Designing Sensory Responsive Spaces to Promote Inclusion and Equity

Presented by Yvette Mere-Cook, Ed.D., OTR/L

Samuel Merritt University, Oakland, California/
Piedmont Unified School District

DEC Conference,
Portland, Oregon
October 9, 2025

Child with headphones sitting in cardboard box with a pillow and sensory balls.

All Photos are presented with parent/caregiver written consent but given the distribution of handouts, these images have been removed.

Plan for Today

- Overview of Key Concepts in Sensory Processing
- Building Awareness of Our Own Sensory Preferences
- Explore How We Design Learning Environments and Learning Areas to Accommodate Different Sensory Preferences
- Planning with a Sensory Responsive Decision-Tree

Child with holding child-safe plastic tripod tweezers with half of a small pumpkin on a tray, with a magnifying glass and a different type of plastic tweezer.

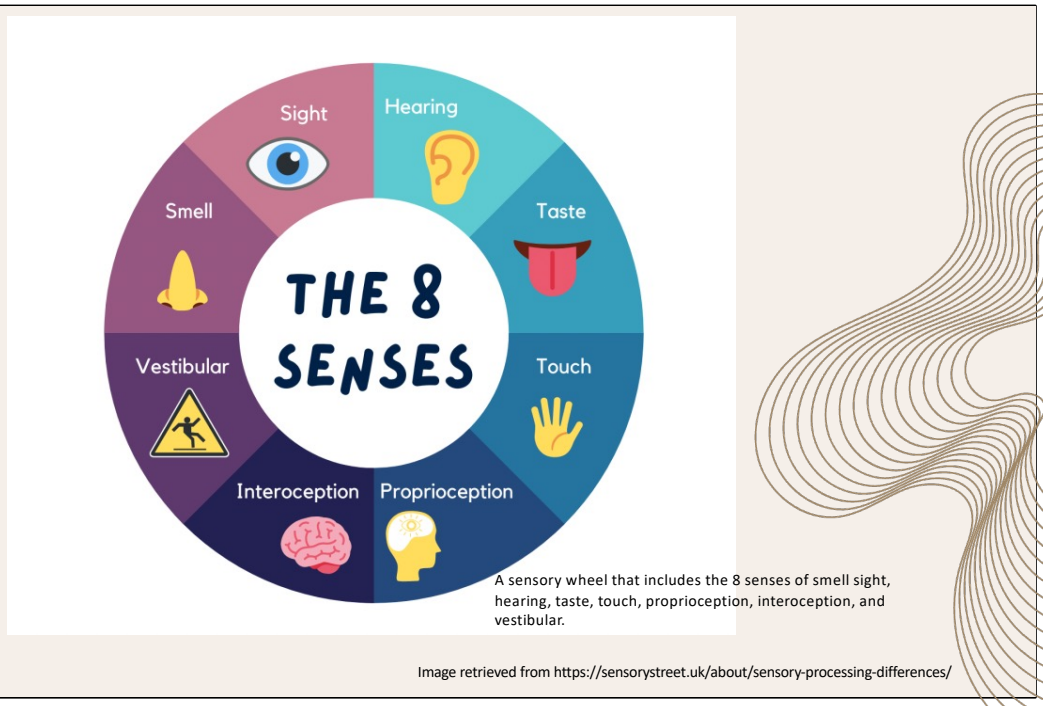
"All children with autism have sensory integration dysfunction, but not all children with sensory integration dysfunction have autism"

- Dr. Stanley Greenspan, 2008, Autistic-Like: Graham's Story

Sensory integration and sensory processing differences have long been associated with children with autism. In 2008, Dr. Stanley Greenspan, founder of Floortime Approach, noticed a subset of children with significant sensory integration and motor planning issues that impacted their participation in play and in daily activities. We now know that sensory integration dysfunction affects many children without the core deficits of autism. COVID exacerbated the functional impact of sensory processing differences. (

Shared Mental Model:
What Are Sensory Processing Preferences

1. Our Senses
2. Differences in Sensory Processing
   - ❖ASD
   - ❖SPD
   - ❖Impacts of COVID
3. Impacts of our Sensory Processing
4. Our Unique Sensory Profile



A sensory wheel that includes the 8 senses of smell sight, hearing, taste, touch, proprioception, interoception, and vestibular.

