.153 -0.169 -0.169 -0.169 -0.169 -0.169 -0.169 -0.169 -0.169 -0.169 -0.169 -0.169 -0.169 -0.169 -0.169 -0.169 -0.169 -0.169 -0.171 0.038 0.165 0.255 0.255 0.125 0.125 0.125 0.126 -0.120 -0.169 -0.192 -0.169 -0.169 -0.169 -0.169 -0.169 -0.169 -0.169 -0.171 0.038 0.165 0.255 0.180 -0.166 -0.020 0.102 -0.169 -0.169 -0.171 0.038 0.165 0.255 0.172 0.192 -0.169 -0.192 -0.169 -0.169 -0.169 -0.171 -0.169 -0.171 -0.169 -0.165 0.255 0.125 0.125 0.126 -0.120 -0.130 -0.020 -0.100 -0.1020 -0.192 -0.169 -0.192 -0.169 -0.171 -0.071 -0.059 -0.130 -0.020 -0.126 -0.126 -0.126 -0.126 -0.120 -0.120 -0.120 -0.120 -0.126 -0.120 -0.120 -0.126 -0.127 -0.189 -0.191 -0.126 -0.191 -0.191 -0.191 -0.126 -0.191 -0.191 -0.191 -0.191 -0.191 -0.191 -0.191 -0.191 -0.191 -0.191 -0.191 -0.191 -0.193	<pre> r/R= Vt/Vm 0.059 -0.028 -0.050 -0.052 -0.052 -0.081 -0.120 -0.120 -0.120 -0.127 -0.206 -0.027 -0.127 -0.014 -0.126 -0.127 -0.014 -0.126 -0.127 -0.164 -0.102 -0.063 -0.004 -0.0</pre>	$\begin{array}{c} 1.035 \\ V_{0}/V_{m} \\ 0.736 \\ 0.579 \\ 0.609 \\ 0.8103 \\ 0.827 \\ 0.8054 \\ 0.705 \\ 0.764 \\ 0.705 \\ 0.762 \\ 0.838 \\ 0.8888 \\ 0.9888 \\ 0.9888 \\ 0.9938 \\ 0$	r= 10 v / v m 0.545 0.5989 0.668 0.719 0.818 0.818 0.8126 0.6753 0.66592 0.77842 0.78422 0.78422 0.81826 0.6592 0.78422 0.81826 0.6592 0.67382 0.68388 0.68388 0.683886 0.88883 0.99168 0.99168 0.9916 0.9916 0.9975	0.0 mm Vr/Vm 0.117 0.167 -0.066 -0.203 -0.230 -0.199 -0.143 -0.125 -0.131 -0.003 0.168 0.264 0.310 0.264 0.201 0.128 0.201 0.155 -0.070 -0.057 0.052 0.097 0.120 0.199 0.003 0.201 0.128 0.011 -0.155 -0.070 -0.125 0.039 0.039 0.125 -0.155 -0.155 0.152 0.156 0.156	+ r/R= Vt/Vm 0.000 -0.017 0.099 0.089 0.012 -0.042 -0.038 -0.007 0.012 -0.059 -0.051 -0.051 -0.168 -0.142 -0.142 -0.142 -0.142 -0.142 -0.142 -0.142 -0.142 -0.142 -0.142 -0.142 -0.142 -0.142 -0.142 -0.168 -0.167 -0.050 -0.057 -0.050 -0.142 -0.107 -0.000 -0.057 -0.142 -0.107 -0.000 -0.000 -0.000 -0.059 -0.142 -0.107 -0.000 -0.000 -0.000 -0.000 -0.059 -0.142 -0.107 -0.0000 -0.000 -0.	1.255 V /Vm 0.558 0.424 0.607 0.703 0.755 0.831 0.835 0.768 0.6851 0.685 0.779 0.8450 0.6655 0.8649 0.6655 0.8655 0.8665 0.9498 0.9233 0.9289 0.9289 0.989
