



Milwaukee Valve Company
Engineering Department

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TECHNICAL BULLETIN

Ball Valve Seat Selection Guide

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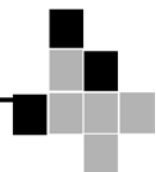
June 6, 2002

This bulletin releases a generalized chart showing ball valve seat material properties for various seat materials currently offered in Milwaukee Valve Company commercial and industrial valve products, as presented on sheet 2 & 3 of this bulletin. For materials and/or applications not shown on this chart, contact Milwaukee Valve Engineering.

Users of this information are reminded that the pressure and temperature limitations of the valves in service are based primarily on the valve structure, metallurgy, and end connections. This seat chart is to be used in conjunction with Milwaukee Valve catalogs, chemical compatibility charts, and industrial standards, (e.g. ASME/ANSI B16.34, ASME/ANSI B16.5, API 608, etc.), to aid in the selection of valve configurations. Final selection of valve configurations and materials, including seat materials, remains the responsibility of the end user (see note at the bottom of this technical bulletin).

Milwaukee Engineering is refreshing our data on valve torques versus temperature and pressure for various seat materials and valve styles. For assistance in sizing of actuators, and to address other questions regarding seat material selection in particular or in general, contact the inside sales team at Milwaukee Valve Company.

INNOVATION IN EVERY VALVE



This bulletin is intended to provide our customers with the latest information regarding our valve products and services. The information is based on our experience as a supplier, and on the best data available at the time of publication. All users of this information are reminded that ultimate responsibility for the final selection of valve configuration, materials, and options remains the end user's. Milwaukee Valve Company does not warranty valves for specific applications. In all cases, our standard warranty applies. This information is subject to change without notice; for updated information and/or additional support, contact Milwaukee Valve Co. engineering at 414-744- 5240, or via email at engineer@milwaukeevalve.com.



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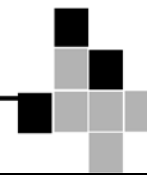
Ball Valve Seat Selection Guide

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Seat Selection Guide					
Seat Code	Material	Temperature Range ° F	Chemical Resistance	Valve Series Available	Application Notes
01	Virgin Teflon® Polytetrafluorethelene (PTFE)	-430 to 450	<ul style="list-style-type: none"> • Excellent • Not Recommended for Molted alkali metals, Liquid or gaseous fluorine and a few fluoro-chemicals 	20, 30, 35, 41, F90/F91, & F20	<ul style="list-style-type: none"> • Highly Inert • Limited toughness; therefore not always first choice for high cycles • Very soft, can be forgiving of particle contamination • Good low temperature / Cryogenic material
02	Glass Filled TFE Reinforced Teflon® (RPTFE)	-40 to 450	<ul style="list-style-type: none"> • Similar to 01 • Not for use in concentrated caustic service 	20, 30, 35, 41, F90/F91, & F20	<ul style="list-style-type: none"> • Industry workhorse, generally good for most services • Not recommended for steam, concentrated caustics, or high cycles at elevated temperatures
03	Multifil Carbon Graphite Reinforced Teflon® (C-RPTFE)	-100 to 500	<ul style="list-style-type: none"> • Similar to 01 • Check compatibility of fluid media with carbon 	20, 30, 35, 41, F90/F91, & F20	<ul style="list-style-type: none"> • Tougher material for high cycle and reduced creep in moderate temperatures • Good for low pressure steam (< 250 psi) shut-off service

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Seat Code	Material	Temperature Range ° F	Chemical Resistance	Valve Series Available	Application Notes
04	UHMWPE Ultra High Molecular Weight Polyethylene	-435 to 180	<ul style="list-style-type: none"> Attacked by aromatic or halogenated hydrocarbons and strong oxidizing agents (Nitric Acid, Oleum, & Halogens) 	20, 30, 35, 41, & F90/F91	<ul style="list-style-type: none"> Tobacco Processing, Nuclear applications where TFE is not allowed High chemical and abrasion resistance services Limited temperature range
06	Endurofil Polyetheretherketone (PEEK)	-100 to 550	<ul style="list-style-type: none"> Broad chemical and radiation resistance No susceptibility to hydrolysis (Steam/Hot Water) Strong acids and bases at high concentrations and temperature will effect material 	30, 35, 41, & F90/F91	<ul style="list-style-type: none"> Very tough material suitable for high cycles, moderate steam service, and other demanding applications Best performing high temperature plastic Used in paper mills, chemical processes, and other similar service (such as sugar mills and vegetable processors)
07	Delrin®	-20 to 180	<ul style="list-style-type: none"> Good for Hydraulic Oil, Natural Gas, & Agricultural Chemicals 	41	<ul style="list-style-type: none"> Good for certain high pressure service where temperature is ambient or moderate Limited chemical resistance

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Seat Selection Guide					
Seat Code	Material	Temperature Range ° F	Chemical Resistance	Valve Series Available	Application Notes
N1	Loperm Teflon® (NXT)	-430 to 475	<ul style="list-style-type: none">Similar to 01	30, 35, F90/F91, & F20	<ul style="list-style-type: none">Improved permeation resistance (Phosgene, Butadiene, etc.)Less creep than PTFESmoother, less porous surfaces

* For pressures, temperatures, and/or other materials outside the chart please consult factory.

** These are material temperature ratings, Valve material and design need to be taking into account when establishing valve ratings.

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