Image retrieved from https://sensorystreet.uk/about/sensory-processing-differences/

Information from https://sensoryhealth.org/basic/your-8-senses: **You Have Eight Sensory Systems**

DESCRIPTION OF THE EIGHT SENSORY SYSTEMS

The five basic sensory systems:

1. Visual
2. Auditory
3. Olfactory (smell) System
4. Gustatory (taste) System
5. Tactile System

The three sensory systems Ayres focused on in describing sensory integration dysfunction:

5. Tactile System (see above)
6. Vestibular (sense of head movement in space) System
7. Proprioceptive (sensations from muscles and joints of body) System

The most recently discussed set of sensations related to internal organs

8. Interoception

"Hyper- or hyporeactivity to sensory input or unusual interests in sensory aspects of the environment (e.g., apparent indifference to pain/temperature, adverse response to specific sounds or textures, excessive smelling or touching of objects, visual fascination with lights or movement)."

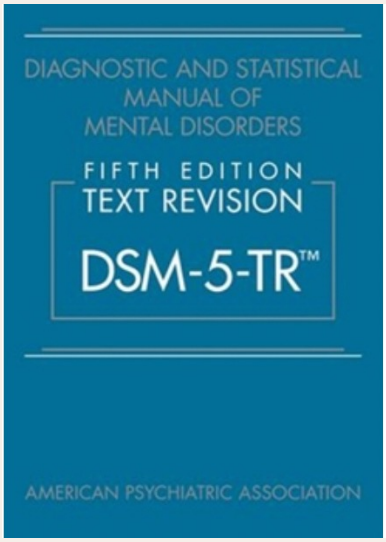
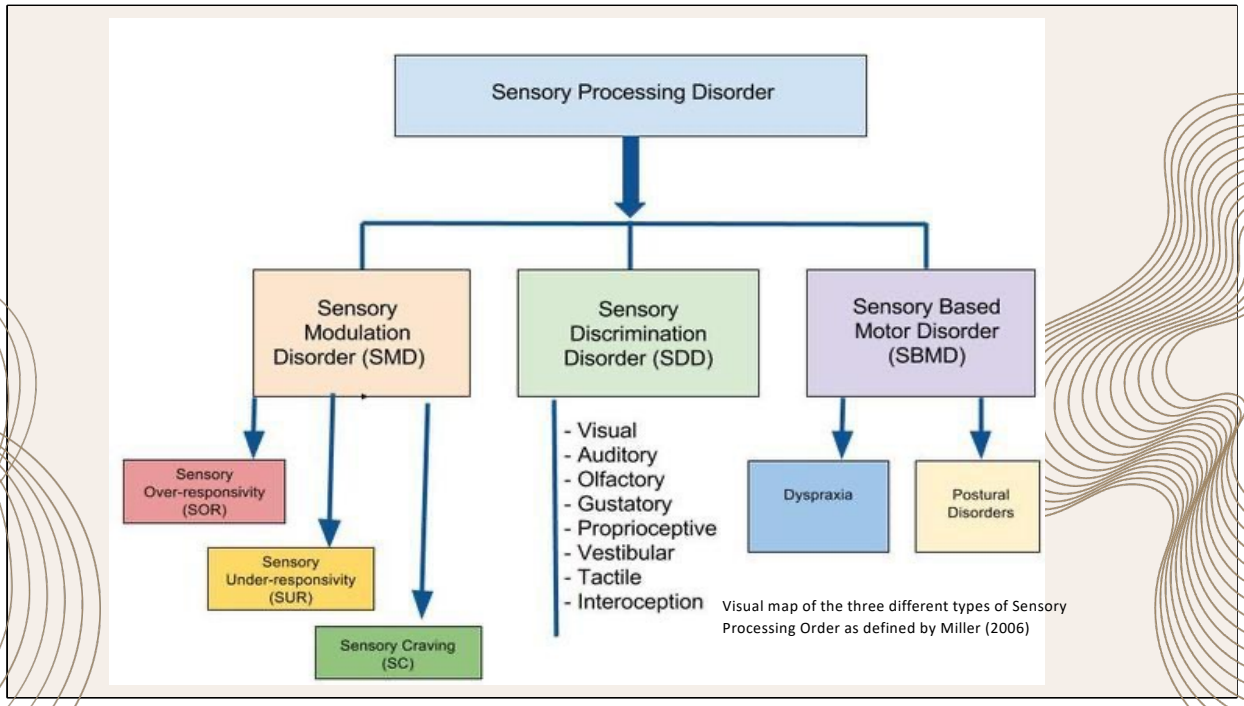


Image of Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition, Text Revision from 2022.