	 φ 0 10 20 30 40 50 60 70 80 90 100 130 140 150 170 180 190 220 230 240 250 270 280 290 210 200 240 250 270 280 290 310 	r = 6 r / r_m 0.7290 0.6366 0.8046 0.8209 0.7780 0.7804 0.8209 0.77810 0.7810 0.84521 0.84521 0.85550 0.65559 0.65559 0.8870 0.55570 0.8806 0.55570 0.8807 0.5559 0.8807 0.5559 0.6308 0.99384 0.9938	5.0 mm V _r /V _m -0.134 -0.204 -0.204 -0.153 -0.145 -0.145 -0.134 -0.033 0.054 0.228 0.265 0.2257 0.2557 0.2557 0.2557 0.2557 0.2557 0.2557 0.010 0.055 0.055 0.055 0.055 0.055 0.055 0.055 0.055 0.055 0.055 0.01129 0.158 0.158 0.158 0.158 0.158 0.158 0.158 0.158 0.158 0.158 0.158 0.158 0.158 0.158 0.158 0.158 0.158 0.155 0.055 0.055 0.01129 0.158 0.158 0.158 0.158 0.158 0.158 0.158 0.158 0.055 0.01129 0.158 0.158 0.158 0.055 0.01129 0.158 0.055 0.01129 0.158 0.055 0.01131 0.055 0.01138 0.055 0.01138 0.055 0.01138 0.055 0.01138 0.055 0.01138 0.055 0.01138 0.055 0.01138 0.055 0.01138 0.055 0.01138 0.055 0.01138 0.055 0.01138 0.055 0.01138 0.055 0.01138 0.055 0.01138 0.055 0.01138 0.055 0.01138 0.158 0.055 0.01138 0.158 0.055 0.01138 0.158 0.055 0.01138 0.158 0.170 0.1138 0.158 0.170 0.1138 0.170 0.1138 0.170 0.1138 0.170 0.1138 0.170 0.1138 0.170 0.1138 0.170 0.1138 0.170 0.11318 0.1131 0.11318 0.113	+ r/R= V _t /V _m 0.087 -0.009 -0.0091 -0.091 -0.1154 -0.179 -0.2242 -0.2249 -0.2248 -0.166 -0.128 -0.0618 0.075 -0.124 -0.128 -0.075 -0.124 -0.128 -0.075 -0.124 -0.128 -0.075 -0.124 -0.128 -0.075 -0.124 -0.128 -0.075 -0.124 -0.128 -0.075 -0.1214 -0.128 -0.128 -0.091 -0.128 -0.075 -0.1214 -0.128 -0.128 -0.128 -0.128 -0.128 -0.128 -0.128 -0.128 -0.1214 -0.128 -0.128 -0.128 -0.128 -0.128 -0.128 -0.128 -0.128 -0.128 -0.128 -0.128 -0.128 -0.128 -0.1214 -0.128 -0.0158 -	0.816 v_0/v_m 0.6371 0.67435 0.67435 0.8258 0.88279 0.883279 0.883279 0.883279 0.883279 0.883279 0.883279 0.883279 0.883279 0.88399 0.889919 0.66559 0.66759 0.66759 0.66759 0.689211 0.991552551 0.991552551 0.99455 0.991552551 0.9915525551 0.9915525551 0.991552555555555555555555555555555555555	r= 8 v /v 0.576 0.6788 0.5774 0.7883 0.7828 0.7828 0.78232 0.8802 0.78232 0.8903 0.65512 0.8849 0.8845330 0.65212 0.88459 0.88459 0.99129 0.99533 0.99533 0.99533	2.5 mm V _r /V _m -0.153 -0.153 -0.153 -0.153 -0.182 -0.182 -0.189 -0.192 -0.169 -0.148 -0.110 -0.071 0.038 0.165 0.259 0.3152 0.2882 0.2559 0.3182 0.0599 -0.1306 -0.0599 -0.1306 0.1255 0.1255 0.1255 0.1255 0.1255 0.1257 0.1257 0.1257 0.1257 0.1257 0.1292 0.1217 0.153 0.153 0.153 0.153 0.153 0.153 0.153 0.153 0.159 0.150 0.159 0.1306 0.1559 0.1306 0.1559 0.1259 0.1306 0.1255 0.1259 0.1257 0.1259 0.1306 0.1255 0.1259 0.1259 0.1259 0.1306 0.1255 0.1259 0.1257 0.1259 0.1306 0.1259	<pre> r/R= V_t/V_m 0.059 -0.050 -0.050 -0.052 -0.052 -0.052 -0.113 -0.120 -0.123 -0.123 -0.124 -0.127 -0.085 -0.0124 0.072 0.126 -0.126 -0.126 -0.164 -0.172 -0.164 -0.164 -0.172 -0.164 -0.164 -0.172 -0.063 -0.034 0.000 0.041 0.078 0.108 </pre>	$\begin{array}{c} 1.035 \\ V_{0}/V_{m} \\ 0.736 \\ 0.579 \\ 0.609 \\ 0.810 \\ 0.827 \\ 0.827 \\ 0.805 \\ 0.705 \\ 0.705 \\ 0.705 \\ 0.765 \\ 0.831 \\ 0.931 \\ 0.931 \\ 0.931 \\ 0.931 \\ 0.973 \\ 0.975 \\ 0$	r= 10 v / v m 0.545 0.595 0.668 0.719 0.808 0.8266 0.6759 0.6659 0.7842 0.9324 0.9324 0.5958 0.6659 0.7842 0.8388 0.7545 0.6659 0.7842 0.8388 0.5926 0.8388 0.6659 0.9324 0.8328 0.68388 0.9324 0.9324 0.9916 0.99753 0.9753 0.921	0.0 mm Vr/Vm 0.117 0.167 -0.066 -0.203 -0.230 -0.199 -0.143 -0.125 -0.133 -0.131 -0.003 0.168 0.264 0.310 0.2241 0.2241 0.128 0.011 -0.157 -0.155 -0.070 0.039 0.080 0.097 0.152 0.152 0.155 0	+ r/R= v _t /v _m 0.000 -0.017 0.099 0.089 0.012 -0.038 -0.007 0.012 -0.006 -0.059 -0.056 -0.056 -0.056 -0.165 -0.164 -0.159 -0.126 -0.126 -0.164 -0.167 -0.067 -0.067 -0.164 -0.169 -0.107 -0.067 -0.067 -0.164 -0.169 -0.107 -0.067 -0.059 -0.164 -0.169 -0.107 -0.0067 -0.0067 -0.165 -0.165 -0.107 -0.0067 -0.0067 -0.0067 -0.165 -0.165 -0.107 -0.0067 -0.007 -0.0067 -0.0067 -0.007 -0.0067 -0.0067 -0.0067 -0.0067	1.255 V /Vm 0.558 0.424 0.607 0.703 0.755 0.8315 0.755 0.835 0.7686 0.6785 0.8355 0.7755 0.8355 0.7755 0.8355 0.6851 0.6856 0.68565 0.89649 0.68552 0.89981 0.9928 0.9921 0.9928 0.9928 0.9928 0.9928 0.9928 0.99241 0.9924
1 240 0.950 0.058 0.172 0.974 0.980 0.042 0.178 0.997 0.982 -0.026 0.202 1.003 350 0.880 -0.031 0.163 0.895 0.900 -0.050 0.146 0.913 0.818 0.000 0.126 0.827	φ 0 20 30 40 500 70 80 900 100 120 140 150 140 140 140 120 2200 240 250 260 2700 280 300 310	r = 6 r / r_m 0.7290 0.6316 0.8046 0.8209 0.7806 0.8209 0.7810 0.8850 0.7850 0.88510 0.88521 0.7850 0.8850 0.88509 0.8850 0.88509 0.8850 0.8850 0.88509 0.88509 0.88509 0.88509 0.88509 0.88509 0.88509 0.88509 0.88509 0.88509 0.88509 0.98686 0.89074 0.899778 0.99378 0.99376 0.995766 0.9	5.0 mm v_r/v_m -0.134 -0.234 -0.204 -0.1535 -0.145 -0.1545 -0.134 -0.084 -0.054 0.228 0.2254 0.2257 0.2254 0.2257 0.2148 -0.013 -0.013 -0.013 -0.013 -0.025 0.015 0.015 0.015 0.015 0.015 0.015 0.015 0.025 0.015 0.015 0.015 0.025 0.015 0.015 0.015 0.025 0.015 0.015 0.015 0.025 0.051 0.015 0.015 0.057 0.055 0.055 0.057 0.055 0.057 0.055 0.055 0.057 0.055 0.057 0.055 0.057 0.057 0.055 