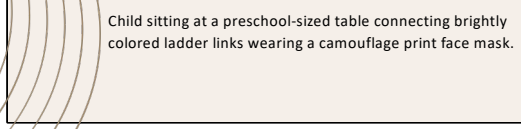


Visual map of the three different types of Sensory Processing Order as defined by Miller (2006)

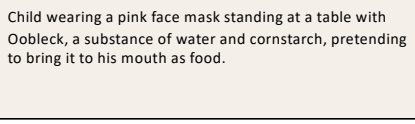
Lucy Jane Miller, author of Sensational Kids and No Longer A SECRET, pioneered the research and our understanding of children with various Sensory Processing Disorders. There continues to be a debate regarding if SPD is its own disorder. I encourage you all to listen or read the following article by the Child Mind Institute: https://childmind.org/article/the-debate-over-sensory-processing/#:~:text=What%20is%20accepted%20in%20the,diagnosis%E2%80%94and%20others%20with%20anxiety

This article highlights that in preschool, children who's sensory processing creates barriers in their daily lives, are later diagnosed with autism or ADHD.

Impacts of COVID



Child sitting at a preschool-sized table connecting brightly colored ladder links wearing a camouflage print face mask.



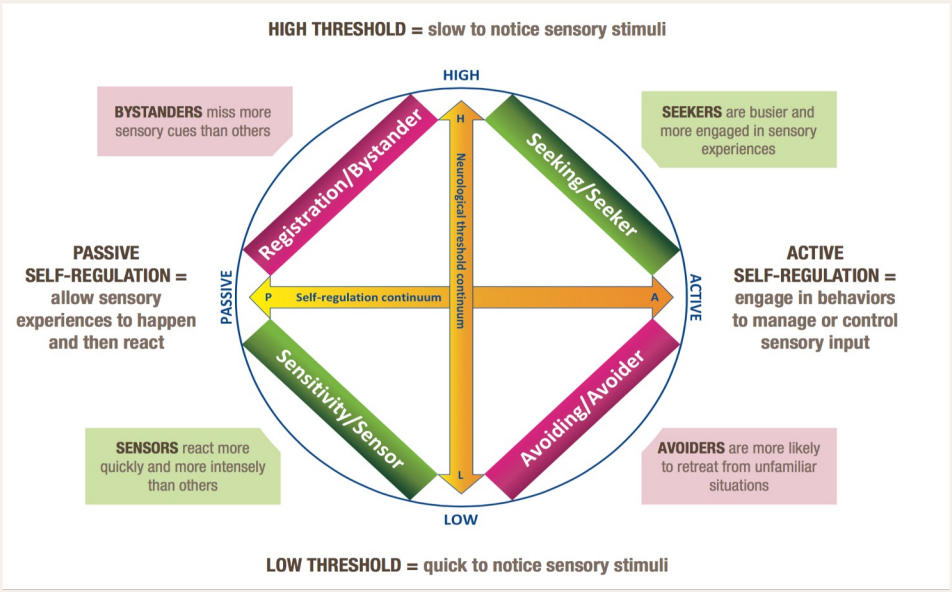
Child wearing a pink face mask standing at a table with Oobleck, a substance of water and cornstarch, pretending to bring it to his mouth as food.

Additionally, Children with significant COVID exacerbated the functional impact of sensory processing differences. (Ludwig et al., 2023; Trott, Driscoll, Pardhan, 2022).

FIGHT – FLIGHT - FREEZE

Anatomical image of a brain, brainstem, and spinal cord to show the central nervous system of the body.

It is important for us to remember that when we process sensory input, it is a neurological process through our central nervous system. It impacts our level of alertness, and at its most extreme, triggers our fight, flight, or freeze responses (Miller, 2007)



Winnie Dunn's model of Sensory Profiles included in the assessment, Sensory Profile-2 (2014)

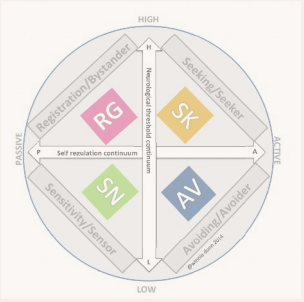
Reprinted with permission from Pearson Education Incorporated

We each have our own sensory profile. Our Sensory Profiles tells us a bit about how we take in information from the environment. Many of us adapt and create routines around our preferences.

Cartoon image of child sitting on the grass, looking up at the blue and fluffy white clouds

Low Registration

Some children may have **difficulty noticing** sensory information around them.



Sensory Seeking

Engages actively with surroundings seeking more sensory input.

Cartoon image of child swinging on a sling swing with arms outstretched and a wide smile

Cartoon image of child covering eyes with hands in a busy light-filled environment.

Sensory Sensitivity

Overreacts to sensory stimuli, leading to discomfort or fight, flight, or freeze reactions

Sensory Avoiding

Seeks to minimize sensory input to feel comfortable.

Cartoon image of child with eyes closed, headphones on, and a slight smile.

Dunn 2014, re-printed with permission, Pearson, 2014
Other images from AI Assistant, Canva, 2025

Sensory Profiles: How does this relate to daily functioning and behaviors that we see?

Cartoon image of child with facial expression of discomfort amid a busy city background full of people.

Social Participation

Daily Routines: Transitions

Large Group Activities

Differences in sensory processing impacts every aspect of a young child's life: (a) social participation; (b) following routines, especially during transitions; (c) interacting in activities that include various sensory inputs and the need to interact with others, circle time/centers
Image created with Canva AI Assist (2025)

How Can We, as early childhood educators, address this in our classroom environments?

01 **Education and Awareness**

Learn your sensory preferences and how those show up in the classroom.

Learn about your students' sensory preferences: what alerts them in effective ways and what calms them?

02 **Creating Environments, Including Materials within Learning Areas that meet and accommodate different sensory needs**

03 **Occupational Therapy**

Utilize tailored interventions to support sensory processing difficulties.

Adult caregiver holding young child as they hold a pan over the stove.

Reflect on what happens when you are not able to engage in these routines . . .

How does your body feel?
What are your emotions?

Take a moment and jot down:

Your morning routine

and

your nighttime routine . . .

Adult lying in bed with eyes closed.

What, if any, treats did you choose?

Why?

How did they make you feel, in terms of

Alertness?
Ability to be present?
Ability to listen and engage?

AI generated image of an early childhood classroom space with open floor space, natural light from a large window, and green plants.

STEP TWO:

How do we plan environments and activities to accommodate different sensory preferences?

Physical Environment

Block area of a preschool classroom with unit blocks organized on different shelves.

Preschool student wearing classes and a knit hat over his helmet looking at a yellow and black showing the different unit blocks in the Block Area.

Physical Environment

Reading Area with large blue pillows, stuffed animals, and a felt board with animal felt figures, racoon.

Reading Area with large blue pillows, stuffed animals, a felt board with animal felt figures, racoon, bald eagle, and bison, and a woven basket with the book The Snowy Day.

Physical Environment

Dramatic Play Area in Preschool Classroom with a log cabin and large tree to the side of the open area.

Large painting of pine tree with real pine needles glued in the middle of the tree.