0.057 0.076 0.076 0.057 0.076 0.076 0.076 0.076 0.076 0.076	+ r/R= V _t /V _m 0.087 -0.009 -0.091 -0.091 -0.115 -0.154 -0.128 -0.249 -0.2249 -0.0078 -0.075 -0.128 -0.0128 -0.0128 -0.0076 -0.0045 -0.0052 0.0052 0.0052 0.0052 0.0052 0.0144 -0.0052 0.0052 0.0154 -0.0052 0.0154 -0.0052 0.0154 -0.0052 0.0052 0.0154 -0.0052 0.0154 -0.0052 0.0154 -0.0052 0.0154 -0.0052 0.0154 -0.0052 0.0154 -0.0052 0.0052 0.0154 -0.0052 0.0154 -0.0052 0.0154 -0.0052 0.0154 -0.0052 0.0154 -0.0052 0.0052 -0.0154 -0.0052	0.816 v_{o}/v_{m} 0.746 0.6311 0.6311 0.825 0.8279 0.88279 0.88279 0.88279 0.88279 0.88279 0.88279 0.88279 0.88279 0.88279 0.88279 0.88290 0.88290 0.88290 0.88570 0.88570 0.88290 0.89090 0.9808821 0.991525 0.995152 0.995451 0.995451 0.9954551 0.9954551 0.995551 0.9954551 0.995551 0.995551 0.995551 0.995551 0.995551 0.995551 0.995551 0.995551 0.995551 0.995551 0.995551 0.995551 0.995551 0.995551 0.9955555 0.9955555 0.9955555 0.9955555 0.995555555 0.9955555555 0.9955555555555555555555555555555555555	<pre>% % % % % % % % % % % % % % % % % % %</pre>	2.5 mm V _r /V _m -0.153 -0.221 -0.182 -0.179 -0.189 -0.169 -0.148 -0.110 -0.071 0.038 0.165 0.259 0.315 0.255 0.282 0.315 0.255 0.188 0.087 -0.020 0.046 0.100 0.106 -0.020 0.102 0.125 0.125 0.125 0.125 0.125 0.125 0.255 0.125 0.125 0.125 0.125 0.255 0.125 0.172 0.1193 0.174 0.152 0.027	<pre> r/R= V_t/V_m 0.059 -0.028 -0.050 -0.052 -0.052 -0.081 -0.120 -0.120 -0.120 -0.127 -0.206 -0.0124 -0.206 -0.0127 -0.126 -0.127 -0.085 -0.014 -0.160 -0.164</pre>	$\begin{array}{c} 1.035 \\ V_{0}/V_{m} \\ 0.736 \\ 0.579 \\ 0.609 \\ 0.8103 \\ 0.827 \\ 0.827 \\ 0.805 \\ 0.705 \\ 0.764 \\ 0.705 \\ 0.762 \\ 0.838 \\ 0.8888 \\ 0.9888 \\ 0.9888 \\ 0.9973 \\ 0.9931 \\ 0.9931 \\ 0.9931 \\ 0.9951 \\ 0.9951 \\ 0.9951 \\ 0.9616 \\ 0.9931 \\ 0.9931 \\ 0.9931 \\ 0.9951 \\ 0.9616 \\ 0.9$	r = 10 v / v_m 0.5889 0.5989 0.6668 0.7190 0.8126 0.8126 0.6738 0.6738 0.6738 0.6738 0.6738 0.6592 0.78422 0.89848 0.6592 0.99448 0.65928 0.99488 0.65928 0.99488 0.65928 0.89888 0.65928 0.99488 0.65928 0.99488 0.65928 0.99488 0.65928 0.99488 0.65928 0.99488 0.65928 0.99488 0.65928 0.99488 0.65928 0.99488 0.65928 0.99488 0.65928 0.99488 0.99488 0.99468 0.99475 0.99468 0.994755 0.994755 0.994755 0.994755 0.994755 0.994755 0.994755 0.994755 0.99	0.0 mm Vr/Vm 0.117 0.167 -0.066 -0.203 -0.230 -0.199 -0.143 -0.125 -0.133 -0.131 -0.003 0.168 0.264 0.310 0.201 0.155 -0.155 -0.012 0.080 