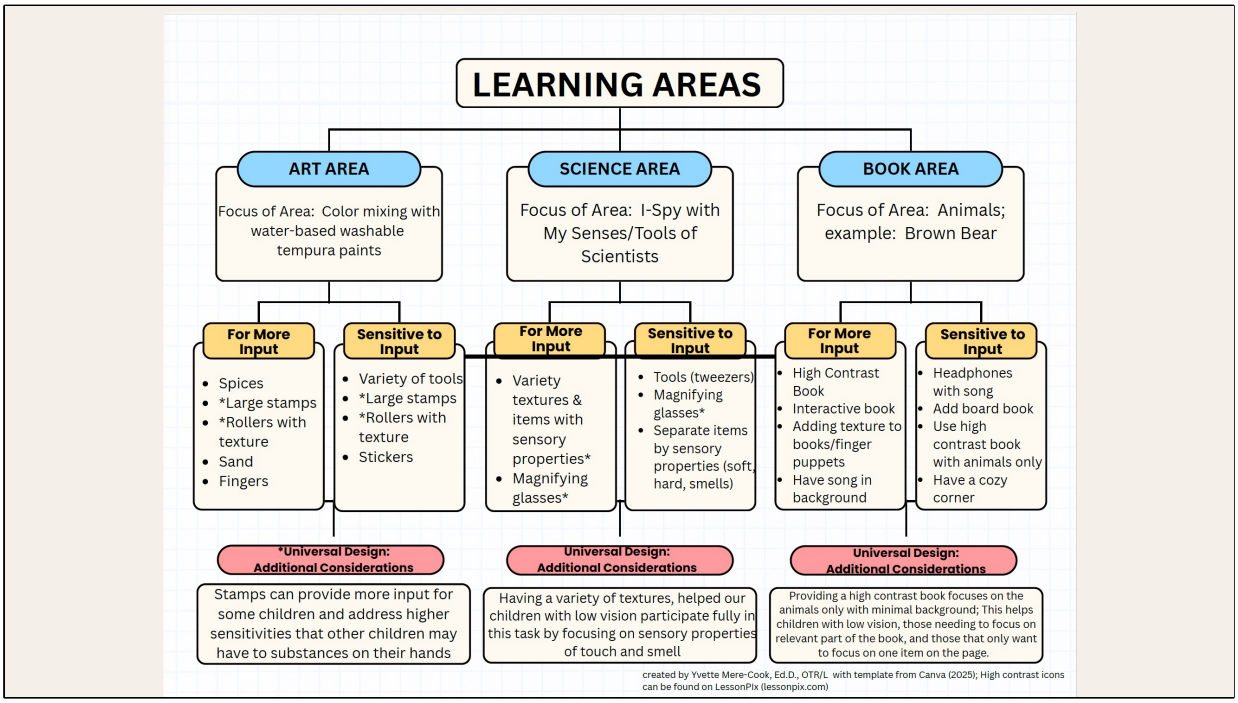
UNIVERSAL DESIGN

Image of a handle door opener.

Image of a handle door knob.

CURRICULUM PLANNING: SENSORY RESPONSIVE DECISION TREE

CHOOSING FOCUS AREAS AND MATERIALS FOR CHILDREN WITH DIFFERENT SENSORY NEEDS


LEARNING AREAS
ART AREA
Focus of Area: Color mixing with water-based washable tempura paints
SCIENCE AREA
Focus of Area: I-Spy with My Senses/Tools of Scientists
BOOK AREA
Focus of Area: Animals; example: Brown Bear
For More Input
Spices
*Large stamps
*Rollers with texture
Sand
Fingers
Sensitive to Input
Variety of tools
*Large stamps
*Rollers with texture
Stickers
For More Input
Variety textures & items with sensory properties*
Magnifying glasses*
Sensitive to Input
Tools (tweezers)
Magnifying glasses*
Separate items by sensory properties (soft, hard, smells)
For More Input
High Contrast Book
Interactive book
Adding texture to books/finger puppets
Have song in background
Sensitive to Input
Headphones with song
Add board book
Use high contrast book with animals only
Have a cozy corner
*Universal Design: Additional Considerations
Stamps can provide more input for some children and address higher sensitivities that other children may have to substances on their hands
Universal Design: Additional Considerations
Having a variety of textures, helped our children with low vision participate fully in this task by focusing on sensory properties of touch and smell
Universal Design: Additional Considerations
Providing a high contrast book focuses on the animals only with minimal background; This helps children with low vision, those needing to focus on relevant part of the book, and those that only want to focus on one item on the page.
created by Yvette Mere-Cook, Ed.D., OTR/L with template from Canva (2025); High contrast icons can be found on LessonPix (lessonpix.com)

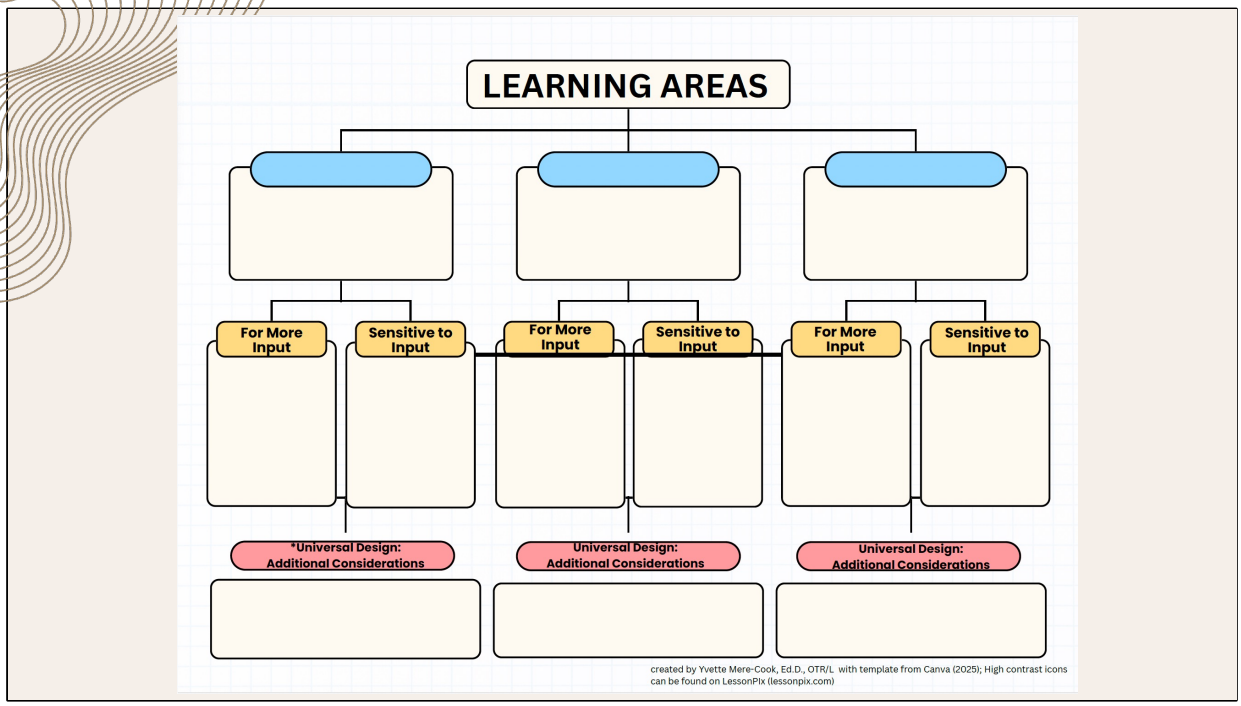

LEARNING AREAS
For More Input
Sensitive to Input
For More Input
Sensitive to Input
For More Input
Sensitive to Input
*Universal Design: Additional Considerations
Universal Design: Additional Considerations
Universal Design: Additional Considerations
created by Yvette Mere-Cook, Ed.D., OTR/L with template from Canva (2025); High contrast icons can be found on LessonPix (lessonpix.com)

Image of several question marks.

Quick Survey . . . Thank you.

Yvette Mere-Cook
ymerecook@samuelmerritt.edu

QR code for brief survey.

References

American Psychiatric Association. (2022). *Diagnostic and statistical manual of mental disorders* (5th ed., text rev.). https://doi.org/10.1176/appi.books.9780890425787

Bialer, D.S. and Miller, L.J. (2011). No Longer A SECRET: Unique Common Sense Strategies for Children with Sensory or Motor Challenges. Arlington, TX: Sensory World.

Dunn, W. (2014). The Sensory Profile-2. Pearson.

Linthorst, E. (Director). (2008). Autistic-Like: Graham's Story [Documentary]. Pergé Productions.

Ludwig, S.; Schell, A.; Berkemann, M.; Jungbauer, F.; Zaubitzer, L.; Huber, L.; Warken, C.; Held, V.; Kusnik, A.; Teufel, A.; Ebbert, M., & Rotter, N. (2022). Post-COVID-19 impairment of the senses of smell, taste, hearing, and balance. *Viruses, 14*(5) 849, 1-14. https://doi.org/10.3390/v14050849

Miller, L.J. (2006). Sensational Kids: Hope and Help for Children with Sensory Processing Disorder. New York: Putnam

Trott, M., Driscoll, R., & Pardhan, S. (2022). The prevalence of sensory changes in post-COVID syndrome: A systematic review and meta-analysis. *Frontiers in Medicine*, *9*, 1-10. https://doi: 10.3389/fmed.2022.980253.