0.097 0.120 0.191 0.156 0.152 0.191 0.155 0.156 0.122 0.191 0.155 0.156 0.122 0.191 0.155 0.152 0.191 0.155 0.152 0.191 0.155 0.122 0.155 0.155 0.122 0.155 0.15	+ r/R= Vt/Vm 0.000 -0.017 0.099 0.089 0.012 -0.042 -0.038 -0.007 0.0126 -0.059 -0.059 -0.059 -0.059 -0.059 -0.059 -0.059 -0.059 -0.059 -0.051 -0.051 -0.168 -0.168 -0.168 -0.168 -0.168 -0.168 -0.1429 -0.1429 -0.1429 -0.129 -0.037 0.0067 -0.059 -0.129 -0.107 -0.007 -0.007 -0.129 -0.107 -0.007 -0.107 -0.007 -0.107 -0.007 -0.107 -0.007 -0.107 -0.107 -0.007	1.255 V /Vm 0.558 0.424 0.607 0.755 0.821 0.835 0.755 0.835 0.7555 0.835 0.6851 0.6859 0.6675 0.8460 0.6655 0.8652 0.8999 0.89921 0.9328 0.9928 0.99231 0.9928 0.9931 0.99588 0.99588 0

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F AHR . NR .	T U M/S	BETA Grad	DELTA Grad	× ¥	X ' * 10**5 -	х х	₹ * 10* *5 -	W W X V X X	N :* 10**5 1	т т Х- д	1 - X - 1 0 * # 5
492 500	2.010	-12.0	0.0	1.524	27.70	-17.769	-431.20	-25.991	-137.95	3.739 3.789	90.73 91.95
476	2.010	0.01-		0.810	10.11	-13.505	-323.31	-19.409	-101.63	4.423	105.89
314 204	2.007			0.827	11.38	-10.754	-261.00	-20.000 -16.415	- 100.40 - 85.26 - 86.00	4.00 4.347 5.247	103.23
460	2.009	-0.0	0.0	0.534	3.27	-6.936	-162.98	-11.632	-59.78	4.542	106.73
468 298	2.010	-6.0	000	0.446 0.466	1.19	-6.881 -4.681	-161.53	-11.011	-56.53 -37.07	4.621 4.650	108.48 108.49
306	2.009	0 • • •	00	0.466	1.60	-4.976	-116.21	-7.561	-38.62	4.620	107.90
452	2.010	-2.0	0.0	0.563	3.81	-2.215	-51.49	-3.109	-15.81	4.562	106.05
332	2.021	0.0	0.0	0.373	12.0-	-0.067	-1.54	0.300	1.51	4.537	104.20
340 266	2.007	• • • • •	00	0.352	-1.08	-0.198	-5.73	0.360	1.83	4.613	107.52
281	2.012	0.0	0.0	0.273	-2.96	-0.235	-5,45	0.127	0.64	4.676	108.35
356	2.009	2.0	0.0	0.400	E0. 0	2.179	50.70	4.446	22.63	4.882	113.60
364	2.009	•••	0.0	0.249	-3.47	4.361	101.85	8.078	4].26	5.023	117.31
380	2.010	\$ •	0.0	-0.184	-13.60	6.856	160.94	11.898	61.09	5.202	122.11
388	2.009	6.0	0.0	-0.029	-9.96	6.903	162.21	12.052	61.94	5.037	118.36
396 202	2.010	0.8	0.0	-0.518	-21.55	10.309	244.08	16.586	85.89	5.310	125.72
412	2.010	10.01	000	164.0-	-21.18	14.438	345.64	21.015	110.04	5.162	123.58
420	2.010	10.0	0.0	144.0-	-19.84	14.071	336.86	20.755	108.68	5.067	121.30
428	2.010	12.0	0.0	-0.826	-29,33	18.179	455.71	25,751	136.58	5.285	128.25
436	2.010	12.0	0.0	-0,830	-29.42	18.268	16.644	25.421	134.93	5.367	130.24

HSVA-MODELL NR. 1512, VERSUCHE VOM 17/29.8.73

Tabelle C1

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Tabelle C2

HSVA-MODELL NR. 1512, VERSUCHE VOM 17/29.8.73

FAHR1 NR •	F BETA	DELTA	>	₽-	1 • * 10 * * 5	КТ	- -	VE	a	1040	• ~	٧E
	GR AD	GRAD	M/S	A A	•	•	8	M/S	₩ ₩ ₩	•	£ .	M/S
492	-12.0	0.0	1.966	5.263	127.72	0.2796	0.514	1 • 3 4 4	0.14719	0.4759	0.486	1.271
500	-12.0	0.0	1.966	5.302	128.66	0.2816	0.510	1.332	0.14837	0.4797	0.480	1,255
476	-10.0	0.0	1.979	5.233	125.28	0.2780	0.517	1.353	0.14679	0.4746	0.488	1.276
484	-10.0	0.0	1.979	5.272	126.21	0.2800	0.513	1.342	0.14679	0.4746	0.488	1.276
314	-8.0	0.0	1.987	5.174	122.87	0.2748	0.524	1.371	0.14521	0.4695	0.49 6	1.297
322	-8.0	0.0	1.988	5.145	122.06	0.2733	0.528	1.380	0.14482	0.4683	0.498	1,302
460	-6.0	0.0	1.998	5.076	119.28	0.2696	0.535	1.400	0.14245	0.4606	0.510	1.335
468	-6.0	0.0	1.999	5.067	118.95	0.2691	0.536	1.403	0.14245	0.4606	0.510	1.335
298	-4.0	0.0	2.005	5.116	119.36	0.2717	0.531	I.388	0.14363	0.4644	0.504	1.319
306	-4.0	0.0	2.004	5.086	118.78	0.2701	0.534	1.397	0.14245	0.4606	0.510	1.335
444	-2.0	0.0	2.008	5.096	118.58	0.2707	0.533	1.394	0.14324	0.4631	0.506	1.324
452	-2.0	0.0	2.009	5.125	119.14	0.2722	0.530	1.386	0.14324	0.4631	0.506	1.324
332	0.0	0.0	2.021	4.910	112.76	0.2608	0.554	1.449	0.13811	0.4466	0.533	1.395
340	0.0	0.0	2.010	4.920	114.23	0.2613	0.553	1,446	0.14127	0.4568	0.517	1.351
266	0.0	0.0	2.007	4.969	115.72	0.2639	0.548	1,432	0.14087	0.4555	0.519	1.357
281	0.0	0.0	2.012	4.949	114.68	0.2629	0.550	I •438	0.14087	0.45555	0.519	1.357
348	2.0	0.0	2.008	5,292	123.14	0.2811	0.511	1.335	0.14916	0.4823	0.476	1.244
356	2.0	0.0	2 •008	5.282	122.91	0.2806	0.512	1.339	0.14916	0.4823	0.476	1.244
364	4.0	0.0	2.004	5.272	123.13	0.2800	0.513	1,342	0.14916	0.4823	0.476	1.244
372	4 • O	0.0	2.004	5.272	123.13	0.2800	0.513	1.342	0.14876	0.4810	0.478	1.249
380	6.0	0.0	1.999	5.018	117.80	0.2665	0.542	1,417	0.14245	0.4606	0.510	1,335
388	6.0	0.0	1.998	5.008	117.68	0.2660	0.543	1.420	0.14324	0.4631	0.506	1.324
396	8,0	0.0	1.990	4.792	113.46	0.2545	0.567	1.484	0.13811	0.4466	0.533	1.395
404	8.0	0.0	1.990	4.782	113.22	0.2540	0.569	1.487	0.13850	0.4478	0.531	1.389
412	10.0	0.0	1.979	4.665	111.68	0.2478	0.582	1.521	0.13535	0.4376	0.548	1.433
420	10.0	0.0	1.979	4.626	110.75	0.2457	0.586	1.533	0.13456	0.4351	0.552	1.444
428	12.0	0.0	1.966	4.459	108.21	0.2368	0.605	185.1	0.13022	0.4211	0.575	1.504
436	12.0	0.0	1,966	4.537	110.10	0.2410	0.596	1.558	0.13180	0.4262	0.567	I.482